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THE JOURNAL

OF THE

American Medical Association,

A MEDICAL JOURNAL CONTAINING THE

OFFICIAL RECORD OF THE PROCEEDINGS OF THE ASSOCIATION, AND THE PAPERS READ AT THE ANNUAL MEETING, IN THE SEVERAL SECTIONS, TOGETHER WITH THE

MEDICAL LITERATURE OF THE PERIOD.

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES,

BY

JOHN B. HAMILTON, M.D., LL.D.

VOLUME XXV.

JULY — DECEMBER,

1895.

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CHICAGO:

AMERICAN MEDICAL ASSOCIATION PRESS.

1895.

"The American Medical Association, though formally accepting and publishing the reports of the various Standing Committees (and Sections), holds itself wholly irresponsible for the opinions, theories or criticisms therein contained, except otherwise decided by special resolution."—TRANSACTIONS, 1851.

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The Journal of the American Medical Association

VOL. XXV.

CHICAGO, JULY 6, 1895.

No. 1.

ADDRESS.

CONCERNING STONE IN THE KIDNEY AND ITS OPERATIVE TREATMENT, WITH REPORT OF CASES.

CHAIRMAN'S ADDRESS.

Delivered before the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The first, the easy, the pleasant part of my task, is to express my appreciation of the honor of being permitted to preside over your deliberations. The distinction is not lessened by the surgical achievements, past and present, of the city in which we are convened. It was in Baltimore that the common iliac artery was first tied by William Gibson before he was called to shed luster on the surgery of Philadelphia. It was here that Jameson first in the history of surgery made a nearly complete excision of the upper jaw. It was here that the son, worthy of a worthy father, Nathan Rhyno Smith, for nearly half a century fostered surgical growth. His surgical anatomy of the arteries did much toward elevating American surgery of the second quarter of the century to the high plane then occupied by that of France and of England. For a simple and efficient method of suspending an extremity are we likewise indebted to this Nestor among American surgeons. The mantles of such worthy peers have not been laid aside; they are worn with dignity and grace by younger scions. *Nomina sunt odiosa*. Great as were the early surgeons of Baltimore, they did not venture, like those of to-day, to remove the Gasserian ganglion, lay bladder, ureter and kidney open to inspection, and last but not least, extend the hope of all but absolute relief to the woman with cancer of the breast.

The rule of the ASSOCIATION calling for an annual address on surgery, fortunately relieves the Chairman of your Section of the burden of presenting in formal review the progress made. It gives him the option to limit his remarks to a single topic of surgical interest. Of this privilege I beg to avail myself, the subject of my choice being, "Concerning stone in the kidney and its operative treatment."

Clearness in the diagnosis and skill in the operative treatment of surgical diseases of the kidney are among the latest, though not the least, of the conquests of the closing decades of our century. Thorough chemic, microscopic and bacteriologic examination of the urine, cystoscopy, catheterization of the ureters, and probatory incisions, have done much to bring affections of these organs within the range of diagnostic certainty. The relative values of symp-

toms are becoming fixed, and in the operative technique many questions are definitely settled and more are fast nearing solution. Yet there are not a few problems pertaining to renal surgery which collective statistics alone can solve, since from the comparative rarity of the affection the experience of the individual must be greatly restricted. Such problems pertain to the diagnosis and treatment of primary stone in the kidney. To more clearly elucidate the questions to be submitted for consideration, I beg to present the following seven cases in which the kidney was explored for stone:

Case 1.—M. L., age, 27, seen with Drs. Phelps and Comegys. A robust young man under treatment for gonorrhea, for which the balsamic oils had been freely administered. Has had repeated sharp attacks of pain in the back and the left groin, but never required treatment for them. On April 1, 1892, he was seized with violent pain in the left side, radiating to the testicle. Micturition frequent. The urine was of high specific gravity and contained a large amount of blood. Three days after the inception of the attack there was a severe rigor, followed by febrile elevations of temperature of from 2 to 3 degrees, which continued until April 22. The symptoms were referred to the bladder. Dysuria was the marked subjective symptom. The quantity of urine was greatly reduced, until the quantity passed in twenty-four hours was between six and eight ounces. The patient had become irresponsive and somnolent. The tongue was dry. The urine secreted had to be removed by catheterization. Bimanual examination of the left lumbar region showed increased resistance. On deep inspiration a very decided enlargement of the left kidney, could be detected. The examination elicited pain in the region of the kidney, radiating toward the bladder. Diagnosis: pyelitis and oliguria, probably of calculus origin.

Operation, April 22; chloroform narcosis; incision of the costo-iliac interval parallel to the last rib and exposure of kidney. The organ was apparently twice its normal size, of a dark purplish color. Exploratory aspiration revealed pus. Incision through the posterior wall of the kidney substance into the pelvis gave vent to about two ounces of foul pus. In the lower end of the pelvis a small oxalate of lime calculus was found impacted; weight eight grains. The cavity of the kidney was thoroughly irrigated with sterilized water, drainage tube inserted and wound partly packed. With the relief of intra-renal tension afforded by the operation, both kidneys resumed their function; the urine passed by the bladder and through the wound was, as near as could be estimated, about equal in quantity. The temperature subsided to the normal within a week, and it looked, during the first week after the operation, as though the patient would make an uninterrupted recovery. Without discernible cause a rigor supervened on May 23. It was followed by a train of uremic symptoms identical with those of his first seizure. The urine ceased altogether to flow *per vias naturales*, and the quantity discharged from the fistula of the left side was reduced to from six to eight ounces in the twenty-four hours. On May 26 four ounces were passed from the wound. From that time to May 28 the condition of total anuria existed. Pain was complained of in the right lumbar region and palpation revealed a slight enlargement of the kidney.

May 29, 37 days after the first operation, nephrotomy was made on the right side. About one ounce of fetid pus was removed, but prolonged and careful exploration of the pelvis and ureter failed to reveal the presence of a calculus. The wound was treated as in the first instance by drainage. Within twenty-four hours the patient *quoad vitam* was on the road to recovery. The left kidney at once resumed its function and during the three years which have passed has per-

formed three-fourths of the work of both glands. The right kidney has never resumed its full functional activity. It is easy to estimate the excreting capacity of the two glands, since the patient has a renal fistula on each side, for the relief of which he will allow no effort to be made. During the last year not an ounce of urine has entered the bladder. Except for the inconvenience of carrying a urinal, the patient would consider himself restored to perfect health.

Case 2.—Jewish Hospital, June 28, 1892. J. I., age 28, salesman, of temperate habits, during three years had had frequent attacks of severe pain in the region of right kidney. During the last year these attacks were followed by hematuria. Milder attacks followed each other at intervals of one or two weeks. During the last seizure he was seen by my assistant, Dr. Evans, who pronounced it of unusual severity. Present condition: robust adult, below average height, but very obese. Physical examination negative. Bimanual examination of right kidney very painful. Kidney can not be distinctly palpated. Urine passed in twenty-four hours, forty-five ounces, reddish in color, specific gravity 1026. Microscopic examination showed a few white blood corpuscles, and oxalate of lime crystals. Diagnosis: nephrolithiasis dextra.

Operation June 30, 1892. Oblique incision. Panniculus adiposus very largely developed. Examination of the kidney difficult, owing to enormous development of fat capsule, much of which had to be removed with scissors and forceps. Kidney loosened and drawn into the wound. Palpation and acupuncture negative as to stone. Incision along convexity and digital exploration likewise negative. The hemorrhage during the search having been rather profuse, the kidney wound contused, and the search in the hope of reward having been rather prolonged, the renal wound was partly closed with sutures and a drainage tube carried into the pelvis. Nephrorrhaphy with catgut sutures. Owing to the excision of retro-renal fat masses, the avoidance of a cavity was not practicable. During seventy-two hours the patient suffered excruciatingly from renal pains, which subsided with the removal of the drainage tube. The wound healed by primary union, except for a renal fistula, which healed spontaneously within three months. During six months after operation, patient suffered from no attacks. An opportunity to see him since has not been had.

Case 3.—M. C., age 35, seamstress; entered Good Samaritan Hospital Nov. 9, 1892. States that for two years she has been suffering from lumbar pains, followed in the course of time by a constant soreness in the left side. The urine became cloudy, filled, according to her statement, with mucus and pus, and often presenting large quantities of blood. She states that sand was often passed, and in September last she passed a calculus the size of a pea. In urinating, pain is always present, and the stream is suddenly checked. She also states that she sometimes has pain down to the heel of the left foot, and that it is often of a shooting character. She had hemoptysis and cough three years ago and has frequently suffered from night sweats. Present condition: patient in poor condition, having lost about twenty to twenty-five pounds; appearance somewhat emaciated; urinalysis shows urine to be normal the greater portion of the time, but after sustaining severe pains in the bladder it contains either enough blood to tinge it or to appear in the form of clots on sedimentation. Cystoscopic examination made by a specialist indicated the presence of a neoplasm in the anterior wall of the bladder. Whereas this was far from distinct, the suprapubic incision for exploratory purposes was determined upon.

April 16, suprapubic incision displayed a bladder normal in every regard. No hemorrhage was visible at the examination. The ureters were carefully examined at the time, and nothing in the way of blood was found to come from them. Since the operation was negative in its results, the bladder wound was closed at once by Lembert sutures and the incision through the parietes packed. The wound in the bladder healed by primary intention, temperature and pulse always remaining normal. Patient was discharged from the hospital June 6, 1893, with the wound perfectly healed.

Patient re-entered the hospital March 8, 1894, and complains of severe pain in the region of the left kidney, shooting toward the groin and the leg; is also very tender to pressure over the left kidney; again has blood in the urine at intervals, especially after the pain is severe. March 28, Says that she passed a stone last night while urinating, but it was lost in the closet; no one saw it. The patient insists upon an exploration of the left kidney. April 10. Oblique incision in the left costo-iliac interval; exposure of the left

kidney. The kidney was drawn into the wound and carefully palpated with negative results. Incision in the convex surface large enough to admit the finger, with exploration of the calices, likewise negative. The incision was prolonged therefore into both poles and the kidney subjected to ocular inspection. Nothing abnormal was found. The hemorrhage was relatively slight and ceased entirely after the insertion of four deep and five superficial catgut sutures. After the kidney was fixed in its position with silk-worm gut, external wound was closed. By May 1 the patient had recovered without any trouble from the operation, and on June 5 was discharged. There was no further hematuria or pain of any consequence. Four months after the operation the patient presented herself at the office with a needle underneath the skin of Scarpa's triangle on the left side. This was removed, the patient claiming to have no knowledge as to how it came there.

Oct. 8, 1894. Patient visited hospital to-day; is in good health and has had no return of her trouble.

Case 4.—Good Samaritan Hospital, Sept. 20, 1894. Mrs. W., age 43, married. About seven years ago patient was sick with acute renal pains, followed by discharge of pus and blood with the urine. Since the first these attacks were invariably limited to the left side. The present attack, like previous ones, began suddenly with the sense of weight and fullness, and the detection of a swelling. Present condition: Fairly nourished woman. Temperature in the morning normal; in the evening 100 degrees; pulse varying between 80 and 100. On the left side, the kidney enlarged to the size of a double fist, can be clearly outlined in its lower segment. It presents itself as a rather movable tumor in the costo-iliac interval, not reaching the iliac crest. Urinalysis: urine often examined is turbid, light in color and containing a sediment rich in pus cells and crystals of oxalate of lime; a few red blood discs in every specimen. Very many examinations failed to reveal the bacillus of tuberculosis. Diagnosis: movable kidney, with recurring pyonephrosis, probably of calculus origin. Right kidney determined to be normal by cystoscopic examination.

Operation, September 28. Chloroform-morphia narcosis. Incision parallel to last rib. Exposure and fixation of kidney. Removal by incision of about a pint of fetid pus. Kidney sacculated. In lower portion an adherent calculus was found and removed with some difficulty. Irrigation and drainage. The patient's temperature varied from 101 to 102.5 degrees from the third day for a week. Profuse discharge necessitated daily dressing.

November 27. Patient discharged in good condition, with renal fistula and drainage tube.

Since the operation I have seen the patient once for renal distension, from displacement of tube. Nephrectomy will eventually become necessary.

The presence of an oxalate of lime calculus (weight 17 grains), with the history, makes it probable that nephrolithiasis was the first condition, followed by recurrent hydronephrosis and in turn by mobility of the kidney. Suppuration was probably a late factor in the case, which earlier interference would have prevented.

Case 5.—L. S., male, age 25, admitted to Avondale Hospital with diagnosis of recurrent appendicitis. States that except for hip disease, from which he suffered early in life, he was well until eight months prior to admission, when he was suddenly seized with severe colicky pain in region of appendix, associated with vomiting. Was free of pain for six weeks, when he suffered a second attack of great severity, which confined him to his bed during four weeks. He has never recovered entirely from this attack. States that he is always in pain, for which he has habituated himself to the use of morphia, of which he takes about three-quarters of a grain in the twenty-four hours. Present condition: well developed male. Ankylosis of right hip and complemental pelvic inclination. Complexion rather sallow. Pain more or less constant in the region of the appendix. Three times within the month the pain was severe enough to require the administration of morphia by injection. During these attacks the temperature rose to 100 degrees; at other times normal. Careful palpation fails to reveal tenderness over the appendix. Physical examination of the abdomen negative. Pressure over the last rib toward the kidney always elicited severe pain. Urinalysis: during six weeks, urinalysis made twice each week. Urine always contained in the neighborhood of .5 per cent. of albumin. It was generally light

straw color, slightly turbid, always acid. Microscopic examination always revealed pus cells and a few red blood corpuscles, and bladder epithelia. Crystals were never found. Repeated examination by centrifugation failed to reveal tubercle bacilli, the presence of which would not have been surprising with the previous history of long-standing tubercular disease of the hip.

November 4. Cystoscopic examination under cocaine. Bladder normal; stream from right ureter was turbid; across the field slight flakes of white material passed from time to time. The left ureter discharges clear urine. Diagnosis: nephrolithiasis dextra.

Operation November 11. Oblique incision through the right costo-iliac interval. Exposure of the kidney, which seems normal in color and size. In the posterior wall, near the hilum, an induration distinctly palpable. Acupuncture proves it to be due to a stone. Radial incision in the line of the blood supply, followed by the easy removal of a stone, uric acid, weight 60 grains. The stone was in the substance of the gland, only slightly projecting into the pelvis. The wound in the kidney was closed by three catgut sutures. Palpation of the kidney for other stones negative. Fixation of the kidney by two silkworm gut sutures. Drainage with strands of silkworm gut.

November 12. Patient passed a restless night. Severe pain in the back, right groin and testicle. Urine very bloody and containing many clots. Quantity passed in twenty-four hours, thirty ounces. Temperature 100 degrees; pulse, 90.

November 13. Pain less severe. Passed forty ounces of urine; last samples slightly tinged with blood. Temperature normal; pulse normal.

From this time the patient's recovery was uninterrupted. The drainage was removed with the first dressing, on the tenth day. Union perfect. December 4. Patient discharged well. April 4. Patient presented himself to-day, perfectly restored to health. The urine normal in every respect.

Case 6.—Martin L., aged 28, single. Entered Good Samaritan Hospital Feb. 26, 1894. History for the past five years: has had severe pains in the region of the left kidney. Very frequently he has suffered from severe pains shooting down the groin and the left testicle and into the leg. These attacks are usually followed by the appearance of blood in larger and smaller quantity in the urine. These attacks last from one to three days. Present condition: well-nourished man of short stature. Pressure over the left last rib very painful. No enlargement of the kidney discernible. Urinates three to four times during the night. The urine turbid, specific gravity 1040, rich in albumin and red blood corpuscles. Contains also oxalate of lime crystals.

March 3. The patient just passed a very bad night, has suffered intensely from an attack of renal colic. Urine passed frequently and containing large quantities of blood. Morphia administered in grs. $\frac{1}{4}$ doses at 3 in the morning and again at 9. Diagnosis: renal calculus.

March 10, operation. Oblique incision over the left kidney from the middle of the last rib toward crest of ilium. Kidney exposed and brought into the wound. In the pelvis of the kidney a number of loose calculi were felt. Incision one inch long through convex border, circulation being controlled by the finger of an assistant. Hemorrhage slight, but drainage of a considerable quantity of urine. Three stones were easily removed from the pelvis. Two smaller ones adherent to the calices removed by blunt curette. Suture of the kidney wound by three deep and two superficial catgut sutures and sewing of the kidney to the deep fascia. For purpose of drainage, there having been considerable oozing from the peri-renal tissue, the wound was very firmly packed with gauze. March 11. Patient passed a very bad night, vomited considerably and complained of some abdominal pain. Passed from the bladder ounces of bloody urine. Ordered a teaspoonful of Epsom salts every two hours. Dressings changed and gauze removed. No drainage of urine from the wound. Wound looks healthy. March 12. Evidences of intestinal obstruction, vomiting recurring at intervals of half an hour has assumed the form of regurgitation. Bowels have not moved. Abdominal distension very marked. Temperature 100; pulse between 120 and 130; quantity of urine in twenty-four hours, twenty-seven ounces. March 13. Patient passed a very bad night. Regurgitation more marked. Temperature 96; pulse 160; 11:30 p.m., patient died.

March 14. Autopsy. Abdomen very much dis-

tended. Upon opening the abdomen the intestines, from the descending colon upward, including all of the small intestine to the duodenum, very much distended; peritoneal vessels, mesenteric and intestinal, are very much injected. There is no pus present, nor are there any flocculi of lymph to be found. Very thorough search of the peritoneum over the kidney fails to reveal any wound of this tunic. Left kidney presents a wound along its convex border quite firmly agglutinated. About the incision some infiltration of blood in the cortex of the kidney. Right kidney normal.

Case 7.—D. K. G., male, age 47; observed with Dr. Forchheimer. Family history good; has never been seriously ill, except three years before he came under observation, when he was confined to his bed with severe pain in the left lumbar and inguinal regions, which was ascribed to ileo-colitis. Within the last year he has suffered a number of times from chills followed by febrile elevations. These seizures would keep him indoors for twenty-four or forty-eight hours only. During these attacks he would frequently vomit. He has not lost in weight. His greatest complaint has been pain in the back, which would awaken him in the night. The pain has never been severe enough to necessitate the use of morphia. It has been limited to the left side, and never assumed the form of renal colic. Has twice been examined for bladder trouble and each examination was followed within an hour by a rise of temperature to 104 degrees. Within twenty-four hours the temperature subsided to the normal. This patient was under my observation during six months. He was enabled to follow his vocation, and except for pains at night, and what he believed to be malarial seizures, suffered comparatively little. On the part of the urinary tract there were no subjective symptoms. Micturition was neither abnormally frequent nor painful at any time. Physical examination negative, except for a very marked tenderness over the left kidney, which could always be evoked by deep pressure against the last rib. Bimanual examination failed to reveal any enlargement of the kidney, nor were referred pains ever elicited. Urinalysis. During six months his urine was examined at least once a week. It was always slightly turbid when passed, a little paler than normal, acid in reaction and of normal specific gravity. Every specimen contained a trace of albumin, a number of pus cells and a few red blood discs. At no time during the prolonged period of observation did the specimens obtained by centrifugation contain either crystals or tubercle bacilli. During the last month prior to operation, the pyuria increased notably.

November 25. Cystoscopic examination under cocaine. Bladder normal. Ureters brought into view, and streams of urine found alike on the two sides. About the left ureteral orifice, there was an area of redness, extending apparently a half inch toward the urethra. Hemorrhage was not observed. The examination, though made with every precaution to the contrary, was followed within two hours by a chill and a rise of temperature to 104 degrees. In three days the patient was again about his work. Diagnosis: nephrolithiasis sinistra.

Operation, at Christ Hospital, Jan. 22, 1895. Morphia and chloroform anesthesia. Oblique incision through costo-iliac interval. Exposure of kidney through *capsula adiposa* of moderate thickness. Kidney, apparently of abnormal length, drawn into the wound and carefully palpated with negative results. Acupuncture resorted to without locating a stone. With digital compression of the renal pedicle, the autopsy cut was made and the interior of the gland subjected to palpation and inspection. The incision was attended by very little hemorrhage; nor was any pus evacuated. The kidney structure was normal. In the lowermost portion of the pelvis an elongated stone was found, opposite the beginning of the ureter. An effort to remove it through the incision in the kidney failed. Therefore the pelvis was opened by a longitudinal incision. The stone was easily removed. Wound in pelvis closed by two catgut Lembert sutures. For the closure of the kidney wound, three deep and four superficial sutures were used. After fixation of the kidney with silkworm gut sutures, the wound was closed, a strand of gut being used for drainage. An uninterrupted recovery followed the operation. During seventy-two hours the urine contained considerable blood, and the colicky pains were severe enough to necessitate the use of morphia. Hemorrhage from the kidney ceased on the third day. The

highest temperature reached was 100 degrees. The quantity of urine was twelve and one-half ounces the first twenty-four hours; twenty-one ounces during the second; thirty-seven ounces during the third, after which the quantity was normal. The patient has had no attack of pain since the operation. The urine still contains a few pus corpuscles, but red blood discs are not to be found. First dressing and drainage was removed on the tenth day; sutures at the end of two weeks. Primary union along the entire line. The patient left the hospital after five weeks, well, except for the presence of pus cells in the urine. In four examinations made since his departure from the hospital, blood discs were not found. In two examinations of urine recently made, oxalate of lime crystals were found.

Stone in the kidney is far from being a rare affection, if the records of autopsies are to be judged from. In the majority of cases thus found, they were unattended by tangible symptoms. On the other hand, no other affection of the kidney is so often erroneously supposed to be present as stone. Of the seven nephrotomies here recorded and made for stone, the search proved fruitless in two. In 1886 Gross¹ was already enabled to collect twenty-nine cases of unsuccessful operations for stone, all of which recovered. A few years later McCosh² found five additional cases of which two were fatal. These were cases of Chavasse,³ and in both calculi were found at the autopsy. Similar unfruitful explorations have since been made, twice by Keyes⁴ and Parkes,⁵ once by Guyon,⁶ Bruce Clark,⁷ Tiffany⁸ and Israel⁹. While it is probable that in some of these cases a small concretion was overlooked, the thorough exploration after incision made by such competent operators must lead us to believe that there is a condition of the kidneys, other than lithiasis, which is expressed by the symptomatic tripod of renal calculus before destructive changes have been produced, namely, lumbar pains, renal colic and hematuria. The term "nephralgie hematurique," proposed by Sabatier¹⁰, describes the cardinal symptoms but does not explain the condition which varies with the varying causes of hyperacidity of the urine, syphilitic cicatrices, mobility of the kidney and consequent intermittent hydronephrosis or hemophilia with renal expression of its presence. In a nephrectomy done for hematuria by Senator,¹¹ the kidney was found absolutely normal. For diagnostic purposes, catheterization of the left ureter was made by Nitze through a suprapubic incision, and the source of the hematuria, if not its cause, satisfactorily determined. In one of my own cases, although the kidney was not removed, the hematuria was doubtless of like hemaphilic origin, for the kidney upon section was found absolutely normal. (Case 3.)

An array of forty-four recorded cases of failure to find a stone may be of importance in damage suits arising from such failure. They demonstrate that the diagnosis can be only approximately made. The record is equally significant in showing the safety of such explorations since only two deaths are recorded, and in both cases stones were found at the autopsy. It is equally noteworthy that in many of the cases thus operated upon, permanent relief was afforded by the exploratory incision, either in consequence of section of the lumbar nerves or of relief of intra-capsular tension, the severance of adhesions or the fixation of a previously movable kidney. In not a few, however, has there been recurrence of symptoms in from a few weeks to a year.

In the diagnosis of kidney stone, writers have for many years pointed to the presence of abnormal

constituents in the urine. First, crystals indicative of the character of the stone; and second, blood in quantities appreciable to the unaided eye. The hemorrhage, it is said, is rarely as profuse as in malignant disease, but yet is present in considerable quantity. In both regards, observations often and carefully made will be negative. In two of the cases very accurate examinations for a period of from one to six months were made and crystals were not found. Except when a stone is in the process of growth, the presence of crystals can hardly be expected. Furthermore, to be of clinical significance, the crystals must be proved to be passed with the urine, and not to have been formed later. In only one of the cases of successful nephrotomy for stone recorded above, was the hematuria apparent. Far more important, however, it appears to me, is the presence of red blood discs at every microscopic examination made. In three of the cases the examination extended over a period of from one to six months, without out failure to find a few discs in every specimen examined. In all of these cases the microscopic hematuria was associated with acid pyuria. The aseptic character of the latter in two of the cases was repeatedly demonstrated by centrifuging. Mechanical irritation, pressure, necrosis of the renal epithelium and minimal erosions of capillaries produced by a renal calculus accounted for the slight hematuria and the pyuria, aseptic in its character.

This does not accord altogether with the views, particularly of the French school, as expressed by Tuffier regarding the ability of the kidneys to entertain without any reaction, aseptic bodies of even large size, and that when septic infection does ensue, it is the result of upward extension of like processes from bladder and urethra, either from a gonorrhea, or unclean catheterization. Large and small stones by their presence produce pressure, atrophy and cirrhosis. In the specimens here presented, of two kidneys in which large primary calculi are found, the area of atrophy will be seen just a little larger than the measurements of the concretions, which by pressure on the vessels had induced an aseptic infarct and secondary atrophy of the contiguous kidney tissue. The kidneys, as a whole, present the picture of interstitial nephritis. Although growing into the ureters and filling the pelvis, the stones have produced no destruction of either. Yet the inspection of these kidneys assures us that had pleuro-pneumonia not claimed the individual, death must have resulted soon from renal changes which, slow, mechanical and aseptic, were none the less destructive to the secreting elements. Regarding the history of this case, nothing is known, although it is almost inconceivable that an examination of the urine would have failed to detect evidence of renal disease.

Regarding the channels of septic invasion in renal lithiasis, it appears to be far from certain that the usual route is from below upward, as it doubtless is in the typical surgical kidney developing in the course of primary lesions of the lower urinary tract. In two of the recorded cases there never had been a gonorrhea. In three of them, instrumentation of the bladder had not been practiced until after the discovery of the pyuria. Posner and Lewin¹² have recently made very interesting experimental observations which establish the auto-infective nature of many suppurative processes of the urinary passages, and which throw much light upon the cause of sup-

puration in cases of stone in the kidney where instrumentation had not been practiced. The source of infection is the intestinal canal and the channel the general circulation. The eliminative function of the kidney has been shown for other infectious diseases. In the case of suppurative processes, thus produced experimentally by ligating the ureters and obstructing the intestine, the bacillus found in the kidney was almost always the gas-forming organism belonging to the bacterium coli group. Pyuria from stone may, therefore, be aseptic; or, if septic, be the result of infection from the lower urinary tract, or caused by the eliminative function of the kidney.

The value of cystoscopic examination, as an auxiliary to the diagnosis of renal calculus can not be questioned. The presence of two discharging ureteral mouths assures us better than any other method can, of the presence of two active kidneys. It can not exclude the possible existence of a horse-shoe or placental kidney with double ureters. The certainty of the non-existence of vesical disease, as established by the cystoscope of Nitze or of Kelly, often makes it certain that the symptoms in a given case are of renal origin. In two of the three cases in which it was used, the information was of absolute value in excluding the bladder as the source of the disease and fixing the site of the latter. In one of the cases a turbid stream with a few flocculi was ejected from the right ureteral cone, while the urine from the left side was very clear. In a second case the left ureteral mouth presented an irritated appearance entirely at variance with the picture of the right side. In the third case, one of profuse hematuria, cystoscopic examinations were entirely negative. With a wider knowledge of direct catheterization of the ureters, as practiced by Pawlik, and of the better method of direct illumination of the bladder, as practiced by Kelly, the elucidation of obscure renal disease will doubtless be made comparatively easy. In the male it may be justifiable to resort to suprapubic incision and direct catheterization of the ureters for diagnostic purpose. Quite recently, Nitze has added the ureteral catheter to his cystoscope. It is not probable that many will become experts in its use. Unfortunately, the cystoscope is of no value in cases where it would be most needed; those in which there is an *indicatio vitalis* for operative interference, particularly on account of hematuria and anuria.

Anuria is by far the most interesting, as it is also the most fatal, complication of kidney stone. Of fifty-six cases collected by Leguen,¹³ treated conservatively, sixteen recovered in from three to twenty days; forty or 71.5 per cent., died in from four to twenty-five days. Autopsies were made in thirty cases. In twenty-three, the ureter was found blocked by a stone, while in seven a gross mechanical obstruction was not present. In three cases there was only one kidney. In six, both ureters were blocked by a calculus. In fourteen additional cases, both kidneys contained stones. In six, there were other evidences of disease, chiefly suppuration, and in one case the kidney was normal. In sixteen cases of anuria, nephrotomy was followed by recovery in ten, the mortality being 37 per cent., as against 71.5 per cent., in cases left to nature. Such statistics justify the division of nephro-lithotomies into those of choice and those of necessity. The conditions may well be likened to those of hernia. In the unobstructed, we may choose the time for operative interference; in

the strangulated, delay means death. Anuria in calculus disease may be the result of a simultaneous obstruction of both ureters, a condition which is quite unusual. It generally depends upon obstruction of the ureter of one kidney, and reflex arrestation of function of its fellow, which in the majority of cases is likewise found to be diseased. That primary anuria or oliguria may be the result of inhibition of a normal kidney through reflex channels from obstruction in its diseased fellow, or after nephrectomy, has been positively settled by experimental as well as by clinical observations. Among the most striking of the latter was one made by Israel¹⁴ in a case of hydronephrosis of intermittent type. With each recurrence of increased intra-renal tension in the diseased kidney, the secretion of normal urine was reduced to a minimum. Tapping of the hydronephrotic side was immediately followed by the flow of the normal amount of urine from the healthy kidney. Pressure upon the kidney tissue or irritation by packing or ligation of the pedicle after nephrectomy, may bring about the same reflex diminution of function of the remaining gland.

Death follows nephrectomy from uremia in nearly 50 per cent. of cases, (Madelung¹⁵ eight out of seventeen). In most of these it has been presumed that there existed but one kidney. For such cases in the future it will be obligatory to explore the side not previously operated upon, and if a kidney be found, to make an exploratory incision. It is more than probable that the sudden increase in function of the remaining gland is associated with a degree of hyperemia incompatible with excretion from the glomeruli, for which the local depletion of nephrotomy could only be of benefit.

Since Bardenheuer's¹⁶ case of nephrotomy for anuria after operation on one kidney was published in 1882, a number of most brilliant successes have been recorded by Lange,¹⁷ Clement Lucas,¹⁸ Meyer,¹⁹ Kirkham,²⁰ Godley,²¹ Israel²² and Cabot²³. In most cases, as in my own, the operator was relieved of the difficulty of determining the side for operation by the previous clinical history, the limitation of pain to one side, by the presence of tenderness or tumor, or by the previous removal of one kidney. Except for the certainty give by the condition last named, there must always be some doubt as to the side to be operated upon. In a case of anuria, Israel operated on a hydronephrotic left kidney. The patient was not relieved. Twenty-four hours later the right kidney was explored and a stone located in the ureter too low for removal at the time. The patient did not rally, the anuria having continued nine days. Tuffier has properly pointed out that operation should not be deferred on account of doubt as to the side of obstruction, since the chances are always 50 per cent. that the diseased kidney will be found, and it might be added, if the chance fails an immediate exploration of the opposite side should be made. I have been enabled to find only one case of simultaneous bilateral nephrotomy for calculus anuria. The patient died eleven days after the operation.²⁴

In the surgical treatment of renal calculus, choice must be made between simple incision and extirpation or partial resection of the kidney. The localized conditions demanding the latter must of necessity be so rare that for present considerations they may be disregarded. Nor would any one resort to the more drastic operation with a comparatively normal

condition of the kidney and a small calculus. It is in the presence of multiple or of large branched calculi and of a kidney more or less converted into an abscess cavity that the question becomes embarrassing. Neither the size, conformation nor multiplicity of the calculus ought to weigh in favor of nephrectomy, since with the longitudinal incision along the renal convexity, ample room for manipulation can be obtained. Nor does the dread of a renal fistula remaining after nephrotomy for calculous pyonephrosis render nephrectomy justifiable, except when cystoscopic examination or the voidance of clean urine renders unimpeachable evidence of the presence of a normal kidney; for in seventy-six fatal cases of renal calculus, Leguen found the disease bilateral in thirty-eight and in only four instances was the remaining kidney normal. Edel,²⁵ Clement Lucas,²⁶ Shepherd²⁷ reported cases where nephrectomy was followed after four and five respectively, by fatal calculous pyelitis of the remaining kidney. These considerations are weighty, irrespective of the inherent dangers of the two procedures, nephrotomy and nephrectomy, the mortality of which is decidedly in favor of nephrotomy (nephrotomy 31 per cent., nephrectomy 41 per cent.).

With increasing confidence in the relative safety of exploratory nephrotomy, cases of renal calculus will doubtless be earlier subjected to operation and before those destructive changes have ensued which, at the time of operation, force upon surgeons the choice between incision and excision of the kidney. With proper care regarding hemorrhage and sepsis, a nephrolithotomy on an otherwise healthy kidney ought to be attended by a mortality of not more than 5 per cent. The unequalled tabulation of Newman, in 1888, of forty-two cases without a death, could not be maintained. Tait lost one case out of fourteen. Within the last three years, deaths have occurred in the hands of such expert operators as Butler-Smythe, Jacobson, Knowsley Thornton, Godlee and Israel. The immediate mortality of nephrotomy for calculus pyelitis is 33 per cent. A stronger plea than these statistics could not be made for an early operation in real or supposed cases of renal calculus.

In the technique of the nephrotomies above recorded, I have had an opportunity of comparing the relative values of the oblique and the transverse incisions. The advantages of the former have been so decided that I have used it to the exclusion of the other in all of my recent operations on the kidney from the loin. Through an ample incision from the middle of the last rib toward the iliac crest, the entire kidney can be drawn into the wound, the pelvis, both surfaces and poles, explored by the finger, and the circulation through it absolutely controlled. By continuing the incision downward and forward, all of the suprapelvic portion of the ureter can be brought into view and, if need be, subjected to operative treatment.

The renal calculi which I have presented are all small, the heaviest weighing sixty grains. In this regard the collection may be interesting, since in all of the cases of which they are the trophies, except one, the exploratory needle was used and without any results. In none of my cases was the detection of the stone accomplished by using the needle. A stone weighing 556 grains, as removed by Tiffany,²⁸ or one weighing nearly five ounces, as removed by Shepherd,²⁹ and another by Gay,³⁰ can easily be felt

through a puncture with a needle. Here acupuncture is superfluous, since such stones can be felt through the hardened kidney substance by the examining finger. For the detection of small stones a success from acupuncture would be a matter of chance, and therefore, in my judgment, should be discontinued as wasteful of time and fraught with the danger of wounding a larger branch of the renal vessels. Palpation of the kidney drawn well into the wound between the thumb and finger on opposite surfaces, will reduce the danger of overlooking a calculus to a minimum. In this manner all of the kidney, except possibly the superior pole on the left side, can be thoroughly felt. If the calculus even then escapes detection it must be small indeed, deeply imbedded, and discoverable only by incision into the kidney substance.

How and where shall this incision be made? In answering this question two considerations must guide us: hemorrhage and the final result as to a cure without a renal fistula. Hyrtl³¹, as long ago as 1869, demonstrated by corrosive preparations that the kidney is naturally divisible into anterior and posterior segments, the blood supply of each being independent of that of the other, after the vessels supplying them have been given off from the main trunk of the renal artery. Along the convexity of the gland, therefore, the longitudinal section made as in an autopsy would be least likely to wound a larger vessel. In four operations in which I have resorted to this sectional incision the hemorrhage, while free, was parenchymatous in all. To reduce even this to a minimum the incision should not be made longer than is needful for the introduction of the exploring finger, until the kidney has been brought far enough into the wound to make feasible the compression of its pedicle by padded clamp, or preferably by the fingers of an assistant. This makes the hemorrhage *nil*, while the search for the stone progresses. Such compression has been experimentally maintained for half an hour (Tuffier) in animals without other effect than a transitory albuminuria. In an operation for stone, compression would rarely be needed during more than five minutes. The length of the incision must vary with the difficulties encountered in searching for and removing the stone. With a finger introduced into a kidney through a small incision in the center of its convexity, or two incisions nearer the poles, the separate calices can be as methodically explored as are the fingers of a glove. Only after failure of this method to find a stone does the complete division of the kidney from end to end, for ocular inspection, as in a post-mortem examination seem justifiable. Incisions into the renal pelvis for exploration alone are to be avoided because of the obviously greater danger of hemorrhage and the dread of lacerating the pelvic wall beyond repair.

Renal fistulae are seen oftener after incisions into the pelvis than after nephrotomy proper, the ratio being as 20 to 3. Therefore, stones found in the pelvis of the kidney should, wherever possible, be removed through an incision in the cortex. In one of my cases a stone was found embedded near the posterior surface. In such a case a radial incision on to the stone, passing between the blood vessels, is ample for its removal and not attended by severe hemorrhage.

For operative wounds of the kidney, primary union should be aimed for, as scrupulously as in wounds elsewhere. Drainage of the kidney is therefore un-

called for except for pyonephrosis, where the ureter is manifestly incompetent. In one of my cases the presence of a drainage tube gave rise during seventy-two hours to very severe pain, and was the direct cause of a fistula which continued to discharge during three months before it finally closed. In nephrolithotomy on an otherwise normal kidney, the ideal operation is terminated by closely suturing the wound in the kidney with alternate deep and superficial catgut sutures, traction on which should only be sufficient to keep the edges in apposition. Experimentally and clinically, such sutures have been shown to be practically innocuous to the kidney at large, and that the resulting scar involves only the immediate vicinity of the line of incision and of the sutures, provided larger vessels are not included. Experiments by Paoli,³² Tuffier³³ and Barth³⁴ have shown that, particularly in the incision along the convexity, secondary degenerative changes are reduced to a minimum. Griefenhagen³⁵ had an opportunity to examine two kidneys treated by sutures after operation. A linear and depressed cicatrix narrowing toward the pelvis and firmly adherent to the capsule was present in each kidney as the only vestige of a previous incision. One patient died of apoplexy six months after the operation. In the other, the kidney had become movable and at times incarcerated in a ventral hernia making nephrectomy necessary. Suture of the kidney first practiced by LeDentu,³⁶ in 1889, has been performed successfully by Morris, Israel, Fenger, Bernays, Tuffier, Garard, Marchant and Rose.

Primary union should likewise be sought for when the pelvis or ureter has been incised; catgut Lembert suturing being used. The probability of success is less than in nephrotomy proper. In one of my cases thus treated the result was perfect. Meyer and Sanger have recently reported similar successes. A slight objection to primary suture is the severe pain of a colicky nature entailed by the passage of small blood clots through the ureters and lasting from twenty-four to forty-eight hours.

The only fatal result which I have had to record from my nephrotomies for stone was directly attributable to intestinal obstruction from excessive packing of the wound with gauze. This obstruction was the result of paralysis from pressure on the intestinal nerves in their course in the meso-colon and behind the posterior parietal layer of the peritoneum. This is the second case of this nature to be recorded; the other occurred in the hands of Israel. There probably have been other deaths erroneously ascribed to peritonitis after operation on the kidney and in which wounding and infection of the peritoneum have been supposed to be the causes of death. In two of the cases operated on since this unfortunate result, I have contented myself with such drainage as could be obtained by a strand of silk worm gut removed with the first dressing.

The concluding act of every operation upon the kidney must look toward fixation of the gland in its normal position. Where the fat capsule has not been interfered with much and the kidney has been little disturbed in its relations in the process of searching for and removing the stone, nature can be relied upon to secure its proper fixation. In every case, however, in which the gland has been removed from its bed and drawn into the wound, either for purposes of exploration or operation, a *sine qua non* of an undisturbed and lasting recovery is the fixation of the

kidney in its position by a number of catgut or, preferably, of silkworm sutures. A number of recent writers have suggested that the sutures used for closing the renal incision can likewise be employed for the fixation of the gland. My own preference has been for the silkworm gut. By two sutures through the kidney, the capsule proper, and the fat capsule on the one hand, and the lumbar fascia and the peritoneum of the last rib on the other, the kidney can be firmly and satisfactorily anchored until such time as post-operative adhesions result. One of the safeguards against mobility of a kidney is, in my judgment, prolonged rest in bed of at least five to six weeks before the patient resumes the erect posture. In the triumph of finding a stone, the precautions against a movable kidney might readily be overlooked. The danger of allowing the gland to take care of itself has been shown in a number of cases, and notably in the one of Griefenhagen already referred to, where secondary nephrectomy became necessary.

In conclusion, the following theses are presented for your consideration:

1. An absolute diagnosis of stone can not be made.
2. Nephro-lithotomies may be divided into those of necessity and those of choice. In anuria and profuse hematuria delay is fatal.
3. Pyuria and microscopic hematuria as indications of beginning destructive changes, are positive indications for operative exploration.
4. The oblique incision is to be preferred for the ease with which it permits the exploration of the entire kidney.
5. Acupuncture is not to be relied upon.
6. Incisions should be made along the convex border and only when the circulation is controlled by digital compression.
7. Incisions into the pelvis for exploration and for removing a stone are to be avoided.
8. Primary nephrectomy for stone should be reserved for extreme cases.
9. Primary union by suture, where feasible, makes nephro-lithotomy an ideal operation.
10. Tight packing of the kidney wound and perirenal space endangers the nerve supply of the colon.
11. Nephrorrhaphy should form the closing act of every operation which has seriously disturbed the relations of the kidney.

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ORIGINAL ARTICLES.

CONSERVATIVE SURGERY ON THE BATTLE-FIELD AND FIRST AID TO THE WOUNDED.

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Conservatism will characterize the military surgery of the future. The two great sources of danger that face the wounded soldier upon the battle-field—hemorrhage and infection—will be greatly diminished by additional and improved hemostatic measures, and the more general and effective application of the principles of aseptic and antiseptic surgery.



FIG. 1.—Elevation of the upper extremity in the treatment of hemorrhage.

Mutilating primary operations will be limited to injuries with extensive destruction of the soft parts and complications involving large vessels and nerves which in themselves are sufficient to arrest the nutrition of the injured limb. Gunshot injuries of bones and joints will no longer determine the propriety of primary resection and amputation, and the danger of penetrating wounds of any of the large cavities of the body will be greatly diminished by the prompt employment of measures calculated to prevent septic infection, and other immediate and remote complications. I take it for granted, that I am expected on this occasion to discuss briefly the salient

topics which will engage the attention of the military surgeons of future wars, and which will enable them to reduce the death rate, diminish suffering, save limbs, and prevent painful remote complications in case of bullet and other wounds which heretofore demanded primary mutilating operations, or, if treated upon conservative plans, subjected the soldier to imminent danger to life from septic complications.

Conservative surgery on the battle-field consists in rendering prompt and efficient aid to the wounded. To accomplish this successfully is the desire and aim of the military surgeons of all civilized nations. A well-trained hospital corps is now looked upon as an essential constituent of every modern military body. In our own country the Army and Navy, as well as the National Guards of the different States, are making ample preparations for effective first aid to the wounded, in the event of war, by the careful training of soldiers selected for Hospital Corps service. The practice of conservative surgery upon the battle-field will, of necessity, be intrusted largely to the educated, well-trained, non-combatant soldier. It is the char-

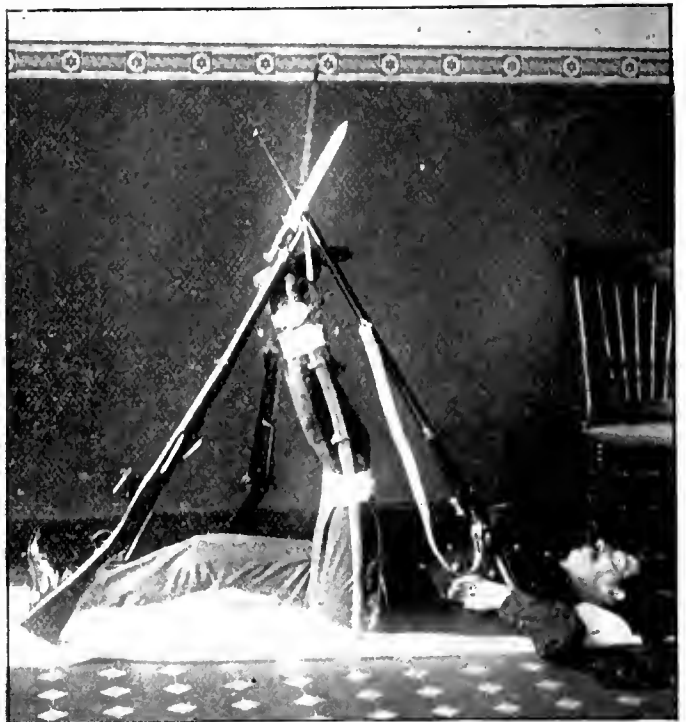


FIG. 2.—Gun-stack for elevation of the lower extremity.

acter and efficiency of his work that will determine the fate of the wounded. I shall limit my remarks to the discussion on the work to be done by the surgeon and his helpmates, the members of the Hospital Corps, in caring for the wounded upon the battle-field, which will embrace: 1, the treatment of hemorrhage; 2, to counteract shock; 3, primary dressing; 4, immobilization; 5, transportation.

Temporary Hemostasis.—A large percentage of deaths upon the battle-field has been caused by the immediate result of hemorrhage. It is to be expected that the small calibre bullet, owing to its greater velocity and penetrating power, will cause death more frequently from primary acute hemor-

rhage than the round or large conical bullet of the past, because the wounds inflicted by it resemble more nearly incised than contused wounds as was formerly the case. There can be but little doubt that the old weapon produced wounds which were more liable to be followed by secondary hemorrhage, induced by the sloughing of the large area of contused tissue surrounding the tubular wound made by the bullet. The absence of this extensive area of contusion and laceration in wounds of large blood vessels made by the new bullet will increase the danger from primary hemorrhage, and will, consequently, demand more frequently and urgently in their treatment the employment of prompt and efficient hemostatic measures. The treatment of hemorrhage upon the battle-field will be governed by the size and character of the vessel wounded and the part or organ injured. A distinction between arterial and venous hemorrhage is impracticable as far as the immediate treatment by non-professional assistants is concerned. Ligation of a blood vessel upon the battle-field, either at the point of injury or in its continuity, will be done only in exceptional cases. In



FIG. 3.—Digital compression of brachial artery.

the majority of instances this part of the treatment will be consigned to the surgeons in charge of the first dressing station or the field hospital. In rendering the first aid to the wounded, hemorrhage should be diminished or arrested by such means and measures as are always at hand, or that can be readily extemporized and can be safely and efficiently applied by members of the Hospital Corps.

Elevation of Limb.—The force of gravitation answers an exceedingly useful purpose in arresting hemorrhage from the smaller vessels of the extremities. By placing the injured limb in a vertical position, intravascular pressure is so much diminished that spontaneous arrest of hemorrhage is often effected by this simple procedure, even when a vessel the size of the palmar arches is injured, but its greatest value and widest range of application will be in the treatment of venous and parenchymatous hemorrhage. The elevated position should be maintained for some time after the hemorrhage has ceased, or until more efficient measures can be employed. The

manner of effecting and maintaining elevation as a hemostatic agent is shown in Figs. 1 and 2.

Digital Compression.—In the treatment of hemorrhage from large vessels accessible to digital compression, this method offers a reliable means of controlling hemorrhage. The members of the Hospital Corps are familiarized with the exact location of the principal arteries of the extremities and the method of arresting hemorrhage by digital compression.

The compression must be continued uninterruptedly until the bleeding vessel can be tied, or pressure can be replaced by elastic constriction or the antiseptic tampon.

Flexion.—Forced flexion as an hemostatic agent was introduced by Adelman. Genuflexion is a prompt and efficient method of arresting hemorrhage from the popliteal artery and its branches. Brachial hyperflexion answers the same purpose in the treatment of hemorrhage from the brachial artery from a point opposite the elbow joint or any of its branches below this point.

In making genuflexion, the belt, suspender, gun-strap, or triangular bandage should be passed

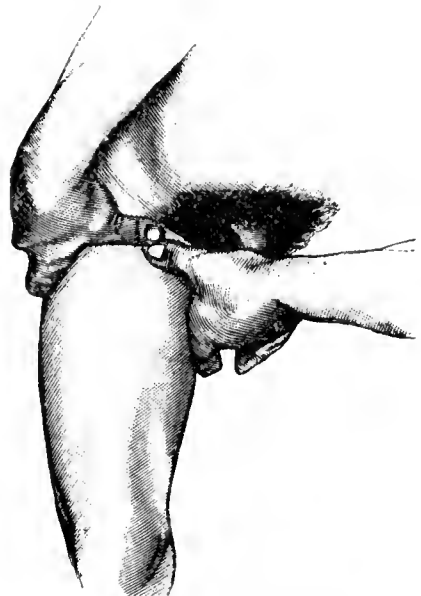


FIG. 4.—Digital compression of femoral artery.

through a slit in the shoe or boot above the heel, after which the ends are firmly tied over the base of the thigh where it is fastened to the pants or drawers with a safety pin. Forced flexion of the forearm can be made with an ordinary handkerchief.

Elastic Constriction.—Elastic constriction, properly applied, is a safe and absolutely reliable hemostatic agent in preventing and controlling hemorrhage from any of the vessels of the extremities. Introduced and popularized by the greatest military surgeon of the present time, von Eschmarch, it is applied wherever surgery is practiced, but its employment is of special value upon the battle-field. The elastic constrictor has displaced almost entirely the ordinary tourniquet. Preliminary compression of the limb by an elastic bandage is unnecessary, as simple elevation continued for a few moments will render the limb sufficiently bloodless for all practical purposes. The harmful effects of elastic constriction improperly applied are temporary, and even permanent paralysis of one or more of the principal nerves injured by the

linear compression. To prevent such a complication it is necessary to compress the limb at a point where the main nerves are adequately protected by muscles and to bring to bear no more pressure than is necessary to realize the object for which the constriction is made—to interrupt completely both the venous and arterial circulation. The arm should be constricted at a point corresponding with the middle of the deltoid muscle or over the top of the shoulder and the thigh near its base.

To avoid harmful linear constriction it is advisable to use an elastic band at least an inch in width or a suspender, and if the constrictor encircles the limb more than once, to bring each turn separately down upon the surface of the limb and not overlap each other. An assistant should hold the limb firmly in a vertical position when the constrictor is applied over the side of the limb where the large blood vessels are located, and the constriction quickly and firmly made so as to interrupt at once, completely, both the arterial and venous circulation. How long is it safe to exclude from a limb the circulation by elastic constriction? This is an important question which presents itself with special force in the practice of military surgery. I made, a few years ago, an interesting series of experiments on

to twelve hours without any obvious harmful results. From the results of my own experiments and the clinical data on elastic constriction as a hemostatic resource, I am satisfied that it is safe to exclude the circulation from a limb for four to six hours without incurring any special risks of gangrene or permanent damage to large nerve trunks. The exact limit of prolonged constriction in man has not been determined, and I should consider it unwise to continue it beyond the time specified. In the majority of cases during this time the wounded will be brought to the attention of surgeons when the injured vessel is exposed and tied, or elastic constriction is replaced by direct compression.



FIG. 5.—Genuflexion in the treatment of hemorrhage from the popliteal artery and its branches.

dogs for the purpose of formulating an authoritative answer to this question. Elastic constriction was applied by using rubber tubes the size of an ordinary lead pencil, and the constriction was continued from one to twenty-six hours. Temporary paralysis was observed in a number of cases. Gangrene of the limb below the point of constriction resulted only in one case, and in this instance the constriction was continued for twenty-four hours, while the dog in which the constriction was continued for twenty-six hours recovered in a short time perfect use of the limb. The blood contained in the arteries and veins below the point of constriction remained fluid and retained its intrinsic functional properties for this length of time after complete exclusion from the general circulation. Elastic constriction is not attended by any special danger from this source. Every surgeon has had cases in which elastic constriction was continued for several hours, in the performance of difficult and tedious operations, without witnessing any untoward, immediate or remote results from the prolonged interruption of the circulation. I have learned of a number of cases of railway injuries in which elastic constriction was continued for seven



FIG. 6.—Forced flexion of forearm in arresting hemorrhage from the brachial artery opposite the elbow joint or any of its branches below this point.

Antiseptic Tampon.—The antiseptic tampon is a convenient and very useful hemostatic agent in the treatment of accidental hemorrhage. The antiseptic package with which every soldier of civilized warfare will be supplied can be used advantageously for this purpose. It will prove of special value in the arrest of hemorrhage from the vessels of the scalp, face and intercostal arteries, and in the treatment of open lacerated and sabre wounds. The surface to be compressed should be dusted with the antiseptic powder contained in the package, and with the hygroscopic antiseptic material composing the balance of the package a graduated compress is made, the apex of which is placed in contact with the bleeding vessel, and the necessary degree of pressure secured by a circular bandage with or without the use of an extemporized splint according to the location of the vessel, or the relations of the injured vessel to the underlying bone.

Vessel injuries treated by antiseptic tamponade will seldom require ligation as the tampon, if the wound remains aseptic, is allowed to remain until the lumen of the vessel has become obliterated permanently by thrombosis and cicatrization.

Internal Hemorrhage.—The prompt and proper treatment of internal hemorrhage will constitute one of the crowning triumphs of surgery upon the battle-field. The direct treatment of the injured vessels by early invasion of any of the three large cavities of the body will be the means of saving many lives which heretofore were doomed to certain death. This part of the surgeon's work will be done at the first dressing station or the field hospital.

What can be done behind the fighting line in such cases to bridge over the time until such services can be rendered to the injured? In hemorrhage from the intracranial vessels caused by bullet wounds, it would be dangerous to plug the wounds of entrance and exit as the accumulation of blood in the cranial cavity would result in death from cerebral compression. The escape of blood should be favored by inserting into the track made by the bullet a strip of aseptic or iodoform gauze. This will not only serve a useful purpose as a capillary drain, but by bringing in contact with the injured vessels an aseptic foreign substance the spontaneous arrest of hemorrhage by thrombosis is favored. The gauze drain should

belt or gunstrap can be used to the greatest advantage in limiting the respiratory movements of the chest. I believe that this conservative treatment of penetrating wounds of the chest will yield better results than injection of filtered air, absorbable aseptic solutions, or treatment by rib resection, free incision, and attempts to ligate the bleeding vessels. In penetrating wounds of the abdomen the prime indication in the future treatment of such injuries will be to prevent death from hemorrhage. Visceral wounds of the abdominal organs, notably the liver, spleen and mesentery, usually give rise to profuse and often fatal hemorrhage. The hemorrhage is more frequently venous and parenchymatous than arterial. In my address last year before this Association, I urged the importance of early operative interference in such cases, and mentioned hemorrhage and the direct treatment of visceral wounds as ample indications to justify prompt, active interference. In in-

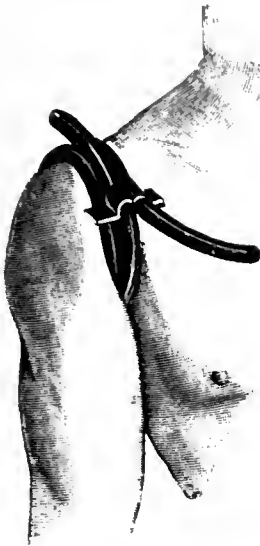


FIG. 7.—Elastic constriction of upper extremity. (After Seydel.)

be secured on the surface of the wound with a safety pin and the wound or wounds protected against infection by an antiseptic dressing retained in place by the triangular bandage. By this treatment many cases will reach the field hospital for a timely intracranial operation. In bullet and stab wounds of the chest, complicated by hemorrhage from the intercostal arteries, the antiseptic tampon is the proper treatment. Packing of the tubular wound with an antiseptic hygroscopic material will not only succeed in arresting the hemorrhage, but will serve at the same time as an efficient capillary drain and protect the cavity of the chest and its contents against infection. In hemorrhage from injuries of the organs of the chest, firm circular compression of the chest directly over the wound already protected against infection by an antiseptic dressing constitutes a valuable indirect hemostatic measure.

Immobilization of the chest wall by circular compression diminishes the functional activity of the lungs, and in doing so exerts a favorable influence in arresting hemorrhage from this organ. The cartridge

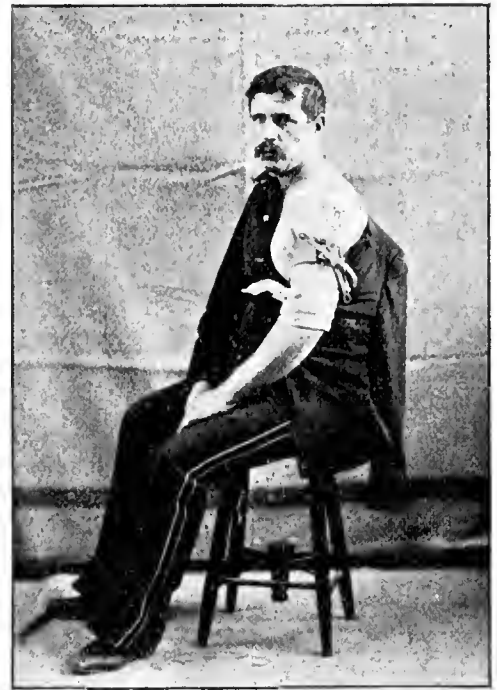


FIG. 7 a.—Suspender constriction of arm.

injuries of vessels below the bifurcation of the abdominal aorta, attempts should be made to prevent death from hemorrhage upon the battle-field by resorting to the use of some sort of compression with a view to interrupting the circulation in the aorta above the bleeding point. Esmarch's method, shown in Fig. 11, can be extemporized in a few moments, as it requires no instrument of special construction and meets the indications more completely than the various instruments devised for this purpose.

The method of Brandis is equally simple and efficacious. As hemorrhage from any of the vascular organs and large vessels of the abdominal organs requires prompt treatment, and as in large engagements a considerable length of time will necessarily intervene between the first aid and the permanent arrest of hemorrhage by laparotomy, and as in many instances the location of the wound is outside of the range of successful treatment by compression of the abdominal aorta, it appears to me that in such cases

it would be good treatment to resort to direct and circular compression as has been described in connection with penetrating wounds of the chest. The wound of entrance and exit, if the latter exists, should be protected by an antiseptic dressing. Over the wound corresponding with the yielding part of the abdominal wall a large compress which may be composed of a compress made of a blanket, an article of clothing, a cartridge belt, or canteen should be

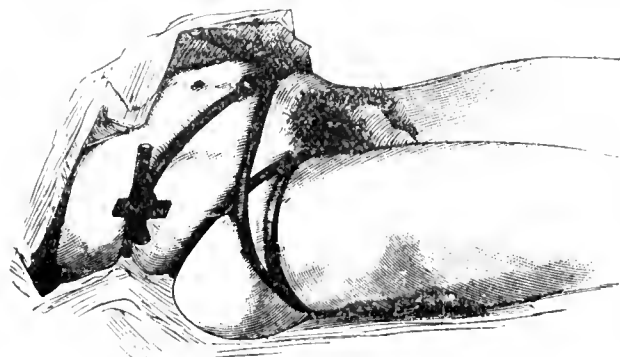


FIG. 8.—Elastic constriction of lower extremity. (After Seydel.)

placed and over it firm circular compression made with a belt or gunstrap. The direct compression made in the direction of the track of the bullet will do much toward diminishing the vascularity of the underlying injured parts, while the circular compression will immobilize the abdominal wall at the seat of injury and limit the movements of abdominal organs, conditions which can not fail in materially diminishing the risks of hemorrhage and in aiding thrombosis, nature's resource, in effecting spontaneous arrest of hemorrhage.



FIG. 8 a.—Elastic constriction of thigh.

PERMANENT HEMOSTASIS.—Forcible pressure.—The best and most successful military surgeon is the one who accomplishes the most with the least number of instruments. Complicated instrument cases look well and make a favorable impression upon laymen, and can be used to advantage in a well-equipped hospital; they are out of place on the battle-field. The fewer the instruments in the

treatment of emergency cases, the less the danger of infection. The writer has recently devised an operating pocket case which contains all the instruments a military surgeon is expected to use when in active service. It contains among the instruments needed for emergency work seven hemostatic forceps, by the use of which he is in a position to meet the emergencies incident to hemorrhage upon the battle-field. The use of aseptic hemostatic forceps upon the battle-field will meet the indications successfully in many cases in which other hemostatic measures are inapplicable. If the bleeding vessel is so located that it can be grasped with hemostatic forceps, but can not be ligated without performing a formidable operation, the forceps should be allowed to remain and should be incorporated in the antiseptic dressing and a note made to this effect on the diagnosis tag.



FIG. 9.—Antiseptic tamponade of wound of deep palmar arch.

Ligature.—Ligation of blood vessels, arteries and veins will usually be done upon the battle-field after temporary hemostasis by other means, either at the first dressing station or, more frequently, at the field hospital. Silk is the proper ligature material in military service. Silk can be sterilized repeatedly by boiling and is, consequently, a much safer material than catgut in emergency practice. Aseptic silk in an aseptic wound invariably becomes encysted. Catgut sterilized in Boeckmann's sterilizer and kept ready for use in sterilized envelopes, as advised by Boeckmann, could be made serviceable for military surgery. As a rule, the vessel should be tied at the seat of injury by enlarging the existing wound and using it as a guide to the injured vessel. Cases,

however, will present themselves in which it is impossible to apply this rule, and where the artery has to be tied in its continuity in a more accessible place on the proximal side of the bleeding point. Antiseptic precautions in the treatment of wounds and the employment of the aseptic ligature will materially diminish, if not entirely overcome, the risk of secondary hemorrhage, which proved such a terror to the surgeons, and such a frequent source of danger and death to the injured during the great War of the Rebellion. The ligature should never be tied sufficiently tight to rupture any of the tunics of the vessel. All that is necessary to obtain an ideal permanent obliteration of the vessel is to approximate and hold in uninterrupted contact the intima. If the vessel requiring ligature in its continuity is a large one, a double ligature with a bloodless space between the two ligatures is preferable, as the space interposed between them offers the most favorable conditions for an early and permanent obliteration

of the vessel in the same manner as in closing an intestinal wound by Lembert's sutures.

Hot Water and Styptics.—Hot water at a temperature of 120 to 130 degrees F. coagulates the albumin upon the surface of the wound and in doing so seals the orifices of small vessels, and on this account has become a popular hemostatic in arresting parenchymatous bleeding in parts and organs accessible to this method of treatment. The employment of styptics in arresting hemorrhage, on the whole, should be discountenanced, as their use interferes with an ideal healing of the wound. Their application can only come in question in the treatment of bleeding wounds of the mouth and pharynx where antiseptic tamponade is impracticable.

Saline Infusion.—Patients who have become debilitated by hemorrhage to the extent of endangering life, require restoration of a normal degree of intracardiac and intravascular pressure by saline infusion. Transfusion of blood, whole or debrinated, has been proved clinically and experimentally a failure in preventing death from the immediate and remote results of dangerous hemorrhage. The transfused morphologic elements of the blood do not retain their vitality and are destined to be removed from the receiver sooner or later, by elimination through some of the excretory organs. von Bergmann and others have shown that the immediate cause of death from acute hemorrhage, subnormal intracardiac and intravascular pressure can be avoided more successfully by substituting for animal or human blood a physiologic solution of common salt.



FIG. 10.—Treatment of penetrating wound of chest by antiseptic tamponade and immobilization by circular compression.

FIG. 11.—Compression of abdominal aorta. (After Esmarch.)

of the lumen of the vessel. Under aseptic and antiseptic precautions the ligation of large veins is as safe a procedure as ligation of the accompanying arteries.

Vein Suture and Lateral Ligature.—In small wounds of large veins, lateral ligature and suturing with fine silk or catgut secures permanent hemostasis with preservation of the lumen of the vein, and for these reasons should receive in this kind of vein injuries the preference to ligation in continuity. This method of treatment receives particular value in the case of wounds of the superior longitudinal sinus and the large veins at the base of the neck in the axillæ and the groins, as well as the large veins in the abdominal cavity. The lateral ligature is applied by seizing the margins of the vein wound with a sharp tenaculum and tying the base of the cone with a fine silk or catgut ligature. In suturing of vein wounds the margins are inverted toward the lumen

Every field outfit should be supplied with a definite quantity of salt from which the solution can be prepared in a few moments when required. Szumann's solution is the one usually preferred. It consists of:

Natr. chlorat	6.0
Natr. carbon	1.0
Aq. distillat	1000.0

The chloride and carbonate of soda in the above proportion should be carried in every pannier so as to be available in all cases in which a saline infusion may become necessary. The simplest apparatus for making a saline transfusion is a glass or hard rubber funnel with two or more feet of rubber tubing and a small glass tube with a tapering point. The median basilic vein is usually selected for making the injection. The vein is exposed by a small incision after having rendered it turgid by proximal compression in the same manner as in performing phlebotomy. After exposure of the vein it is incised transversely.

and the point of the glass tube is inserted and fastened in place by a ligature previously inserted. Before inserting the glass tube the precaution is taken to fill it and the rubber tube with the saline solution to prevent the introduction of air. The saline solution to be used should be heated to the temperature of the body and infection is prevented by using only sterilized water for the solution.

The quantity of solution to be used to fulfill the therapeutic indications will vary from 500 to 1,500 grams, 1,000 grams being a fair average dose, and for the preparation of which the necessary quantity of powder should be kept in readiness. If the symptoms of improvement which follow the employment of a saline infusion should come to a standstill or disappear, it may become necessary to repeat the intravenous injection in the course of an hour or more. The same object gained by intravenous injections of salt solution is attained more indirectly and with greater loss of time by copious hypodermatic and rectal injections.

(To be continued.)

MODERN URETHROSCOPY AND CYSTOSCOPY —CATHETERIZATION OF THE URETERS AND INTRAVESICAL REMOVAL OF TUMORS.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Even those who have not gone very deeply into the recent literature of genito-urinary surgery, can not fail to be impressed with the correct idea that the title of this paper encompasses more than can be said in the time allotted at any meeting. Indeed, the title suggests volumes, conjures up visions of a very large library and actually covers a vast experience on the part of those who have given special attention to this most important branch of the healing art. The greater portion of this experience can not be written, for it depends upon practice of the hand and eye. For these reasons this paper can practically be little more than a demonstration of instruments.

I beg leave to divide this demonstration into four parts, omitting historical considerations entirely.

1. *Modern Urethroscopy.*—The instruments I have the privilege of showing are:

The Posner urethroscope is the simplest form of those now in use. It is practically a prolongation of the old meatoscope, except that it has no obturator and has a tube eight and one-half centimeters long. It is of glass, silvered within and blackened without. It is made in two forms; one with the tube vertically cut off, the other terminating obliquely. In practice, after being lubricated, preferably with glycerin, it is inserted into the urethra and any moisture obstructing vision is dipped out with either metal or wooden applicators wound with absorbent cotton. The illuminating source for the use of the Posner urethroscope may be either a head-mirror and lamp, or gas, or an electric light thrown in at the top of the funnel.

While the Posner urethroscope is necessarily limited in use by its inevitable shortness and other causes to be mentioned later on, it is certainly a very useful substitute in circumstances in which more

extensive apparatus is not at hand. One case is vividly before my mind in which it served as well as any more complicated instrument possibly could have done. It was shown me last winter by Dr. Arthur Lewis, Professor Posner's assistant at the Berliner Allgemeine Poliklinik. This patient had had a urethral discharge for eight years following an attack of urethritis. All manner of treatment proved unavailing. The patient, an artistic designer, had fallen into that mental depression we so frequently find associated with and resultant upon affections of the genito-urinary apparatus. The man's mind was certainly in a state of decided melancholia. The first attempt at illuminating the urethra revealed a superficial ulcer about one centimeter long by half a centimeter wide, situated about five and one-half centimeters behind the fossa navicularis. Two applications of silver nitrate a week apart, sufficed to entirely cure the case.

Grünfeld, of Vienna, devised an urethroscope about one-fifth longer than Posner's. It differs also in being of metal, blackened within and having an easily removable obturator.

The Casper urethroscope is a more extensive apparatus, based, however, essentially upon the same optical principles as are nearly all other instruments for urethral exploration. The tubes are of metal and longer than those designed by Posner; they have an obturator and at their visual end have a rim fitting into a handle, provided with an ingenious arrangement of condensers and prism by which electric light is reflected into the urethra. This entails quite a weighty handle, which I do not doubt will be remedied in the future by its designer.

One objection to the use of this instrument is that it must be learned. The beginner is obliged to exclude reflexes and to overcome the hazy mist which at first presents to his vision, and only when he has overcome these can he see the urethra.

The requirement of a light, easily manageable handle, seems to have been anticipated in William K. Otis' most cleverly devised urethroscope. It has been recently described in several journals, and therefore need not be again discussed here. With no desire to sin on the score of excessive patriotism, I can not but be pleased with the marked evidences of American ingenuity Otis' instrument presents.

Posner, Grünfeld and Casper use wooden "Tupfer" for the purpose of removing excessive moisture from the field of vision. These "Tupfer" consist of "wood wire," which is nothing but the sticks drawn for matches, but not cut into match length. Cotton wound around their ends, complete this part of the apparatus.

The instrument, however, which seems to cover all the requirements of modern urethroscopy, is the Nitze-Oberlaender urethroscope. It consists, essentially, of a battery which provides light urethral tubes of various calibers and a light-carrier which is inserted into these tubes.

By means of the light-carrier, the source of illumination is placed at the points to be examined, thus fulfilling the essential requirement, in obedience to the law that visual acuity is in proportion to intensity of illumination. It must be self-evident that the nearer the object to be seen is to the source of light, the more clearly it is perceived. To enable the urethra to hold an unprotected electric light within it, an ingenious arrangement of two small

tubes allows a current of cold water to flow around the light. Kollmann, of Leipzig, experimentally determined that in the first thirty seconds after insertion of the light, the temperature of the urethra rises one and a half degrees and there remains stationary. This gives no discomfort whatever to the patient. A simple rheostat governs the amount of light required in each case. The only objection which can be properly urged against this instrument is that excessive moisture can not be dipped from the urethra except by previously removing the light-bearer. This, however, is so trifling a matter, that it hardly merits serious consideration.

The space occupied by the light-bearer in the urethral tube is so small that it practically does not obstruct vision. Moreover, the light being within the urethra at the very tip of the tube, enables the use of a much longer instrument; indeed, there is no difficulty whatever in using the ordinary Oberlaender tubes for examination of the posterior urethra, practically a species of cystoscopy.

Since Nitze devoted his remarkable genius more to the development of cystoscopy, from which so many astonishing things have arisen, some of the profession concluded that urethroscopy was thereby condemned as a mere scientific diversion. But Oberlaender showed that the urethra is still a most important organ, fully meriting the profound study he gave it. The improvements he wrought led to a recognition of the pathologic significance of the details, such as gaping gland orifices, changes in color, lack of striation, smoothing out of folds in the mucous membrane, etc., and made it possible to view intelligently that bugbear of specialists, chronic gonorrhea. The far-reaching results of gonorrhea, both to the patient himself and to women, need but be mentioned here.

If Oberlaender had done nothing else than describe urethral pathology, modify the Otis dilator and offer further methods for the treatment of urethral diseases, the merit of his work would be incalculable. At a proper time I hope to enter more fully into the details of this matter, which can be but sketched here.

2. *Cystoscopy*.—It is too late in the scientific day to discuss the value of cystoscopy. No one can deny that visual exploration of the interior of the bladder is of incalculable diagnostic advantage beyond palpation with tactile instruments. The instrument which Nitze devised has a very short beak, consisting of a removable Edison mignon-lamp. This is attached to the shaft, immediately beyond where it has a prism adjusted with such optical neatness as to throw the illuminated image directly into the line of vision.

The optical arrangement of lenses within the shaft and at the visual end of the Nitze cystoscope, are calculated to give a clear image, not only of the vesical mucous membrane, but also of neoplasms as well as stones within the bladder. Several cases present themselves to memory in which stones were so encapsulated or held by trabeculae that even the most delicately managed sound could not reveal them. They could readily be located by means of the cystoscope.

In renal diseases, however, the cystoscope is of surpassing importance. The fact that a patient passes blood or pus from the kidneys with the urine, by no means indicates whether the right or left kidney is diseased. Watching the mouth of the ureters

through the cystoscope, will show which kidney extrudes the vitiated urine and thus save unnecessary nephrotomy. One case especially, among those in which I had the pleasure of assisting Nitze, demonstrated the extraordinary value of cystoscopy. This was an apparently healthy, vigorous man, who occasionally passed bloody urine. The surgeons who had explored his bladder found no cause for this symptom. Palpation of the renal regions revealed nothing. At one time, when the patient bled, his bladder was cystoscoped and it was found that the blood came from the right ureter. An exploratory operation at first exposed no kidney; search revealed that its lower pole was *above* the upper margin of the twelfth rib, rendering palpation impossible. On drawing down the organ and removing it, it proved to be three times its normal size. Microscopic examination showed it to be carcinomatous in all its parts. When I left Berlin on April 9, the patient was making an eventless recovery. Were this the only case of the kind, it would suffice to establish the very great importance of cystoscopy for diagnostic purposes.

The one opportunity for error in cystoscopy lies in the possibility of exaggeration. The optical apparatus necessarily magnifies, and therefore when the tip of the instrument is too far removed from the point or object under examination it appears enlarged. This, however, may also be advantageously employed in determining the character of a pathologic product or foreign body. How clearly these are visible is well shown by the beautiful pictures in Nitze's "*Kystoskopographischer Atlas*." These were taken by his photographing cystoscope.

The technique of cystoscopy is very simple, albeit wearisome. Very few cases can be properly prepared and examined in less than half an hour. The bladder is washed with a boric acid solution until the wash water flowing out through the catheter is perfectly clear; this may require a very long time. Then the bladder is filled with 100 to 250 grams of boric acid solution and the cystoscope, being sterilized and lubricated with glycerin is inserted in the same manner as the Mercier catheter is used. In sensitive cases the insertion of the cystoscope may be preceded by an injection of cocain in a weak solution. By then gradually advancing the rheostat of the light battery a sufficiency of light is obtained. Rapidly turning on the light endangers the lamp, which from excessive current may suddenly burn out and require an entire repetition of all the steps of the procedure.

Several modifications of the Nitze cystoscope have recently been placed upon the market. Among these Lohinstein's with a doubly curved beak, appears to unnecessarily increase the intravesical length of the instrument and to make the distance between the point examined and the prism too great. Winter's cystoscope for the female bladder is merely a shorter cystoscope than Nitze's.

3. *Catheterization of the Ureters*.—When Dr. Max Nitze, of Berlin, claimed priority in successful catheterization of the ureters in the male in No. 9 of the *Centralblatt für Chirurgie* for 1895, he reserved for himself a discussion of the present and future diagnostic and therapeutic value of urethral catheterization. In view thereof, and in view of the magnificent work done by Howard A. Kelly, of Baltimore, little beyond a demonstration of the instruments remains to be said here.

Kelly's and Pawlik's methods have rendered catheterization of the ureters in the female rather easy. But the efforts made in the male by Brenner, Poirier and Boisseau du Rocher, have by no means proved executable with any degree of security.

Nitze's cystoscope for catheterizing the ureters, roughly described is a small-sized (Charrière 19) cystoscope running through and easily turning in a larger tube. The latter is open at the outer angle of the knee of its Mercier bend. Near the visual end of the outer tube a small, short one enters it. This is just sufficiently large to permit the catheter or sound for the ureter to pass through it and the larger tube, from the tip of which it can be protruded. It is inserted into the bladder closed entirely. When in place, the knob on the outer rim, indicating as with other cystoscopes, the position of the beak, the inner tube, or small cystoscope which contains the lamp and prism, is pushed forward, and the whole apparatus turned until the mouth of the ureter is clearly seen through the visual end. The catheter is then propelled by the fingers until its point enters the mouth of the ureter. This is the most difficult part of the whole procedure. Once accomplished, the catheter can be easily pushed into the ureter, on toward the pelvis of the kidney. Then holding it firmly in place, cutting off the light, drawing the inner cystoscope into the outer tube, the metal part of the apparatus can be withdrawn, leaving the catheter in the ureter, projecting through the bladder and the urethra. In normal cases the urine, free from vesical secretions, will then spurt or drip from the orifice of the catheter, two to five drops every minute, minute and a half, or two minutes.

Incidentally it may be mentioned here, that the inner tube, before described, can be used for cystoscoping children's bladders.

Casper's cystoscope for catheterizing the ureters is a somewhat more complicated and heavier instrument than Nitze's. Its beak is doubly curved, somewhat like Lohnstein's modification of Nitze's instrument. The lamp and terminal prism are considerably larger than Nitze's, for which the author claims a wider visual field. The ocular end of the shaft has an extra set of prisms in the optical apparatus, which places it beneath the shaft. Thus the opening directly into the shaft is left free for the entrance of the catheter. When it has penetrated the ureter to the desired degree, a bit of rubber tubing at the orifice of its entrance is removed. Then a ring at upper part of the instrument is drawn toward the operator. It is attached to a thin metal slide, which forms the upper third of the catheter canal. On removing this entirely, the catheter is held by the ureter above; the part lying in the bladder is then freed and supporting the end projecting from the meatus, the cystoscope is withdrawn. Thus the catheter is left *in situ*.

4. *The Intravesical Removal of Tumors.*—Unfortunately, through circumstances unnecessary to relate here, the manufacturer of Nitze's instruments could not provide me with an operating cystoscope in time to demonstrate it at this meeting. I am therefore obliged to crave your indulgence for being compelled to use a drawing, which, at best, is an unsatisfactory substitute.

It is a cystoscope with wires to snare off tumors within the bladder. The wire can be used cold, by mere constriction, or it can be rendered incandescent

to sear as it strangulates. The tip of the instrument has a small platinum coil which can be rendered incandescent also, and thus used to cauterize the bases of tumors, arrest hemorrhage, etc. The instrument also has diminutive forceps, by which small fragments of tumors, or stones, or other foreign bodies can be grasped and withdrawn.

Other genito-urinary instruments and procedures, not being within the scope of this paper, I shall take pleasure in demonstrating privately to those interested. Among these are Nitze's irrigation and lithotomy cystoscopes, Oberlaender and Kollmann's urethral instruments, Janet's intravesical injector without a catheter, for the treatment of gonorrhea, and many other new genito-urinary devices.

This being the first occasion which I have had to publicly express my gratitude for many special attentions shown me in Germany, it affords me great pleasure to convey most sincere thanks to the eminent genito-urinary specialists there for all they did to advance my studies. I must mention particularly among these gentlemen, Prof. Carl Posner, Dr. Max Nitze, Dr. Leopold Casper, Dr. Hans Wossidlo, Dr. Arthur Lewin, Dr. Ernest R. W. Frank, of Berlin; Dr. Arthur Kollmann, of Leipzig, and Dr. F. M. Oberlaender, of Dresden.

THE RADICAL CURE OF HYDROCELE.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY D. C. HAWLEY, A.B., M.D.

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The only known method of effecting a certain, absolute and permanent cure of a hydrocele, is to bring about the complete obliteration of the cavity of the tunica vaginalis.¹

The methods usually employed by surgeons at the present time for the radical cure of hydrocele, are the injection method and the method by open incision. The treatment by injection fails in some cases, from the fact, no doubt, of its being improperly or poorly done. Again, it often fails in cases of very large hydrocele, and invariably in cases in which there is much thickening of the tunic, thereby preventing perfect collapse of the same.

Treatment by iodine injection is usually painful, and is attended with intense swelling and tenderness of the scrotum. Three to five days must be spent in bed, and three or four weeks are often necessary for perfect recovery.

Injection of carbolic acid is, in my experience, less painful and more efficacious, but requires about the same length of time for a cure.

In the operation by incision, as usually practiced and as described in the text-books, an incision about two inches long is made along the anterior surface of the tumor, which thoroughly opens and drains the sac. The edges of the tunica vaginalis are stitched to the skin by catgut or silk sutures, and a rubber drainage tube is inserted, or the cavity is packed with gauze.

The after treatment consists in a daily dressing, when the tube is gradually shortened or the packing is renewed. The patient must remain in bed for ten or twelve days, and eighteen to twenty-eight days or

¹ Treves.

more are required for a cure in most cases of operation by incision.

I wish now to describe, briefly, a method which I have employed for two or three years past, in my service in the Mary Fletcher Hospital and in private practice. I consider it almost unnecessary to say, at the present day, that the operation must be done aseptically.

The usual incision, two to three inches in length, is made along the anterior surface of the tumor, taking care always not to injure the testicle. The fluid is allowed to escape and the sac is irrigated. The margin of the tunic is stitched to the skin by six or eight black silk sutures. I use black silk, as it can be more readily found and removed. The interior of the sac is now irritated over every part of its surface by being rubbed with the finger tips. This is not done roughly, but gently and thoroughly. The sac is packed with strips of iodoform gauze, the usual dressings applied and the patient kept in bed. At the end of twenty-four hours the strips of gauze are removed and the cavity is irrigated. The entire surface of the tunica vaginalis will now be found to be covered with inflammatory lymph. Further packing or drainage is not used.

The opposing surfaces of the sac are now brought into thorough coaptation by compression, applied by means of strips of adhesive plaster. A light dressing of gauze is placed over the wound of incision and the adhesive strips are applied systematically around the scrotum over this dressing, so as to produce firm and even compression. The dressing should be inspected occasionally at first to see that it does not become loosened. If it does so, it must be reapplied at once. At the end of four or five days the dressing is taken off and the silk sutures removed.

At this time the cavity of the sac will be found to have been obliterated, the opposing surfaces having united by adhesive inflammation. Should a sinus be found, which, however, has happened but once in any of my cases, it should be treated on general principles and allowed to heal from the bottom. The wound is again dressed and mild compression continued. Two or three more dressings are all that are required, and at the end of six to twelve days the wound will be entirely healed. A slight dressing may be necessary for a few days to prevent chafing, and a suspensory should be worn for several weeks.

The strips of gauze used for packing should be counted and a note made of the number, to avoid the possibility of one of them being left at the time of the first dressing. But little swelling follows the operation, and I have seen no cases in which orchitis has supervened. The patient need be kept in bed but three or four days, but the scrotum should be suspended whenever he is allowed to get up.

Case 1.—George W., age 54, carpenter by trade, was admitted to the Mary Fletcher Hospital with a history of double hydrocele having existed for ten or twelve years. Both had been tapped several times. On Oct. 16, 1894, I operated on him under ether, in the manner described. The left hydrocele contained a pint of fluid and the right more than a pint. The case was dressed the next day, when the packing was removed and the surfaces of the sacs were brought together and held in apposition by a well-fitting dressing. This was left five days and on October 22, six days from the time of operation, the case was again dressed and both sides were found entirely healed, excepting the incisions through the scrotal tissues. There was no pus. Dressed again on October 24, or the eighth day, and the patient allowed to go home as he resided in the city, with instructions to return in four days. He returned as directed on October 28, when

both incisions were found entirely healed, and he was discharged cured—twelve days from the date of operation. He went to work at once at his trade, having lost less than two weeks' time. At the present writing he is perfectly well, with no sign of a return of the trouble.

Another case of single hydrocele containing a half pint of fluid was operated on by the same method nearly two years ago, and was well in six days, and no sign of a return of the hydrocele up to the present time. In one case, a small sinus was found at the second dressing, which was one inch in depth and a little larger than a good-sized probe. This closed perfectly in three or four days.

Every case operated on thus far, by this method, has been successful.

The advantages claimed for this operation over any other, in all cases of old or large hydrocele, are the shorter duration of the treatment, together with the probability of a radical cure in every case.

The treatment by the injection method requires a long time for the restoration of the parts to their normal condition, while at the same time the result is uncertain, for the reason that the inflammatory process set up by the injection may not be sufficient to produce a cure. On the other hand, it may be so severe as to cause extreme swelling and much suffering.

The special objection to the open incision method is the long duration of the treatment. The patient must remain in bed from six to twelve days, which time measures the duration of the treatment by the method I have described.

This method is, I believe, applicable to all cases requiring an operation. It is not open to the objection that the patient must take an anesthetic, for if there is any special reason why he may not do so, or if he will not submit to it, the operation may be done with cocain.

RECENT INVESTIGATIONS UPON THE POISONOUS PROPERTY IN EXPIRED AIR.

BY HANNAH B. CLARK, (UNIVERSITY OF CHICAGO).

"Expired air consists chiefly of watery vapor, carbonic dioxide (CO_2), and organic matter. CO_2 in large quantities is a deadly poison, and popular opinion looks upon this as the dangerous element in foul air. But specialists do not deem the CO_2 even in the worst ventilated rooms really dangerous. . . .

"What then constitutes the danger from foul air? It is the organic matter present in it. The lungs and skin exhale a powerful poison. The quantity is very small, but where two or three persons are together in a confined space, it is sufficient to infect the air quickly. While the exact nature of this organic matter is a subject of dispute, it is evident that the human miasma is the really dangerous element in expired air. . . .

"The amount is generally proportional to the amount of expired air, and the CO_2 measures the amount of expired air. Hence, the CO_2 , although comparatively harmless itself, is a good index of the impurities of the air."¹

In this extract from Dr. Burnham's admirable monograph we have a clear statement of the position taken by physiologists in the second stage of the discussion regarding the toxicity of expired air, the view which appears in almost every work on hygiene

¹ *Outlines of School Hygiene*, W. H. Burnham, Ph.D. Pedagogical Seminary, June, 1892, pp. 22, 23.

published within the last five or six years. During this time, however, continued investigation has furnished us with a body of new evidence which is so weighty and, on one point so decisive that it involves an entire re-statement of the case. To this end a review of the course of discussion seems called for.

The "popular opinion" to which Dr. Burnham refers, that looks upon CO_2 as the dangerous element in expired air, is but the conservative survival of what, in the first phase of the investigation, was the general scientific opinion. In searching for the cause of those phenomena so common in crowded, ill-ventilated rooms—headache, fainting, nausea, etc., the earliest students of the problem naturally had their suspicions directed to the one conspicuous element of expired air whose poisonous properties, when in large quantities, were well known, and carbon dioxide continued to bear this odium until experiments showed what a small amount of the gas is present in even the most impure air. Any evil effect from it seemed impossible and, as its presence did not explain the phenomena under consideration, some other poison must be sought.

In 1870, Ransome published his studies of "The Organic Matter of the Human Breath,"² which led the way in a long series of investigations. Ransome tested the breath for free and organic ammonia and estimated the organic matters given off in twenty-four hours at 0.2 gm. or 3 grs. He found in the breath, cells of various kinds, portions of epithelia, etc., and concluded that "they simply show the readiness with which the aqueous vapor of the breath ferments or putrefies, and the consequent danger of over-crowding, and the paramount importance of ventilation."

More practical experiments were made by Hermans³ in 1883, when he attempted to answer the question, whether there is in inhabited rooms an accumulation of combustible material which leads to evil results, and whether, if a gaseous organic matter is exhaled, it is harmful. He reached the conclusion that sound men breathe out no appreciable amount of volatile organic matter. By another series of experiments in which he placed a man in an airtight chamber and examined the air from time to time, he found that unpleasant symptoms appeared when the CO_2 rose to 3 per cent. His attempts to discover some trace of organic matter in the fluid formed by condensed exhalations were fruitless.

This negative result was an incentive to further studies of the same question, such as those of Uffelmann,⁴ who determined the amount of CO_2 in atmospheric air at from 3 to 4 parts per 10,000. Since Hermans' experiments placed the danger point for CO_2 at 3 per cent., and other investigators had reported less than 100 parts per 10,000 in the worst ventilated rooms, the evidence seemed to be conclusive that CO_2 is not the dangerous element. Uffelmann also states that it is not the infallible test of the toxicity of the air that it had been assumed to be, for he often found it low when the latter, *i. e.*, when the organic matter was high.

Into the midst of these partially negative discussions with their lack of finality came certain statements from Brown-Séquard and d'Arsonval⁵ which

aroused the keenest interest because of their apparent decisiveness.

These investigators had obtained a sort of solution of expired air both by pouring water into the bronchial tubes of an animal and withdrawing it after it had mixed with the air from the lungs, and by condensing breath. With the liquid thus obtained they injected rabbits and dogs, the doses varying from 4 to 25 grs. The resulting symptoms of illness differ only in intensity according to the increase in the dose. They were invariably, dilation of the pupils, quickened respiration, paralytic weakness and variations of temperature, followed in extreme cases by death. After death the venous blood was found to be red. These results led the writers to conclude that, "the lungs of men, dogs and rabbits, in a healthy condition, produce an extremely energetic poison. . . . It is extremely probable, if not certain, that this is the toxic agent which renders confined air dangerous."

The poison, they said, is probably a volatile alkaloid, "leucomaine," judging by its extreme alkalinity, its persistence after heating to boiling in a closed vessel, and the resemblance between the phenomena caused by injections of condensed breath and those caused by other alkaloids.

There was an immediate attempt made to obtain results which would corroborate those of Brown-Séquard and his fellow worker. Dastre and Laye⁶ succeeded in producing the same symptoms in animals, but only when they injected very large quantities of the fluid, and they afterward found that a similar quantity of pure water produced the same effects!

Entirely negative results were reached by Lehmann and Jensen,⁷ and also by Hoffmann-Wellenhof.⁸ No trace of the alkaloid could be discovered.

Brown-Séquard and d'Arsonval returned no direct answer, but a little later in the same year they reported a still more striking series of experiments in which they employed the so-called ventilation method. A number of rabbits were confined in glass cages so connected that only the first animal received fresh air, each of the others being obliged to breathe the exhalations of those preceding it. The death of the animals took place in regular order, beginning with the one farthest from the fresh air. Moreover, they stated the amount of CO_2 present at any time was very small, not more than 1 or 2 per cent., and when a tube of sulphuric acid was placed between any two cages, the rabbit beyond it, farthest from the source of air, lived.

All of these facts they regarded as greatly strengthening the theory of a volatile organic poison, since the small amount of CO_2 could not cause death, and the security of the animal which received its air through H_2SO_4 pointed to a probable union of the alkaloid and the acid.

This second challenge to investigators was taken up as quickly as the first had been. The vexed question seemed on the point of solution. Its confirmation was apparently given by Merkel⁹ who in 1892 repeated Brown-Séquard's experiments. Trying first the method of injection, he failed as the other would-be verifiers had done, but when he used the ventilation method his confirmation of the earlier results

² Jour. Anatomy and Physiol. 1870.

³ Archiv f. Hygiene. Bd. 1, Heft 1.

⁴ Arch. f. Hygiene Bd. VIII.

⁵ Comptes Rendus, January, 1888.

⁶ Comptes Rendus, 1888.

⁷ Arch. f. Hygiene, Bd. X.

⁸ Wiener Klinische Wochenschrift, Dec., 1888, No. 37.

⁹ Arch. f. Hygiene, Bd. XV.

appeared complete. There were the deaths in the same order, with the same exception in the case of an animal protected by the H_2SO_4 , and the same small amount of CO_2 . The remark that the symptoms of illness could not be distinguished from those of carbonic acid poisoning is apparently made by Merkel as an observer rather than as a logician. He ignores it in his conclusions.

Merkel next followed out the suggestion as to a basic substance, and attempted to unite it with various acids, sulphuric, hydrochloric and acetic. After passing expired air through the acid he evaporated the solution and injected the sediment into rabbits. Only the most transient symptoms of disturbance followed.

The conclusion was therefore drawn that the organic poison exists,—as proved by the test of caged rabbits breathing expired air; that it is a base, as Brown-Séguard believed, and that it loses its toxicity when it enters into combination with an acid.

For a time the position thus taken by Merkel and Brown-Séguard and d'Arsonval was unassailed, and their view was even incorporated in the current works on hygiene as of final authority. But the doubts had not all been laid; they were repeatedly revived by other observers who wished to see the proofs in their own laboratories, until the accumulated evidence entirely altered the aspect of the question.

Benu, like Lehmann and Jessen, obtained only negative results from injection. With the ventilation method there was a repetition of the phenomena Merkel had seen, but there were also several obvious causes which rendered unnecessary any reference to an obscure poison. Excessive moisture, sudden changes of temperature, and lack of oxygen were the factors which explained all the effects. Without ignoring the organic matter present, Benu considered it too small in amount to cause any trouble, and he found no proof of a specific poison.

Thus far all the control experiments had been with animals, but Haldane and Smith¹⁰ now made a valuable contribution to general knowledge in the record of investigations made with human subjects. They constructed an air-tight chamber in which the subject remained from seven to twelve hours at four different times. In the first two experiments the CO_2 increased from the normal to 5.8 per cent. and 6.39 per cent. In the second two the CO_2 was absorbed and reached only 0.6 and 1.4 per cent. General discomfort, quickened respiration and a headache on coming out were the symptoms experienced by the subject in the first two; in the last two only the slightest discomfort. In no case was an odor perceptible in the chamber at the close of the experiment, though it had been occupied for hours.

In order to estimate the relative part played by excessive CO_2 and insufficient O, another series of tests was made which showed that the diminution of O had comparatively little effect, since hyperpnoea began when the CO_2 reached about 5 per cent. whether the amount of O was greater or less than the normal.

The conclusions which the authors draw are of interest:

1. "The immediate dangers from breathing air highly vitiated by respiration arise entirely from the excess of carbonic acid and the deficiency of oxygen, and not from any specific poison.

2. "The hyperpnoea is due to excess of CO_2 and is not apparently affected by the corresponding deficiency of O. The hyperpnoea begins to appear when the CO_2 rises from 3 per cent. to 4 per cent. At about 10 per cent. there is extreme distress.

3. "Excess of CO_2 is likewise the cause, or at least one cause of the frontal headache produced by highly vitiated air.

4. "Hyperpnoea from defect of O begins to be appreciable when the O in the air breathed has fallen to a point which seems to differ in different individuals. In the case of one of ourselves the hyperpnoea became appreciable at about 12 per cent. and excessive at about 6 per cent."

In a later experiment¹¹ the same observers repeated the ventilation tests of Merkel, but only to conclude that "these experiments are distinctly against the theory that a volatile poison, other than carbonic acid, exists in expired air."

The amount of CO_2 was larger than that found by Merkel, and the presence of an absorption tube produced no effect; that is, there was no union of the acid with the hypothetical base.

The latest testimony on the subject of a volatile poison is presented by Rauer,¹² who, at the suggestion of Professor Flügge, undertook to repeat the work of Brown-Séguard and d'Arsonval with the most careful exclusion of all possible sources of error. Like Haldane and Smith, he found that the CO_2 in the cages was far in excess of that reported by Brown-Séguard, a fact which throws suspicion upon the latter's air-pump or tubing. He also failed to agree with the latter as to the effects of H_2SO_4 . The absorption tube was no protection to the animal whose air supply came through it. Furthermore, the rapid recovery of the animals when the experiment was stopped was very different from the behavior of those poisoned by any known alkaloid. On the other hand, all the symptoms were those of carbonic acid poisoning, and direct proof that death was caused only by the CO_2 is afforded by the fact that when an animal breathed through a tube containing KOH, which removed the CO_2 , it continued perfectly well.

Finally, the amount of organic matter present in expired air corresponds so closely to that in atmospheric air that it can not be looked upon as of any appreciable importance, even if a slight excess exists.

In this work of Rauer, we have the last reported investigations of the question under discussion. Taking these in connection with the conclusions reached by Benu and the many other observers who sought to verify Brown-Séguard's results, we may confidently affirm a final judgment on one point—the theory that there is a volatile organic poison in expired air is ruled out of court; it will not be questioned again in the face of such overwhelming denial. But the problem still remains, What is the poisonous property in badly ventilated rooms which renders the air dangerous?

There is general agreement among investigators that until the amount of CO_2 rises to 3 per cent. or 4 per cent. no harm results. But the worst ventilated rooms show less than 1 per cent., therefore it can not be responsible for those phenomena of crowded rooms which are commonly ascribed to bad air. Whether long continued exposure to air containing an excess

¹¹ Jour. of Pathol. and Bact., February, 1893.

¹² Zeitschr. f. Hygiene u. Inf., Bd. XI, Heft. 1.

¹⁰ Jour. of Path. and Bact., October, 1892.

of CO₂ above the normal, even if it be below the danger limit, affects in any way physical well-being, is a question too elusive to be easily answered, if indeed it admits of an empirical answer.

The suggestions which have been recently made regarding the cause of the phenomena in question tend toward the view that no single cause, but rather a combination of causes is to be expected, and that these may possibly be related to the physical condition of the air quite as much as to its chemic composition.

In a crowded, ill-ventilated room, several abnormal factors are to be noticed. Aside from the excess of carbonic dioxid, there is an increase of moisture, a very considerable rise of temperature, and, very often, unpleasant odors, some of them due to bodily uncleanness. All of these must receive consideration in the further study of the practical problem, and be weighed both alone and in combination.

The difficulties in the way of these complicated experiments, increased as they must be by attention to the subjective element, the nervous strain felt by sensitive persons in a crowd, are so many that no complete solution of the question can be looked for in the immediate future. We may, however, hope to learn something definite about the effects of temperature and cleanliness, factors which have a very direct bearing upon the efficiency of all systems of ventilation.

Two recent series of investigations on subjects allied to the one discussed above contain some interesting suggestions. In the *Centralblatt für Bakteriologie*, February, 1894, Alessi reports certain experiments which he has made on sewer gas as a predisposing cause of typhoid infection. He found that the animals which breathed sewer air, a mixture of various gases, were rendered peculiarly susceptible to infection, but that no one of the gases taken alone produced any effect, nor, most significant of all, did an artificial mixture of the more familiar gases of decomposition such as H₂S, CH₄, NH₃, etc. He apparently failed in some way to reproduce all the elements of natural "sewer gas."

Geilmuyden, (*Arch. f. Hygiene*, Bd. XXI, Hft. II) who studied the products of illuminating gas, asserts that the poisonous properties of air in crowded rooms are certain, but that chemically they can not be shown or determined.

By a study of animals he reached the same conclusion that Haldane and Smith, Hermans and others had reached, that CO₂ is not dangerous until it amounts to 3 per cent. or 4 per cent. Illuminating gas increased the CO₂ in well-ventilated rooms 0.2 per cent. to 0.3 per cent.; in badly ventilated rooms 0.6 per cent. to 0.7 per cent. The gas increases the moisture slightly, the temperature very considerably. And the latter part he regards as a very significant one in considering the injurious influence of the air.

SOCIETY PROCEEDINGS.

Association of American Medical Colleges.

Sixth Annual Meeting, held at the Club House of the Hotel Rennert, Baltimore.

(Continued from page 1014.)

It is my opinion that medical jurisprudence should be taught during the third or fourth years of the four years' course. It should be a compulsory study, including at least

thirty-two hours of time. The instruction can best be afforded in lectures and recitations. It should not include toxicology, except from a legal standpoint. A few hours can, with profit, be spent in the laboratory in a study of blood in its medico-legal aspects. I would suggest that instruction include work in the following topics in the subjoined order:

HISTORY OF MEDICAL JURISPRUDENCE.

Legal procedure, the coroner's jury; the justice or municipal courts; the grand jury; the trial court; the court of review or supreme court.

Evidence, witness of fact; witness of opinion or expert; dying declarations.

Phenomena and signs of death; molecular death; somatic death; causes of death; signs of death; medico-legal investigations in cases of death; the post-mortem etc.

Presumption of death; presumption of survivorship; personal identity; the causes producing violent death; examination of blood stains; burns and scalds.

Death in different forms of asphyxia; from suffocation; from strangulation; from hanging; from drowning.

Death by lightning; death from heat and cold; death by starvation; death from poisoning; toxicology.

Toxicology from a medico-legal standpoint; malingering; pregnancy; criminal abortion.

Infanticide; legitimacy; inheritance; rape; insanity; medical malpractice; civil malpractice; life insurance.

Dr. N. S. DAVIS, Dean and Professor of the Practice of Medicine Chicago Medical College, presented the subject of

THE HISTORY OF MEDICINE AND MEDICAL ETHICS.

The importance of a more systematic study of the history of medicine and its relations to all other coincident branches of human learning through the past centuries, is well illustrated by the following saying of Hippocrates: "The physician must know what his predecessors have known, if he does not wish to deceive both himself and others."

Having delivered a course of lectures to the senior class in the Northwestern University Medical School, each of the last three years, on the history of medicine and medical ethics, I am more than ever before convinced that the subjects named are of so much importance that they should be placed in the curriculum of a medical school. They should be taught with a reasonable degree of thoroughness. Guided by my own experience, I am induced to think that a fair discussion of the origin, progress and more important events pertaining to the history of medicine can not be given in less than fifteen or sixteen lectures or lessons of one hour each.

SYLLABUS OF WORK.

Lecture 1. All the earliest historical and mythological data prior to, and at the time of Hippocrates; between the fourth and fifth centuries, B. C.

Lecture 2. The characteristics of Hippocrates and his works, and their relations to co-existing systems of philosophy and religion.

Lecture 3. The progress of medicine from the death of Hippocrates to the establishment of the Grecian or Alexandrian School and Library, to the overthrow 100 B. C.

Lecture 4. The effects of the Roman conquests, and the transference of medical institutions to Rome and their progress to the time of Galen about 200 A. D.

Lecture 5. Medical progress from the death of Galen to the overthrow of the Roman empire; the establishment of Arabian medical schools, to the return of medicine with the Saracens to Europe, covering a period of ten or twelve centuries.

Lecture 6. The reestablishment of medical schools at Salerno, Bologna, and other points in Europe, from the thirteenth century to the end of the fifteenth century, during which chemistry and anatomy became distinct branches of science, and the arts of printing is discovered.

Lecture 7. Progress of medicine during the sixteenth and seventeenth centuries, with the influence upon it of the thirty years of religious wars.

Lecture 8. Progress during the eighteenth century—the era of medical theories and dogmas, as well as of scientific discussions.

Lecture 9. The important discoveries and progress during the first half of the nineteenth century.

Lecture 10. The condition and progress of medicine and medical institutions in the American colonies from their settlement to the close of the War of Independence.

Lecture 11. The progress of medicine and of medical institutions in the United States.

Lecture 12. Progress in the development of minute anat-

omy, pathology, etiology and experimental therapeutics, closing the second half of the nineteenth century, and its relation to coincident progress in the other departments of science.

Lecture 13. The important discoveries and their application in all practical departments of medicine, during second half of the nineteenth century.

Lecture 14. The present status of the science and art of medicine and surgery, the effect of its segregation into specialties, and the principles that should guide our efforts for future progress.

Lecture 15. A candid statement of the origin and distinctive characteristic features and claims of homeopathy, Thompsonianism, eclecticism, physio-medicalism, etc., which still remain as an eighteenth century excrecence or dogmas in the domain of medicine.

In presenting a fair discussion of medical ethics, I have found it necessary to give four lectures, to-wit:

Lecture 1. The origin of medical ethics, including the Hippocratic oath, the volumes by Thomas Percival in 1803, and the framing of the American Code by the National Medical Convention in 1846 and 1847.

Lecture 2. The adoption of the American Code by the AMERICAN MEDICAL ASSOCIATION and nearly all the State medical societies. The duties of the physician to his patient and of the patient to the physician.

Lecture 3. The Code as applied to the relations existing between physicians and to the profession at large.

Lecture 4. The Code, defining the duties of the physician to the public and of the public to the profession, with the explanatory preamble and resolutions appended thereto, with such comments may be deemed proper.

The most appropriate place in the medical course of study is the fourth year, and certainly not earlier than the third year; as the more advanced the student is in the current medicine of the day, the better he will appreciate all that relates to its past history; and the more certainly it will guard him against entertaining extravagant ideas of the importance and permanence of the popular doctrines and practices in which he is being educated.

We would recommend as the minimum amount of work for four years, courses to consist of eight months each as follows:

For the third year men, thirty recitations, twenty didactic lectures, ten practical lessons in physical diagnosis, and three review examinations.

For the Seniors (that is for the fourth year men) we recommend thirty recitations, twenty didactic lectures, ten lessons in practical physical diagnosis, thirty clinical lectures, and three review examinations. Although we have recommended this as a minimum, we think it would be a fair average. There would be no objection to adding a few more hours if other subjects permitted.

The work of the Juniors should comprise recitations on physical diagnosis, and on all of the common diseases of the heart and lungs, and didactic lectures on the more important diseases of the thorax.

The work of the Seniors should comprise recitations on practically all of the diseases of the thorax, except those of very rare occurrence, with didactic lectures on all of the principal diseases, and clinical lectures on such cases as might be presented. Practical physical diagnosis would necessarily have to be much the same for the two classes, but the Juniors should study thoroughly the normal chest. By this arrangement all subjects are gone over twice in one way or another, and we believe it necessary that they should be so considered, in order to fit the men for work as general physicians. We have not specified the particular diseases, thinking it would require more space than you would care to devote to this branch, but we will do so if it is your desire.

Respectfully submitted,
E. FLETCHER INGALLS,
Chairman Rush Medical College.

DR. HENRY P. BOWDITCH, Professor of Physiology at Harvard Medical College, said, on the subject of

PHYSIOLOGY.

I feel much hesitation in undertaking the work you have asked me to perform; since no one person can have an adequate idea of the conditions under which medical instruction is taught in various medical schools of the country. An ideal course of instruction should be arranged so as to bring the instruction in physiology subsequent to that of anatomy; but this is rarely, if ever, possible, owing to the small number of subjects which can be properly taught the first year.

With regard to this, the fifth point in your circular letter, I would say that, in my opinion, it would be unwise to make any general rule to regulate the practice of medical schools with regard to giving credit for work done in other schools. Each school should judge of this for itself. It seems that the object of this committee will be secured if the aid of various national societies of specialists is invoked. The preparation of a syllabus of lectures in physiology, for instance, could be intrusted to a committee of the American Physiological Society, and if indorsed by the society would command the confidence of the various medical faculties of the country. A result would be reached more slowly by this way but it would, I think, be worth waiting for.

DR. ROSWELL PARK, of New York, discussed the subject of

BACTERIOLOGY.

Basing the following plan upon a four years' course of not less than eight months each, my suggestion would be as follows: I think that bacteriology ought to be taught in a way differing from that in which it is at present generally taught, and I would divide the subject in accordance with these views. During the first year, when the men are doing their preliminary work on the fundamental studies—at the time, in other words, when they are studying anatomy, physiology and biology, which I assume they are also to be taught—I would have systematic instruction in cryptogamic botany, devoted in a large measure to morphology and the classification of the various forms of vegetable life, with which they will later have to become more familiar as disease germs. This instruction at such time would be essentially didactic, with illustration by diagrams and, if possible, by a certain amount of acquaintance with the appearance of these minute forms of life through the microscope. This didactic instruction should be partly by the way of lectures, partly by way of recitation, and might profitably consume eight or ten hours of actual work. Incidentally, I would put in also instruction upon the lowest forms of animal life—the sporozoa, etc. This might possibly be done before they take up the other forms of animal life which are parasitic, that is, the entozoa.

During the second year, or at such time as the men are taught organic chemistry, and along with the study of the alkaloids, or in appropriate places, I would have instruction inserted, concerning the ptomaines and other poisonous alkaloids which are the products of bacterial life; and, again, when they are dealing with the albuminoids, I would insert so much as can be taught with any definiteness about the albuminoid poisons of the same origin. This would require a careful arrangement of these and their insertion at proper points, with a reference backward to morphologic studies and a strong impetus forward in the direction of a practical application of what they have learned during these two years, which should come in during the fourth year in the way of laboratory investigation.

I am taking it for granted that teachers in the various departments who have to deal with infectious diseases would make, now and again, the statement that such and such a disease is due to such and such an organism, and would give such demonstration of this as they might see fit. This would be both an illustration of the importance of remembering the isolated facts already gathered, and would serve to keep the student alive to the importance of such knowledge.

It would be difficult to assign a definite number of hours to this work in organic chemistry *in toto*. I should say that at least three or four hours ought to be devoted to this particular part of the work during the season's instruction in chemistry, perhaps more.

Finally, during the fourth year, I would have courses of practical instruction in a bacteriologic laboratory, arranged to last at least six weeks, preferably eight, during which at least three hours of continuous work should be devoted to this each day, this to be like laboratory instruction in other respects. The men should be taught to make the culture media, and to go through all the various manipulations which are included in the study of bacteriology. They should be taught to differentiate between different forms, and to recognize pathogenic organisms; and at least a certain amount of work upon living animals should also be insisted upon. They should also be taught the use of the microscope in the recognition of bacteria and their differentiation, as well as their detection in various morbid products—sputum, urine, etc.

It seems to me that in this way, men would go out from college, not experts, but intelligent scholars, having already in their possession the knowledge which would incite them to further study, or at least make them intelligent readers and students.

First year. Instruction in cryptogamic botany and morphology.

Second year. Instruction in the chemistry of the bacterial products.

Fourth year. Laboratory exercises and instruction in the cultivation and detection of the bacteria, and methods of experimental study.

DR. HOWARD KELLY, Johns Hopkins Hospital, said, on the subject of

GYNECOLOGY.

(One hundred hours.)

1. Gynecology is a specialty and not one of the fundamental branches. If it is to be mastered, this must be done by post-graduate study. The time recommended is sufficient to give a general practical knowledge, but not to fit a man to perform any important operations. This time should be divided about as follows: Didactic lectures, thirty hours; clinical instruction, thirty hours; touch course, fifteen hours; pathologic laboratory demonstrations from recent specimens, fifteen hours; recitations, ten hours. One hundred hours in all.

2. These lectures should be arranged as follows: Topographical anatomy, two; gynecologic examination, two; diseases of external genitals and operations, eight; diseases of urinary system, four; diseases of uterus, tubes and ovaries, general principles of gynecologic operations, after-treatment of abdominal cases, fourteen. Total, thirty.

3. This branch should be given the last year with other special branches.

4. No special preliminary studies are necessary, except such as are naturally included in a well-arranged course with thorough teaching in anatomy and pathology.

5. I consider an examination the only proper method of admitting men to advanced standing. If the standard is high, this is but fair to the other students.

7. Topographical anatomy, two lectures. General principles of gynecologic operations, two lectures.

Touch course of ten hours. Examination of normal pelvic organs: vulva, vagina, uterus, tubes, ovaries, broad ligaments, urethra, bladder, ureters, anus, rectum, sigmoid flexure. Two lectures; fifteen hours practice.

Minor gynecology and diseases of vulva, vagina and cervix: inflammatory, neoplasms, cysts, lacerations, fistulae. Eight lectures.

Diseases of urethra, bladder and ureters: inflammatory, strictures, fistulae, calculi, neoplasms, cysts. Four lectures; four hours clinical instruction.

Diseases of uterus, tubes, ovaries and broad ligaments: inflammatory, neoplasms, cysts. Ten lectures.

After-treatment of abdominal cases. Two lectures.

NOTE.—Clinical instruction will have to be given to the class as the material is available.

1. For satisfactory gynecologic teaching, the class should be divided into small sections of five and ten.

2. Not more than five should be admitted to a touch course at one time.

3. In didactic teaching, the whole class should be united.

4. It is important, as far as practicable, to establish the plan of teaching several minor gynecologic operations upon the cadaver.

Order of instruction: one didactic lecture weekly, thirty hours. Demonstrations from recent specimens in pathologic laboratory, one hour every second week, fifteen hours. (Touch course to class by sections throughout term, fifteen hours each.) Recitations, one hour every third week, ten hours. Clinical instruction, one hour weekly, thirty hours. Total, eighty-five hours. Adding touch course, fifteen hours; total, one hundred hours.

PROFESSOR VICTOR C. VAUGHAN, of the University of Michigan, presented a

SYLLABUS OF LECTURES ON HYGIENE—NOT INCLUDING BACTERIOLOGY.

(Seventy-eight hours.)

Part I.—Individual Hygiene.

Lecture 1.—Food, definition, classification.

Lecture 2.—Force value of foods. Cyclical changes in matter, actual and potential energy. Foods for plants. How plants obtain their carbon, hydrogen, oxygen, nitrogen, phosphorus and sulphur.

Lecture 2.—Food principles; water, inorganic salts, proteids, carbohydrates and fats. The amount of each food principle required by healthy persons daily.

Lecture 4.—The economic value of foods. The percentage composition of the most important foods.

Lecture 5.—The construction of diet tables for the healthy. Rations for prisoners, for workingmen, for students.

Lecture 6.—Meats. General statements concerning the use of meats as foods. Is man suited to an exclusive vegetable diet? This question is answered from the anatomic, physiologic, chemic and experimental data known.

Lecture 7.—Meats (continued). General rules which should govern the selection of meats. Digestibility and food value of meats from different animals. Influence of season, of previous feeding, of age, of exercise just before death, and of methods of slaughtering and dressing on the food values of meats.

Lecture 8.—Meats (continued). The transmission of animal parasites to man in meats. Trichinae, echinococci, teniae.

Lecture 9.—Meats (continued). The transmission of bacterial diseases to man through the flesh of diseased animals. Anthrax, tuberculosis, foot-and-mouth disease, etc.

Lecture 10.—The inspection of animals before slaughtering. The hygiene of slaughtering houses.

Lecture 11.—Meats infected with non-specific toxicogenic germs. Historical review of cases of mass poisoning of this kind.

Lecture 12.—The examination of meats suspected of producing untoward effects. Chemic and bacteriologic examination.

Lecture 13.—Milk. Its physical and chemic properties. Adulterations. Detection of adulterations.

Lecture 14.—Milk (continued). Comparison of woman's and cow's milk. Changes in cow's milk to make it correspond more closely with that of woman. Infants' foods.

Lecture 15.—Milk (continued). A vehicle for the spread of tuberculosis, typhoid fever and other diseases.

Lecture 16.—The relation of infected milk to the summer diarrheas of infancy. The formation of poisonous ptomaines and proteids in milk.

Lecture 17.—Rules to govern the dairy farm, milking, the cooling and transportation of milk.

Lecture 18.—Sterilization and Pasteurization of milk.

Lecture 19.—Butter. Its food value. Methods of preparation. Influence of bacteria in the production of butter. Adulterations and methods of detecting the same.

Lecture 20.—Cheese. Methods of preparation. Action of rennet. Action of bacteria. Hygiene of the factory and curing room. Adulterations and methods of detecting the same.

Lecture 21.—Varieties of cheese. Food value. Cheese poisons.

Lecture 22.—The starches and starchy foods. Their value. Their digestibility. Effects of excess of starchy foods. Digestion of cellulose. Fermentation in the intestines.

Lecture 23.—Sugars and syrups. Kinds of sugar. Distinctions. Commercial methods of preparation. Confectionery. Adulterations of sugars, syrups and confectionery.

Lecture 24.—The cereals. Their food value. Varieties. Wheat, rye, barley, corn, etc. Methods of conversion into foods. Ergotism. Maidismus, lathyrismus, tayopyrismus.

Lecture 25.—Flours and meals. Tests of the bread-making value of flours. Food value. Estimation of gluten contents. Food values of flours and meals.

Lecture 26.—Bread. Methods of making. The leavening of bread, with yeast, with baking powder, with compressed air and other gases. Adulterations of bread. Impure yeast. Adulterated baking powders. The use of coloring matters in cakes. Short weight loaves.

Lecture 27.—Fresh fruits and vegetables. Their food value. Scurvy, its history in the past, its occurrence at present and its prevention.

Lecture 28.—Dried and preserved fruits. Their preparation. Adulterations. Poisoning from canned vegetables and fruits. Jellies and their adulterations.

Lecture 29.—Condiments. The extent to which salt should be used in food. The use of pepper, mustard and spices. Their adulterations.

Lecture 30.—Non-alcoholic beverages. Coffee, tea, maté, cocoa, chocolate, etc. Their food value. Their stimulating effects. Active principles. Physiologic and toxicologic effects. Adulterations.

Lecture 31.—Alcoholic beverages. Fermented and distilled; cider, wine, beer, porter, brandy, whisky, rum, gin, liquors, etc. Percentage of alcohol. Other constituents. Food values. Adulterations.

Lecture 32.—Alcoholic beverages (continued). The physiologic and pathologic effects of alcohol. Its effects on digestion, the circulation, nervous system, etc. Its use in health and disease.

Lecture 33.—Baths and bathing. The necessity of frequent bathing. Excretion through the skin. The temperature of baths. The morning bath. The shower bath and cold plunge. The warm bath. Mineral baths. Sun bathing. Swimming as a means of exercise. The resuscitation of the apparently drowned.

Lecture 34.—Clothing. Fibers used in the manufacture of clothing. Silk, wool, cotton, flax, hemp and jute. The properties of each. Their durability and adaptability. Influence of season on clothing; color. The use of fur, leather and rubber as articles of clothing.

Lecture 35.—The adjustment of clothing. Advice to patients in regard to their clothing in various diseases, such as Bright's disease and tuberculosis.

Lecture 36.—Physical exercise. Its value. Pulmonary and systemic respiration. Oxygen in the blood is physiologically still outside of the body. It must be carried into the tissues and this can be done only by activity of the tissue. Kinds of exercise. Conditions necessary to make it of value.

Lecture 37.—Mental hygiene. Activity necessary to brain development. Mental work does not kill, worry may. Train the judgment. Take some line of work and make yourself master of every detail. Study must be begun early in life. One who takes up a new line of work after 40 is likely to make a failure of it. Methods of study. Hours of study.

Lecture 38.—Rest. Recreation. Physical rest. Mental rest. Change in work. Evidences of need of rest. Rest in sleep, in recreation and in work.

Part II—The Hygiene of the Family.

Lecture 39.—Healthful homes. The selection of a site. The nature of the soil and the surroundings. The construction of the cellar, the walls, the decorations of the walls, floors, carpets and rugs, doors, windows, etc.

Lecture 40.—The arrangement of the rooms. The living, sleeping and dining rooms. The pantry and kitchen. Closets, bath room, etc.

Lecture 41.—The heating and ventilation of residences. Heating with open fire, stove, hot air, steam and hot water. The inlets for fresh air and outlets for the foul. Patent systems of ventilating houses. Simple methods.

Lecture 42.—The disposal of excreta and garbage in villages and country places. Privy vaults, dry earth closets, cesspools. The disposal of kitchen waste. Private water supplies.

Part III—School Hygiene.

Lecture 43.—Location of the building. Hill and stair climbing good exercise. The size of rooms. Air space per student. Cloak rooms. Study and recitation rooms. Lighting, heating, ventilating, blackboards, etc.

Lecture 44.—School age. The kindergarten and its methods. The study of language and mathematics. Hours of study in school and at home. Methods of study and of teaching. The influence of school life on growth and health.

Lecture 45.—The diseases of school life. Myopia and various forms of nervous disturbance. The duties of teacher, parent and health officer when epidemics appear in schools. Disinfection of school rooms.

Part IV—Industrial Hygiene.

Lecture 46.—Diseases due to the inhalation of dust. Bronchial catarrh. Pulmonary emphysema. Bronchiectasia. Deposition in the lungs of coal dust, of finely pulverized metals, of sand, tobacco dust, etc. Influence of an atmosphere filled with dust on the digestive organs. Statistics.

Lecture 47.—Diseases most frequently observed among those who work in cotton, wool, silk, hair and feather manufactories. Among those working in glass factories, in ultramarine, etc. General rules for the protection of workingmen against dust inhalation.

Lecture 48.—Diseases common among those who work with poisons. Diseases of the respiratory organs. Diseases of the abdominal viscera. Phosphorus, arsenic, lead, zinc, mercury and antimony poisoning.

Lecture 49.—Working with organic poisons. Cyanogen compounds. Anilin and its derivatives. Carbolic acid. Poisonous plants. Animal poisons. General rules for the protection of these working men.

Lecture 50.—Special diseases of the skin as influenced by occupation, of the circulatory organs, of the muscles, bones, joints, of the nervous system, of the organs of special sense.

Lecture 51.—Injuries common in certain occupations. Mechanical and chemical injuries. First help to the injured. General rules for the special protection of parts of the body exposed to danger.

Part V—Municipal Hygiene.

Lecture 52.—Water supply. Sources. Cistern, surface and subterranean waters. The pollution of streams and lakes. The self-purification of rivers. The artificial purification of water; by subsidence, by precipitation, by filtration.

Lecture 53.—Waterborne diseases. Typhoid fever, cholera, dysentery.

Lecture 54.—The chemie examination of drinking water. The determination of sodium chlorid, free and albuminoid ammonia, nitrates and nitrites. The value of chemie analyses.

Lecture 55.—The microscopic and bacteriologic examination of drinking water. Objects found by microscopic examination. Methods of bacteriologic study. Counting the number of germs. Determining the toxicogenic properties of the germs.

Lecture 56.—Sewers. The single and double systems. The house connections. Traps, ventilating pipes, etc.

Lecture 57.—The disposal of sewage. Discharge into bodies of water. Sewer farms. The purification of sewage.

Lecture 58.—The disposal of garbage. Dumping into water. Burying. Burning. The utilization of garbage.

Lecture 59.—Streets, pavements, parks, public baths. The sanitation of tenements, lodging houses, places of amusement, etc. The sanitary inspection of buildings.

Lecture 60.—Sanitary supervision of the markets. Meat and milk inspection. The detection of gross adulterations.

Lecture 61.—The duties of the municipal health authorities. The notification of infectious diseases. Isolation. Disinfection. Sanitary police regulations.

Part VI—State Hygiene.

Lecture 62.—State sanitary service. State Boards of Health. Plans of organization. Duties. Relations to local and city boards. Comity between State and provincial boards. Inter-State notification of diseases dangerous to the public health.

Lecture 63.—The State Board of Health as an executive body, as an advisory board, and as a promoter of scientific investigations.

Lecture 64.—A State sanitary inspector, his duties and responsibilities. His relation to the Board of Health. A State analyst. The duties of such an officer.

Lecture 65.—The sanitary laws of different States. The means provided for their enforcement, etc.

Part VII—National Hygiene.

Lecture 66.—The National Health Service. Has our country any such service? What should be done in this direction by our government? History of national sanitary legislation in this country? In other countries?

Lecture 67.—What means are now used to protect against the importation of disease from other countries? Quarantine, disinfection, inspection. What should be done? Should the national government undertake scientific sanitary investigations?

Part VIII—The Influence of Climate on Health.

Lecture 68.—What is meant by climate? Comparison of climatic and local conditions? The geographical distribution of tuberculosis and the lessons to be learned therefrom?

Lecture 69.—The geographical distribution of diphtheria, scarlet fever and measles.

Lecture 70.—The geographical distribution of influenza, yellow fever, dengue and malaria.

Lecture 71.—The geographical distribution of typhoid, typhus, plague, etc. Lessons to be learned from these facts.

Part IX—The Hygiene of the Sick Room.

Lecture 72.—The prevention of the spread of the infectious diseases in private practice. The selection of the sick room. Its furniture. The nurse. Isolation of the sick. What must the physician do to prevent his carrying the disease to others?

Lecture 73.—Hospitals. Their location, construction, heating, ventilation, management, etc.

Lecture 74.—Contagious disease hospitals. Hospitals and sanatoria for special diseases, as smallpox, diphtheria, tuberculosis, etc.

Part X—Immunity.

Lecture 75.—Natural and acquired immunity. How is immunity secured? Vaccination; history and statistics.

Lecture 76.—Vaccination against anthrax, chicken cholera, swine plague, etc. Immunity secured by the chemie products of germs.

Part XI—Miscellaneous.

Lecture 77.—Military hygiene. The soldier. His clothing and food. The camp. Barracks. Hospitals, etc.

Lecture 78.—Marine hygiene. The ship. Its construction and ventilation. The food and clothing of sailors. The diseases and accidents to which they are specially liable.

Lecture 79.—The disposal of the dead.

Dr. H. GRADLE, of Chicago, presented a paper on

OTOLOGY.

After comparison of the courses in otology in American and foreign medical schools, the undersigned would recommend as the minimum requirement: the daily attendance in small classes at a well-organized ear clinic or dispensary, where the students can closely examine the patients for a period of at least four weeks—or what amounts to the same thing, the distribution of the twenty-four clinical hours throughout a whole semester, and either in connection with this clinic or separately, a course of at least eight systematic lectures on diseases of the ear. The only conclusive evidence that a student has not merely attended this course, but profited by it, is his ability to examine clinically and interpret correctly when put in front of new patients.

Otology should not be taught before the third year, and it would seem more logical to have it follow the training in general medicine and surgery. It would be well to have otology follow a course in rhinology.

If the various colleges belonging to the Association agree on a standard of minimum requirements in any one branch, there is no good reason why a student who presents evidence that he has passed in this branch in an equivalent medical school should not get credit for his work. But if he comes from an institution which has not adopted the same standard, justice would require a re-examination. In otology, as well as in any other branch of clinical medicine, a practical test of the student's ability to form a diagnosis and prognosis, when placed before a series of patients, is a much more correct mode of gauging his knowledge than a theoretical examination.

Dr. EDWARD L. HOLMES presented the report of the sub-committee on

OPHTHALMOLOGY.

This committee presents a syllabus of minimum instruction in ophthalmology, which it believes every medical college should provide for its students. It does not suggest, much less advocate, a course for the education of students in college as specialists; simply that they should study with care fundamental principles; that those, especially, who began practice in small towns and villages, may skillfully examine and treat the ordinary diseases and injuries of the eye in patients who are utterly dependent upon them for aid; that they may, without dangerous delay, advise intelligently, patients when to seek the skill of the specialist; that they may comprehend the structure and use of common optical instruments and appliances, and, finally, that they may be able to pursue advantageously after graduation this special study if they choose.

I.

During the last four months of the second year, one lesson a week should be devoted to demonstrations of the following subjects, in classes of not more than thirty students, under the direction of instructors in properly equipped laboratories.

1. The anatomy of all the tissues by means of human eyes and the eyes of animals, at least one eye being provided for each five students, and by means of microscopic preparations.

2. The physiology of each structure.

3. In the laboratory of medical physics, a study with appropriate apparatus of the primary principles of optics.

4. Reflection of light from plain, convex, concave surfaces, with a sufficient number of small mirrors for each student to perform all necessary experiments.

5. Refraction of light by media with parallel, plain, curved surfaces; by prisms and by convex and concave lenses, each five students being furnished with lenses and a small camera, filled with smoke, that he may make his own demonstrations.

Every student should be strictly required to study approved books in connection with the laboratory exercises, and be subjected to thorough examinations.

II.

For the fourth year:

1. One clinic a week through the year.

2. Sixteen didactic lectures, chiefly on the following topics: The cornea, the conjunctiva, the uveal tract, the optic nerve and retina, the lens, the lacrymal apparatus, the muscles, the lids, the orbit, with special emphasis upon purulent conjunc-

tivitis, glaucoma, iritis, sympathetic ophthalmitis and myopia.

3. Review of the laboratory work of the second year in the reflection and refraction of light.

4. Fifteen hours devoted to practice in the use of the ophthalmoscope, with suitable artificial eyes; emmetropic, hypermetropic and myopic, with the eyes of patients and of the students themselves.

5. Examination by focal illumination.

6. Fitting glasses, tests for color perception and tests for malingering.

7. Study of gross pathologic specimens.

8. Although the class may have passed the general examinations in materia medica and therapeutics, students should be required to study in review, at least, the following list of remedies and to write upon the blackboard at the clinics and other exercises, prescriptions in proper form for diseases of the eye.

Four mydriatics: coca, boron, silver, copper. Two myotics: mercury, zinc.

In the opinion of this committee, no student in college should be exempt from the above courses, even if he shall have taken them previously in another college.

It will be observed that, in accordance with this syllabus, the number of purely didactic lectures is reduced to a minimum, and that the teaching is in a great measure by "manual training." With this kind of individual training, and with ample clinical observation, the study of a suitable book and regular recitations from it become a most important mode of instruction. By recitations, the student gains knowledge and retains it. Unfortunately, no book has been written which is fully adapted to the requirements of this syllabus.

It is assured in this report that the college curriculum extends through four years, with a term of study each year of eight months.

Kentucky State Medical Society.

Abstract of the Proceedings of the Fortieth Annual Meeting, held at Harrodsburg, June 12, 13 and 14, 1895.

(Continued from page 1016.)

Dr. FRANK C. WILSON, of Louisville, read a paper entitled THE DANGERS OF CHLOROFORM ANESTHESIA, HOW TO AVOID AND OVERCOME THEM.

The frequent occurrence of death during the administration of anesthetics forcibly impressed upon us the dangers incurred and the importance of a careful review of the subject. Dangers may arise: 1, from impurity in the anesthetic used; 2, from administering it to improper subjects, or to those not properly prepared; 3, from administering it in an improper manner; 4, if accidents occur, the danger will be vastly increased by a failure to detect the earliest indications and to properly institute measures of resuscitation; 5, danger is increased in proportion to the prolongation of anesthesia. As by far the greater number of deaths occur from the administration of chloroform, the author directed most of his attention to a consideration of the dangers incident to its use. Every patient should be carefully examined. The condition of the heart and lungs known, and that of the kidneys ascertained by a test of the urine. Simple uncomplicated disease of the heart does not necessarily preclude the use of chloroform, but ether is safer unless there be present bronchial inflammation, or disease of the kidneys. If there be found affections of the brain, chloroform is best. In the use of chloroform with the cone and with many of the inhalers it is impossible to estimate the amount of chloroform the patient actually inhales. It is not the amount of chloroform which has been poured upon the cone, but the quantity which has passed into the circulation which is the vital question. In order to obviate this difficulty the author has adopted a plan of vaporizing the anesthetic from an atomizer, the bottle being so graduated as to indicate, at a glance, exactly how much is being used. As chloroform is drawn into the inhaler or cone none is wasted, but all passes directly to the lungs and there can be no uncertainty as to the amount used. The author then dwelt upon the means of resuscitation when needed.

Dr. J. H. BAUGHMAN, of Flat Lick, read a paper entitled "A Few Crumbs about Typhoid Fever."

Adjourned until 8 P.M.

SECOND DAY—EVENING SESSION.

The Society reassembled at 8 P.M. at the Harrodsburg Opera House, and was called to order by Dr. J. N. BAUGHMAN, Second Vice-President.

Dr. A. W. HITT, of Louisville, gave a lecture on "Leprosy," which was illustrated by means of the stereopticon. He stated that we were indebted to the Bible for the earliest reports of this disease. The popular belief that leprosy is a disease limited to the lower classes is not true. The author cited cases of kings and other members of the nobility who were afflicted with and died of the disease. There are 19,000 leper islands in all England; in France 2,000. These leper islands represented millions of cases of the disease. There were 522 cases of leprosy in the United States. One-tenth of the population of the Sandwich Islands had leprosy. The author then considered the anesthetic and tubercular forms of the disease.

Dr. LYMAN BEECHER TODD, of Lexington, was introduced, and delivered an eloquent, yet touching and impressive address entitled "A Generation of Kentucky Physicians—A Reminiscence." He graphically portrayed the great work that had been done by Gross, McDowell and others and paid eloquent tributes to them. He said the Kentuckians cherished their names and highly appreciated their contributions to medicine and surgery—contributions that were preserved in libraries and considered a precious inheritance. They were the shining stars of the medical firmament, and had practiced medicine and surgery so skillfully and successfully in small towns and hamlets that it made the past generation of Kentucky physicians worthy of remembrance and emulation.

Dr. DUDLEY S. REYNOLDS, of Louisville, followed Dr. Todd with an address entitled "The Ethics of the Medical Profession." This address was listened to with marked attention throughout its delivery. Among the various points brought out was this: that ethics must belong to the educated classes. It aims to establish the right conduct with respect to doctors themselves, and of their patients. He then alluded to the organization of the AMERICAN MEDICAL ASSOCIATION and its Code of Ethics, saying that the Kentucky State Medical Society was organized in 1851, at which time it adopted its code. The Kentucky State Medical Society admitted as members those physicians who were identified with local medical societies.

Adjourned till Friday, 9 A.M.

At the close of this session, the members, with their wives, daughters and friends repaired to the residence of Dr. A. D. Price, where a reception was held and a sumptuous repast served.

THIRD DAY—MORNING SESSION.

The first thing in order was the report of the Nominating Committee, which was read as follows:

To the President and Members of the Kentucky State Medical Society:—Your Nominating Committee beg leave to submit the following report:

For President, Dr. John A. Lewis, Georgetown.
First Vice-President, Dr. H. H. Grant, Louisville.
Second Vice-President, Dr. O. S. Kash, Moorefield.
Permanent Secretary, Dr. Steele Bailey, Stanford.
Treasurer, Dr. J. B. Kinnaird, Lancaster.
Librarian, Dr. Frank Boyd, Paducah.
Place of meeting, Lebanon, 1896.

Chairman of Committee of Arrangements, Dr. R. C. McChord, Lebanon.

On motion, the report was adopted.

Dr. A. D. PRICE read a paper entitled

ANTEPARTUM AND POSTPARTUM HEMORRHAGE.

The author portrayed the importance of the hemorrhage that antedates the completion of labor, and there remain to be considered those of no less import that follow. There is no other class of patients in which emergencies occur so suddenly, and which demand such prompt measures of relief as those that come under the obstetrician's care. The obstetrician should have fixed principles of conduct for every accident liable to be encountered and, banishing every doubt or hesitation, boldly employ them for the saving of life. Postpartum hemorrhage follows the birth of the child, and the loss of blood is from the placental site, or from torn or lacerated vessels in vagina or cervix, or from the ruptured uterus.

The third stage of labor requires the most careful management. Delivery of the placenta, as a rule, means great danger. Too early efforts in this direction exhaust the uterine muscles and favor relaxation. Those who had witnessed a severe postpartum hemorrhage could appreciate its seriousness. Prophylaxis can accomplish much and render these cases exceedingly rare. The patient should be carefully prepared for her confinement, the surroundings being made aseptic, and by having her bladder and rectum thor-

oughly emptied. A faradic battery, one pole being applied to the lumbar region, and the other over the uterus or within its cavity, rarely fails to produce prompt and efficient contractions, and should always have a place in the obstetrician's armamentarium.

The patient's general condition will require attention. If the loss of blood has been great and the shock is severe, lower the head, elevate the limbs, apply heat to the back of the neck and head, and give rectal injections of whisky and hot coffee. If the depression is very great, hypodermics of whisky in strychnia will be demanded.

Dr. JOHN G. CECIL, of Louisville, followed with a paper entitled

CRANIOTOMY, SYMPHYSIOTOMY AND CÆSAREAN SECTION.

Each of these operations has a place in obstetric surgery, and we may safely say that they are here to stay. The author believes that pelvimetry is a subject as yet little understood and still less practiced in this part of the country. It is the key to the situation in many cases demanding interference, for upon our estimation of the pelvic diameters depends the selection of the operation best indicated for relief. Craniotomy will always have its advocates, but that it must decrease while the other two must increase, is already a matter of history. Under aseptic precautions and in the hands of those familiar with the more formidable operations, it is probably the safest, that is, less destructive to maternal life, but in the light of modern surgical achievement it is not indicated upon the living child. It is indicated upon monstrosities, hydrocephalics and upon dead children; but not in any case of such extreme narrowing of the pelvic canal as would render the destruction of the child very certain, and delivery of the fragments destructive to the soft parts. Symphysiotomy is now generally admitted to be a perfectly justifiable operation. The limits are being more strictly defined as its scope is better understood. It will probably displace Cæsarean section in cases where there is only a relative indication. A proper case for it is one of occipito-posterior position which, either on account of a large fetal head or a small pelvic canal, can not be delivered by version or the forceps without such violence as would endanger the maternal structures and put the life of the child in great jeopardy. Multipara are better subjects than primipara.

Further indications for Cæsarean section are extreme cases of cervical or vaginal atresia and rupture of the womb with escape of the contents into the abdominal cavity. Considering the frightful fetal mortality, and the great risk to the life of the mother, Dr. Cecil is about prepared to say that placenta previa centralis constitutes a legitimate indication for Cæsarean section.

Dr. DAVID BARROW, of Lexington, read a paper entitled

EXTRAUTERINE PREGNANCY—FOUR RECENT CASES.

The first patient was 34 years of age, married twelve years, mother of two children, one 12 and the other 9 years old.

Case 2 was a woman 28 years of age, married thirteen years; one miscarriage five years ago, no pregnancy since. In this case ruptured tubal pregnancy was diagnosed, and operation advised and performed.

Case 3, woman aged 30, married eleven years, two children living, one dead.

Case 4, woman aged 28, married five years, no children, had a miscarriage five months after marriage, and once since. She thinks she aborted at the second month.

These cases came under his care during the past five months. In all save one, the diagnosis was comparatively easy, and in every case the patient consented readily to the treatment proposed. To the prompt resort to surgery he attributes largely the successful results obtained. Extrauterine pregnancy is more frequent than is usually believed by the profession. Most physicians in active practice have met with these cases, and have often failed to recognize them, cause of death being attributed to idiopathic peritonitis or some other condition. Dr. Barrow believes and contends that more of these cases should be recognized before rupture, and if they were not put aside carelessly with the general opinion that they were cases of threatened abortion more accurate diagnoses would be made.

The treatment of extrauterine pregnancy is surgical. Electricity, injections into the sac, etc., are advocated by some, and cases are cured by these means, but he believes prompt resort to surgical interference is the only treatment worthy of consideration when the patient's consent can be obtained, and the physician is prepared to do such surgery. These patients do well after operation, if done early, and convalescence is usually rapid. We should open the abdo-

men, separate the adhesions, deliver and tie off the impregnated tube and its ovary as quickly as possible.

Dr. J. W. O'CONNOR, of Elizabethtown, read a paper entitled

ACNE ROSACEA INDURATA PUSTULOSA.

in which he reported a case. The patient, a widow 32 years of age, a native of Kentucky, the mother of two children, called at his office to consult him in regard to a skin disease of the face. She gave a history of dyspepsia and constipation. The skin disease began about two years ago, soon after the death of her husband. She first noticed a few small pimples on the nose, which gradually spread over the nose and both cheeks, with a few on the forehead. Previous to this she would often have a flushing of the face, or hot flashes, and skin of the face was always greasy. Her face was covered with bright red indurated pustules, varying in size from that of a pinhead to that of a small bean, many resembling a bean in shape, nearly all containing some pus. The integument generally was very much thickened, and pressure upon it would move the entire cheek. The capillaries were enlarged, congested and tortuous. He began treatment by opening the pustules with a sharp-pointed bistoury and squeezing out the contents, then inserting a pointed stick dipped in Monsel's solution as a cauter and germicide. After opening the pustules, he sponged the face with a 5 per cent. solution of carbolic water. He interdicted the use of all soap, and recommended bathing the face in hot water night and morning, after which rub in with a piece of flannel a 3 per cent. solution of salicylic acid. At first this is to be mixed with three parts water, and gradually made stronger and stronger until it is used pure. He gives internally 1-10 gr. doses of calomel every hour for a few days, with a pill of aloin, strychnia and belladonna. These preparations are alternated every few days with sulphur tablets 1 gr. every two hours and tablets of iron 1 gr., arsenic 1-20 gr. and strychnia 1-30 gr. every four hours. Other remedies were recommended, but he had found none so efficacious as these. The after-treatment consists in the exhibition of a general course of tonics and the mineral acids or iron, cod-liver oil or arsenic, as seems best suited to the individual case in hand.

Dr. ARCH DIXON, of Henderson, contributed a paper entitled "An Atypical Case of Appendicitis," which emphasized the necessity of early operation in all cases, whether they be acute, perforating, fulminating with general peritonitis, or acute suppurating, with local plastic peritonitis and abscess, or, in other words, as soon as the diagnosis is made, regardless of the favorability of the case. He believes appendicitis to be an infective exudative inflammation, septic in character from its incipency. The very moment the appendix takes on inflammatory action it at once proves a soil rich in character, plowed, harrowed and in every way fit for the growth of septic bacteria. In a majority of cases, if operation be performed within forty-eight hours after the onset of the symptoms, the appendix is not yet ruptured, and can be removed without pus infection of the peritoneum, an advantage of which even the boldest surgeon is pleased to avail himself. In the latter stage, if the surgeon is fortunate enough to be called at the time that the peritoneum is flooded with pus and the patient collapsed, it is his duty to perform the operation, and give the patient a chance for his life in this forlorn condition. The rule, first, last and always, should be to operate in every case of appendicitis, promising or unpromising, at the earliest possible moment.

Dr. T. C. EVANS, of Louisville, followed with a paper entitled "Adenoid Growths in the Naso-pharynx." In this paper the author desired to speak only of the abnormal condition of those masses of lymphoid tissue situated in that part of the respiratory tract, known and described as the naso-pharynx. Meyer, of Copenhagen, in 1868 was the first to describe this condition. The disease consists of an hypertrophy of the lymphoid tissue which encircles the naso-pharyngeal portion of the respiratory tract, blocking up the space and mechanically interfering with or altogether preventing nasal respiration. This hypertrophy usually involves, to a greater or less extent, the faucial tonsils and other contiguous lymphoid masses. The diagnosis is easily made from the characteristic symptoms. The treatment is either expectant or surgical. The expectant plan is at best long, tedious and uncertain, entailing years of suspense on the part of physician and parent, and subjecting the patient to dangers which, once encountered can not be corrected. Surgically, most operators now confine themselves to one of two methods: 1, removal by the post-nasal curette; and, 2, removal by post-nasal cutting forceps.

Dr. T. M. GREENE, of Lexington, read a paper entitled the "Leucocytes in Diseases of Microbic Origin." The author said the older physicians explained the etiology of diseases generally by the term *materies morbi*, of which they had no very definite idea, believing that it represented certain poisons emanating from the earth and conveyed to the system through the medium of the atmosphere, water and food. They were aware, also, that the system under certain circumstances had the power of resisting disease, also of performing cures unaided by the efforts of the physician. This was expressed in the oft-quoted aphorism, *vis medicatrix nature*. It was reserved for the modern science of bacteriology to show that *materies morbi* are really living germs, which on entering the system become pathogenic in character; also that the power of cure resides really in the white corpuscles of the blood. While engaged in this important work they are called phagocytes. Before entering upon a discussion of the progress of phagocytosis, the author dwelt upon the peculiar nature of the leucocytes themselves. There were two principal indications for treatment of all diseases of microbial origin: first to destroy the germs as soon after invasion as possible, and at their point of entrance. Second, to overcome the effects of toxins after they had been formed.

Dr. T. B. GREENLEY, of Meadow Lawn, read a paper entitled THE PREVENTION AND TREATMENT OF PULMONARY TUBERCULOSIS.

It has been the observation of the writer for many years that the majority of cases of this disease are preceded by a longer or shorter period of impaired health, apparently due to indigestion and deficient assimilation. Especially is this condition presented in those who are constitutionally predisposed to the disease. The writer entertains the opinion that if proper means were instituted sufficiently early in these cases to restore them to their ordinary health, that the disease in the majority of cases might be prevented. The means indicated consist mainly in the use of proper diet and exercise in the open air, observing at the same time sanitary environment.

As to the treatment of pulmonary tuberculosis, a great deal can be accomplished in its earliest stages by the use of proper alimentation, or the building-up system.

Dr. Greenley then outlined the plan of treatment adopted by Dr. Carasso in treating this disease. From the record it appears that every case of primary tuberculosis treated by the inhalation method of Carasso recovered, and that the fatal cases with but two exceptions were ones in which secondary tubercular lesions produced death. The average duration of the treatment in these cases was sixty days. The simplicity and harmlessness of the method, together with the remarkably successful outcome of his cases (Carasso's), recommend the method for a thorough and systematic clinical test. Perhaps the most rational as well as the truly hopeful plan of managing pulmonary tuberculosis, is before it is fully developed. Preventive means are much better than curative, but both combined in some cases are better than either alone, in order to prevent further development.

Several of the papers on the program were read by title. After the appointment of delegates to the next meeting of the AMERICAN MEDICAL ASSOCIATION, the presentation and adoption of resolutions of thanks, the Society then adjourned to meet at Lebanon in 1896.

Colorado State Medical Society.

Abstract of the Proceedings of the Twenty-fifth Annual Meeting, held at Denver, June 18 and 19, 1895.

[Special correspondence of the JOURNAL.]

THURSDAY, JUNE 18.

The meeting was called to order by the President, Dr. HUBERT WORK, of Pueblo. The reports of various officers and committees showed the society to be in a flourishing condition, with a slight net increase of membership during the past year and a balance in the treasury.

The Executive Committee reported a rule limiting readers of papers to fifteen minutes each, and remarks in discussion to five minutes, which rule being adopted and rigidly adhered to throughout the meeting, rendered possible the satisfactory completion of a full program, and added much to the success of the meeting.

"The Relationship Existing between the Eye and Diseases of the Brain," was the subject of a paper by Dr. R. F. LE MOX, of Denver. He called attention to the intimate connection of these two organs, and its clinical importance. In a case of astigmatism it is the recognition on the part of

the brain that the eye is unable to properly and comfortably do its work, that gives rise to the train of symptoms usually set up. By nervous impulses sent out from the brain are brought about the irritation, congestion and photophobia that cause the closure of the eye and suspension of its work, the train of symptoms being designed to protect the organ from more serious injury. He also urged the great diagnostic value of optic neuritis, inequality of the pupils, optic nerve atrophy, and hemianopsia in cases presenting severe headache or other indications of organic disease of the brain.

"Observations regarding Eye Strain and its Relief" were presented by Dr. EDWARD JACKSON, of Philadelphia. He pointed out that ametropia and eye strain were neither identical nor necessarily connected, that either might be present in high degree without the other, that the recognition of ametropia was not essential to the diagnosis of eye strain, and did not alone establish it. He also called attention to the severe symptoms often arising from comparatively slight errors of refraction, especially those remaining after inaccurate corrections, and after middle life, when the lowest degrees of hyperopia or astigmatism were most likely to tempt their possessor to undue exertion of the ciliary muscle. The period of adaptation, during which the best fitted glasses were likely to prove unsatisfactory, and which is not sufficiently emphasized in the books, was also referred to. It was essential that the patient be forewarned of its occurrence, or he would take it as evidence of failure on the part of his adviser to find the proper glass, and lose confidence, to the detriment of both himself and his physician.

"Inflammation of the Middle Ear with Involvement of the Mastoid." Dr. W. C. BANE, of Denver, stated that the majority of cases of pyogenic inflammation of the brain and its membranes were due to similar disease of the middle ear and mastoid. He reported five cases of such disease, four of which had required opening of the mastoid, and all had recovered. The first was in a man aged 59, who came for pain and dizziness. He had a small perforation in the drum membrane. Two months later he returned with a swelling below the ear half the size of a goose egg, and unhealthy pus escaping from the meatus. The removal of diseased tissue was followed by complete recovery. A man aged 27 suffered from acute purulent inflammation of the middle ear for about one month. There was a large perforation, but the mastoid became involved and rendered necessary the excavation of its entire contents. A young woman suffering from a subacute otitis media with a small perforation, the discharge having stopped, had tenderness and swelling over the mastoid requiring operation. In a boy with acute inflammation, involving the mastoid, the symptoms yielded without operation. In the fifth case, a man aged 41 with acute otitis media had severe mastoid symptoms which not being relieved by other measures, the mastoid was opened and showed that the process of disintegration had already begun.

"Laryngeal Infiltration" was the subject of a communication by Dr. P. F. GILDEA, of Colorado Springs. He reported a case of severe tubercular infiltration, and pointed out that where there is much submucous tissue great infiltration occurs before there is ulceration, but where there is but little submucous tissue, ulceration takes place early.

Dr. E. T. BOYD, of Leadville, exhibited an improved snare for the removal of nasal hypertrophies, etc. The improvement consisted chiefly in the addition of a pin, arranged to slide upon the canula, with which the part to be removed could be securely transfixed before tightening the snare, preventing any slipping of the loop, or the dropping of the portion removed.

REFLEX IRRITATION FOLLOWING EYE STRAIN.

Dr. D. H. COOVER, in illustration of the intimate relation existing between the eye and the brain and the remote effects liable to arise from eye strain, reported a series of cases. A school girl suffered from frequent attacks characterized by general convulsions. The correction of her compound hyperopic astigmatism entirely stopped these attacks. Subsequently she lost her glasses and went five days without them during which time she had four attacks. A girl aged 11 had seizures in which she became unconscious and convulsed. She had had seven such attacks. The examination of her eyes showed two diopters of astigmatism; she was given convex 1.50 D. for constant use. For three months she did not have a seizure. Then one occurred, her glasses were changed to a full correction, and she remained entirely free from attacks ever since. A young woman who had long been subject to nausea and vomiting, especially in the morning, was entirely relieved by the correction of her compound hyperopic astigmatism. A boy of 16, working

hard at school, became affected with chorea. He was given correcting glasses, and recovered in a month. A man aged 45 had been for years troubled with a dry hollow cough, which was worse at night and worse when he was very busy. He obtained the greatest relief by going away from his business entirely. Examination of his eyes revealed compound hyperopic astigmatism. He was given correcting glasses, wore them all the time, and in three months was well of the cough.

Dr. G. MELVILLE BLACK, of Denver, reported as "A Case of Angio-neurotic Edema of the Ocular Conjunctiva," the case of a man who was suddenly affected with great swelling of the conjunctiva and lids without other evidence of serious inflammation. The swelling passed away with equal rapidity. But very few similar cases were found recorded in medical literature.

Dr. JOHN M. FOSTER, of Denver, exhibited a case illustrating the results obtained by "Blepharoplasty by Thiersch' Grafting." The patient had after traumatism a cicatricial contraction of the upper lid, drawing it completely away from the eyeball and preventing its closure so that the conjunctiva was suffering from continued exposure to irritants. Two operations were required. Some contraction having occurred after the first, the stitches uniting the lids after the second operation were left in place until the forty-eighth day. The result was an almost perfect restoration of the lid to its normal appearance and function.

DIAGNOSIS AND PRINCIPLES OF TREATMENT OF HIP-JOINT DISEASE.

Dr. JOHN RIDLON, of Chicago, delivered an address upon this topic. He thought every physician should know enough about this disease, 1, to recognize it; 2, to understand the general principles of its treatment; and 3, to be able to recognize when it was fully cured. For diagnosis, the three early and constant symptoms are limp shrinking of the affected limb as shown by comparative measurements of the girth of the two thighs, and limitation of the movements of the joint in all directions. Other common symptoms are restlessness during sleep, with sudden crying out, particularly in the early part of the night; deformity, if the case has gone far enough; pain, which is not usually one of the early symptoms, and may be entirely absent; and abscess which is present in about 50 per cent. of cases. The differential diagnosis has to be made with reference to Pott's lumbar disease, sacro-iliac disease, congenital dislocation of the hip, and hysterical hip-joint. In the latter condition there is never any diminution in the size of the limb.

In treatment the object is to secure functional rest by preventing motion, and so far as possible removing pressure from the opposing surfaces of the joint. To prevent motion an apparatus must extend from close above the ankle to the armpits. To remove pressure the patient might be kept in bed. But this can not be continued throughout the treatment; so the only thing to do is to put a shoe on the sound limb with a heel high enough to take the weight all off the other. As to operation, he thought that the more experience the surgeon had with operating, the less was he inclined to operate. If by operation all diseased tissue could be removed, and immediate union of the wound secured, it would be right to operate. But incision and drainage were not justified; and aspiration and the injection of the abscess cavity with iodoform were not worth the pain and disturbance that attended them. In the diagnosis of cure the greatest caution must be observed. When all symptoms have been absent for six months you may think the case is getting well, but do not tell any one that you think so. Gradually relax some of the restraints of the limb, and if there is no tendency to relapse after some months give the patient slightly more freedom; and so continue until, after years of close observation of case, it may be concluded that the case is cured.

"The Treatment of Lateral Curvature of the Spine," was the subject of a paper by Dr. GEO. B. PACKARD, of Denver. He advised the relief of the weakened spine from the superincumbent weight, by rest in bed for a couple of hours in the middle of the day close watching of the general health, gymnastic exercises, and the support of a properly fitted jacket.

Dr. S. D. VAN METER, of Denver, urged the importance of circumcision. For very many it is needful, though some may not require it. If it were universally practiced health would be promoted, and venereal disease and reflex troubles diminished.

Dr. CHAS. A. POWERS, formerly of New York, but now of Denver, read a paper on "Cancer of the Rectum and its Ex-

cision by the Method of Kraske and Modifications Thereof," with the reports of four cases, of which three had recovered and one had terminated fatally. He believed there were but comparatively few cases that could be cured by operation through the perineum. He had in these cases used the operation of Kraske, but would in future try the more recently described osteoplastic method. In cases where it was intended to preserve the anus, preliminary colotomy was indispensable. The selection of cases proper for operation was very important; and where it was found that the disease had extended too far for complete removal the attempt should not be made; but a simple colotomy resorted to, when the obstruction rendered it necessary. All cases of possible malignant disease of the rectum should have early and thorough examination. The only hope of relief lay in early recognition, and prompt and thorough excision.

DR. E. J. A. ROGERS, of Denver, reported a series of Surgical Cases, including cases of curetting of the hip and ankle joints, and one of necrosis of the great trochanter in which the diseased bone was dug out, all followed by recovery. In a case of intestinal obstruction which had lasted for several days the condition was found to be due to internal strangulation through old adhesions. In a case of chronic dilatation of the stomach in which the Murphy button was used to establish an anastomosis between the stomach and jejunum, the patient died soon after from other causes. The union was found to be perfect, the button had fallen into the stomach. He reported five cases of acute appendicitis operated on, all recovered. In one, the length of the appendix was six and a half inches. He also reported two cases of nephrectomy, and one of partial operation on an extensive abdominal sarcoma greatly benefiting the patient.

"Resection of the Femur for Angular Deformity" was discussed by DR. GEO. W. MIEL, of Denver, who reported a case. The deformity was outward from exaggeration of the natural bend of the femur by the action of the strongly attached muscles. Even with a transverse fracture and no overlapping there was shortening of three inches. He practiced and advocated a Y-shaped incision, in preference to the V-shaped, as it caused practically no loss of natural tissue, and therefore less shortening.

DR. LEONARD FREEMAN, of Denver, reported a "Case of Spontaneous Dislocation of the Hip-joint in Connection with Typhoid Fever." The patient was a girl aged 10 years. The dislocation probably occurred about the fourth week, from arthritis and malposition in bed. About the sixth or seventh week some tenderness and deformity were noticed. At the tenth week, when seen, there was shortening of one and a half to two inches, the head of the bone was on the dorsum of the ilium, and there was atrophy of the muscles about the joint. Under a general anesthetic the dislocation was reduced at the second or third attempt. The parts were kept in position and passive motion not begun until four weeks. There remained a slight but diminishing shortening of the limb, probably from lack of growth during the period of dislocation.

DR. W. W. GRANT, of Denver, reported a series of "Cases of Appendicitis," that he had operated on with recovery. In the worst case, in which the general peritoneal cavity was involved, unfavorable symptoms developing including great distension, the colon was tapped; and this was followed by prompt improvement. He believed that when the appendix was not found in the abscess cavity, adhesions should not be broken up searching for it. The most dangerous cases were those in which the appendix hung in the peritoneal cavity. He did not think that every case must be operated on; but all severe cases might require it. Relapsing cases should be operated on in the interval.

(To be continued.)

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine
New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 980.)

DR. MARGARET A. CLEAVES, of New York, read a paper on
SPECIAL HYDRO-ELECTRIC APPLICATIONS.

It seems strange that considering the time in which general hydro-electric applications have been used, advantage has not been taken of the opportunity offered by the accessible mucous cavities of the body for such applications.

So far as I am aware, nothing has been done in this regard save by the Boudet de Paris method in the treatment of intestinal occlusion, and direct application of electricity to the stomach as developed by Dr. Max Einhorn of New York. Neither have come into the prominence which their merits deserve, but this is to be explained, no doubt, by the fact that these applications require a good deal of time on the part of the operator and patient, and in the case of applications to the stomach, upon the discomfort attending the introduction and presence of the stomach electrode.

Since establishing my methods of localized hydro-electric applications to the accessible mucous cavities of the body, I have found two references with which I was not familiar before. Dr. W. S. Hedley, of Brighton, England, in his book on "Hydro-Electric Applications," refers to the possibility of applying electric douches and calls attention to their value in the event of suitable means being devised for their use; he has not, however, resorted to these measures, although he has used electric douches for an ulcerating cancer, situated externally, with marked amelioration. Beard and Rockwell in a few paragraphs call attention to hydro-electric applications and say that in accessible places, as in various cavities of the body, ulcers, sores, etc., water used as an electrode is an excellent method for applying electricity, and they further state that ordinary douches can be used for the eye, ear, stomach, rectum, uterus, etc., so long as the current is not sent out in a spray, and recommend the use of Potter's apparatus for these purposes. This apparatus I am not familiar with.

A brief resumé of the development of the Boudet de Paris method and its work in intestinal occlusion can not fail to be of interest here. In surgical operations for this condition the mortality is variously given from 58 to 64 per cent.

By the work of Duchenne de Boulogne in localized electrical applications, attention was first drawn to the advantages of electricity in the treatment of obstinate constipation and intestinal obstructions. He used the induced currents almost entirely for his physiologic and pathologic studies, and others have followed in his footsteps. In 1876, however, Leroy d'Etoilles observed that unstriated muscular tissue was not excited by the excitations of an induction coil, but on the contrary, such excitations were the most powerful in causing contraction of striped muscle. Later, in 1882, Boudet de Paris insisted on this distinction and proved that only slow excitations of continuous currents could have any direct influence on intestinal contraction, and that, therefore, the constant current should be preferred to the induced current in the treatment of occlusions. But at the same time of the experiments of Boudet de Paris, the induced and constant currents were indiscriminately used in the treatment of intestinal occlusion and constipation. It has been shown, however, by many experimenters that smooth muscular fiber is excited with difficulty by induced currents. The reason is a physical one, and is explained by the fact that the induced current proceeds by shocks of very short duration, sufficient to move the striated muscle which contracts quickly, but insufficient to put in action the unstriated fiber in which the contractions are characterized by a tracing of the form of a prolonged undulation. One has but to recall the character of the graphic curve of an induced current to appreciate this fact. Experiments upon the intestinal tracts of healthy animals show that at the end of a few seconds there is an increase in the peristaltic movements, but diminishing the excitability of the intestine artificially by distension with air, the induced current within the limit of medicinal doses is found inactive. On the contrary, the continuous current under these conditions shows itself capable of causing intestinal contraction and if in place of a continuous flow in one direction, there are reversals, it is easily proved that the intestine contracts no less readily than if it were not distended. Theoretically, as in the case of intestinal occlusion, there is always more or less of paresis due to the conditions of the disease; the action of the continuous current is therefore preferable, but until the establishment of the Boudet de Paris method, there was no way by which this current could be used internally without producing a galvano-caustic action at site of the internal electrode. Such an action as this is most undesirable, and by extension of inflammation the danger of producing a stricture of the bowels is by no means small. But very small current strength could be used, and even then there remained the danger of destructive polar action. The question, however, of treating these intestinal conditions has been settled most satisfactorily by the hydro-electric

method of Boudet. He uses an electrode made of rubber provided with a hollow metallic tube with a nozzle for the attachment of a fountain syringe and an attachment for the tip of the conducting cord as well. The sound is provided with an eye upon the side and about 2 centimeters from the end, or an opening situated quite at its extremity. In the latter instance, the metallic tube stops about 2 centimeters from the end of the sound.

Technique.—First the fountain syringe or irrigator should be filled with the lukewarm saturated solution of rock salt. An Apostoli pad is placed upon the abdomen and attached to the positive pole while the active electrode is introduced into the rectum as deeply as possible, in order that the mass of water constituting the injection shall pass well into the intestine, where the reflexes controlling defecation are not active. Connection is then made with the hose of the irrigator and with the negative terminal of the battery. The stop-cock governing the flow of the water is opened and half the contents of the irrigator are allowed to flow slowly in, and as the salt water flows into the intestine it becomes the electrode, carrying the current to every part of the mucous membrane with which it comes in contact. This extensive water electrode, affording as it does a large square inch area of surface, makes it possible to secure by the use of low E. M. F., a larger current strength and therefore great electrical energy without pain or discomfort. In case of pseudo strangulation and obstruction due to fecal matter, the continuous flow is sufficient, but where there is an obstacle to overcome, stronger excitations by reversing the current after the first five or six minutes are necessary. The needle should be carried back to zero, poles reversed and current turned on to former strength. This will almost always produce an intestinal contraction, accompanied by a desire to defecate. This should be resisted by the patient as much as possible until the séance is completed, but if it can not be overcome, the treatment should be suspended and the patient urged to use all the possible effort to expel the contents of the bowels. One of the three things follows: either there is an abundant evacuation, feces are expelled mixed with gas, or the water passes only slightly colored, with or without gas. In the last two instances it is necessary to repeat the electrical enema in from seven to eight hours. If indicated, at least three applications can be made in the twenty-four hours. Larat reports 70 per cent. of successful cases out of 150 in the hands of Boudet de Paris. His own results are not quite so good, viz., 101 successful cases out of 230, but still make a satisfactory showing. He remarks that his cases were all seen by his colleagues of whom at least half were doctors in the hospitals, who called him in to assist their patients. This statement is made to show that his statistics have been well tried. As to contra-indications, all insurmountable mechanical obstacles, either outside of the intestine or down within its cavity must be treated with the knife. The indications for the use of electricity are where "the obstacle can be overcome by a very strong contraction of the intestine, as in cases of 'stercorate' obstruction, intestinal palsy, 'enteraptose,' stricture from a tumor, if the stricture is not absolute, or foreign body in the intestinal cavity." It is his custom in a case of intestinal occlusion where a purgative has been tried without any result, not to insist upon its further use, but immediately to give an electric injection. In twenty-four hours, he says, this will be recognized as successful or the contrary. In the case of a failure a surgical operation should be suggested. In this way much valuable time would be saved; surgical measures would oftener be of avail while many cases would recover by the intervention of the electric douche, who would otherwise be condemned to the shock of an operation. It was supposed that peritonitis would be found to be a contra-indication to the electric douche. Larat details several cases which demonstrate very conclusively that such is not the case but where its use tended to cut short the progress of the disease.

While Larat reports a few cases in which there have been unfortunate results, his reports would seem to indicate that they were due to the disease rather than, as was suggested, to the use of the electric douche. The slowness with which the liquid of the irrigator is introduced into the intestine, would naturally seem to do away with the fear of a break in the diseased intestinal tissue with the passage of the liquid in the intestinal cavity. One would expect this accident to happen more often with the forced injections of seltzer water.

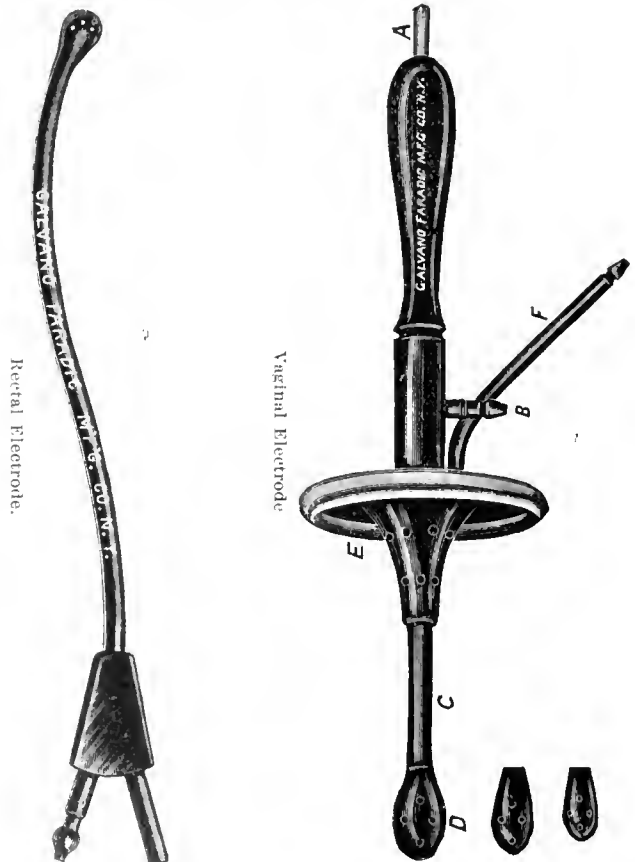
This method, however, is not only of great value in the treatment of intestinal occlusion, but in constipation and in

many of the diseased conditions of the gastro-intestinal tract as well.

For constipation the technique is the same. It is my custom to use from a quart to three quarts of lukewarm salt water according to the patient's toleration. I do not always carry the solution to the point of saturation. The negative pole is used for the active or intestinal electrode in order that its well-known stimulating properties due to the presence of the bases and hydrogen may be utilized. The C. S. varies from 5 to 10, 20 milliampères or more and reversals are made once, twice or several times, according to the needs of the case. As physiologic experiments go to prove that the stimulation of nutrition proceeds from the administration of mild currents, the higher currents are not deemed advisable. In ordinary cases, the continuous flow is sufficient, but where the response to the stimulus is not prompt, reversals are made. Sometimes I use the automatic interrupter of the continuous current, but I prefer a subsequent application of an alternating current.

Individual cases govern the amount of water used, C. S., duration of séance and frequency of application.

The applications are usually given for three successive days, when if the result is entirely satisfactory, i. e., complete emptying of the bowels of fecal matter and gas, with a tendency to a return of normal peristalsis, they are discontinued and the subsequent treatment carried out by means of the Franklinic current with long percussive sparks to the lumbar and sacral plexuses, hepatic area and abdominal walls three times a week, and continued until there is complete elimination of toxins, improved metabolism, nutritional gain and normal functional activity. This is aided or not by medication, according to the case—oftener not. Cathartics are almost never given. Every hygienic and dietetic detail is considered, as well as habits and dress.



I present here a rectal electrode which was made for me at my request (with the other electrodes for the various hydro electric applications) by the Galvano-Faradic Manufacturing Company, of New York City. All of these electrodes have been constructed with platinum wire for the conducting medium, extending from the point at which the water enters the electrode to within a quarter, to a half inch, of the end of the perforated rubber tip. By the use of platinum it becomes possible at once to use not only negative but positive currents and any drug cataphorically that one may desire. At first carbon tubes were used, but as it

was found that platinum wire could be substituted without increasing the expense, this was done.

The long and curved rectal electrode is intended to pass as far as the sigmoid flexure. By its use the water can be diffused more thoroughly into the intestinal tract and consequently the current carried farther, or in the event of disease at the sigmoid flexure, a localized action may be obtained at that point either by means of the constant current douche, negative, or by cataphoric medication, utilizing any drug that may be indicated.

In the treatment of constipation by electricity there is a beneficent action upon the circulation, respiration and general nutrition. As a result of its action there is a modification of the abdominal circulation, and certain conditions of passive congestion disappear, especially as found in cases of abdominal plethora. Under its influence both the volume and the force of the muscles are increased. The atonic intestinal muscles again become capable of action, while the strength of the accessory muscles, as those of the abdominal wall, is increased.

The evil results which follow chronic constipation are legion, and every method other than drug-taking deserves careful investigation and experimentation at our hands. To establish a rational therapy, great care must be taken in discovering the cause of the condition.

Atony³ of the intestine is considered one of the most frequent causes of constipation, and may be described as a condition in which the walls of the colon have lost their tonicity and therefore are unable to expel feces at the normal rate. In all cases dependent upon atony of the muscles of the intestine or abdominal walls, the best measures are electricity, exercise, massage and hydro-therapy.

In many of the diseased conditions of the gastro-intestinal tract hydro-electric applications stand us in good stead. For instance, in intestinal catarrh, enteritis, simple, pseudo-membranous or follicular, in chronic thickening of the mucous membrane, and in chronic diarrhea due to fermentative and putrefactive conditions. The stimulating effect of the electric current on the nervous system, and secondarily upon the muscular and glandular tissues thus localized tends to restore healthful function. The nutrition of the part is promoted by the physical properties of the current, electrolytic and cataphoric. These are conditions in which drugs fail, if depended upon alone, and which must, to a very great extent, be combated by local measures.

One of the very intractable intestinal conditions, with which we meet, namely that of pseudo-membranous enteritis, is estimated by Prof. Germain See⁴ to be found in about one-third of the patients, principally women, who are treated for gastric derangement. The pain and swelling over the colon, and gaseous fermentations are symptomatic of the condition, but the distinguishing feature of the disease is the presence in the stools of mucus, glairy and cylindrical masses. In the treatment of pseudo-membranous enteritis, I have found applications of negative currents by means of the Boudet de Paris method exceedingly valuable. Within the past two years I have treated several such cases characterized by the usual muco-membranous discharges. All had run a persistently chronic course, were characterized by irregular exacerbations, lack of marked febrile excitement, persistent derangement of the intestinal canal, mental depression and general impairment of health; also by more or less gastric disturbance, impaired appetite, repugnance to food, furred tongue, and foul breath. They were all of some years' standing, and had resisted the remedial agents administered from time to time when under the care of different physicians. At this time, however, these patients have good and normal appetites. The gastric and intestinal distress has disappeared, the bowels are regular, and the general health markedly improved and none of them have membranous casts any longer in the discharges.

After the first applications there was noted a change in the appearance of the tongue, which in the interval of the first and second treatments lost its coating and the red and irritable condition at the sides and tip. From six to eight negative applications were made in these cases with a C. S. of from 10 to 30 milliampères, the quantity of the douche varying according to the patient's toleration from one pint to three quarts. The time of the continuance of the current averaged ten minutes at each treatment. An ordinary Apostoli pad was placed over the abdomen.

In the so-called recurrent attacks of peritonitis in gouty subjects, which are really gout of the intestine and in those

cases of gastro-enteric rheumatism affecting the nerves of the alimentary tract and simulating in some cases, by the character of the pain, trouble with the pelvic organs, I have found negative hydro-electric applications of the intestinal tract of undoubted curative value. A patient under care this past winter, a gouty subject, came to me with a history of prolonged pelvic trouble (seven years, and for which she had been three months in a hospital, curetted, douched, etc., and subsequently treated by means of intra-uterine applications *a la* Apostoli) continued to have recurrent attacks of severe pain that diminished gradually, neuralgic in character, associated with bloating, tenderness, slight feverishness, great anxiety, loss of appetite and mental depression. The cycle of pain and disturbance would complete itself in from two to four weeks to be followed at intervals by another and yet another. Here intra-uterine treatment accomplished but little, in fact, I may say nothing at all, save to relieve slight sensitiveness of the endometrium, but intra-rectal negative hydro-electric douches relieved all symptoms, improved the constipation, and established the general health. In this case I shall expect a return of the symptoms when the conditions are favorable for an attack of gout, as the patient does not live in such a way, so far as diet and exercise are concerned, to lessen the chances of its recurrence.

Haig considers that many cases of colic, enteralgia, enteritis and typhlitis are really gouty manifestations located in the intestine. From my experience, the constant current used externally in chronic peritonitis, I should expect to get much better results from hydro-electric applications.

In addition to the thorough system of intestinal irrigation already practiced in cholera, positive electrolysis of suitable fluids within the intestinal tract, or diffusion of appropriate drugs into the submucous structure by means of the electric douche might prove a valuable aid.

After the electric injection, patients have sometimes complained of a burning sensation and smarting in the anus. This is not caused by the electricity, unless perchance there should be some oozing of the water between the sides of the electrode and the anal walls. It has often seemed in some cases to be due to the intense saltiness of the water. Larat has suggested where this is much complained of that Vichy might be used instead.

In using this method in the treatment of chronic constipation, I found that patients who were suffering as well from exudative material in the pelvic cavity noted an amelioration of the symptoms arising from that condition, which upon physical examination I was able to corroborate. This led me to utilize it in the treatment of pelvic exudates and also to a certain extent in other pelvic conditions, such as ovaritis, relaxed conditions of the uterus, etc. I was very glad, indeed, to avail myself of its use, as for a long time I had been extremely averse to the application of the constant current by means of the vaginal electrodes in common use. Even in the hands of the expert, I found great danger in the use of the most carefully constructed vaginal electrode of producing at point of contact, galvano-caustic action, and in the hands of those less expert I have seen very bad eschara resulting in gangrenous sloughs followed by slight hemorrhage. I was convinced that the method was intrinsically faulty and that some other way must be resorted to, to bring the tissue of the pelvic organs under the influence of the current, and thus my observations with the electric enema led to the construction of an electrode for the purposes of vaginal electric douches. In exudative inflammations of the pelvis, as well as in the diseases of the vulva and vagina, the principal aim of the gynecologist is to obtain the resolution effects of the current, and by use of the water electrode it is no longer the apparatus, but all the tissues with which it comes in contact, which becomes the electrode and the active pole of the circuit. With the large surface thus brought under its immediate action, one obtains a great enough force of the current to influence the entire pelvic tissues.

In these administrations with an observed E. M. F. of 90 volts, an observed current of 40 milliampères and an observed time of 600 seconds, there was obtained by calculation a resistance of 2,250 ohms; the power (*i.e.*, the rate of expending energy) 3.6 volt-ampères or watts; and the total energy expended, 2,160 volt-ampère-seconds or joules) resulting in severe contractions in the muscular fiber of the uterus which patients have likened to labor pains. That the current density was not under these circumstances sufficient through any given tissue to produce a galvano-caustic action, is the best evidence of the great utility of the method of application.

The electrode which I show here has already been described.⁵ I now use platinum wire, however, instead of a

³ Henoch, Medical News, August 11, 1894.

⁴ London Lancet, Jan. 6, 1894, p. 65.

carbon tube, for the conducting medium. It will readily be seen that there is no point of contact of the conducting material of the electrode with the mucous membrane in either rectal or vaginal applications. The salt water or the medicated solution, whatever its nature, is the electrode. Since the description of this electrode I have substituted a douche pan for the drainage hose. This obviates all danger of wetting the patient's clothing in any given application.

Thus far I have used the vaginal hydro-electric applications in vulvitis, pruritis vulvæ, simple and diabetic, eczema of the vulva, chronic vaginitis, gonorrheal vaginitis, erosions of the cervix, relaxed and congested condition of the uterus and vaginal walls, in leucorrhæas dependent upon the same, and in displacements associated with these conditions, in pelvic exudates, ovaritis, and supplementary to intra-uterine applications in fibroids, endometritis and salpingitis.

In gonorrheal vaginitis—a condition which is recognized as extremely difficult to treat—it will be possible by this method to bring not only the os and the cervix uteri, but every interstice of the vagina as well, under the influence of medicated solutions and thus combat the specific condition. The fact that the gonococcus penetrates the submucous structure, makes it very desirable that we should be able to apply our remedies in such a manner as to insure their destruction. By cataphoric medication this is possible, as the medicament not only comes in contact with the mucous membrane, but is caused to penetrate more or less deeply into its structure according to the law of cataphoretic transfer.

In the conditions indicating the use of an alternating current either alone, or as supplementary to an application of the constant current, I frequently apply it by means of the water electrode, with the result of a much more sensible diffusion of the current being felt throughout the pelvic basin by the patient than is experienced from the ordinary mono-polar or bi-polar applications.

In a case of chronic vaginitis and eczema of the vulva, of twenty years' standing, with the most intolerable itching, for which the patient had resorted to various means for relief and obtained none, I have found this electrode of the greatest value. In this case the entire mucous membrane of the inner aspect of the labia was thickened, leathery and fissured. At the ostium urethrae and vagina the color was an intense crimson. The same condition extended into the vagina. There was extreme sensitiveness upon digital examination, and the patient was worn and harassed by the continued irritation from which she had not been free in all these years, despite the heroic measures that had been used to insure recovery. After one application of the negative galvanic current in the form of a douche, there was marked relief from the constant irritation and a tendency to heal on the part of the fissures. After four applications had been given, extending over a period of two weeks, the mucous membrane was found to be as sound and whole as that of a child, and the congestion at the mouth of the vagina and urethra had entirely disappeared, the mucous membrane having returned to its normal color and condition. There was complete cessation of the itching which had made the patient's life wellnigh intolerable, and a most marked improvement manifest in her general appearance. She remains under observation.

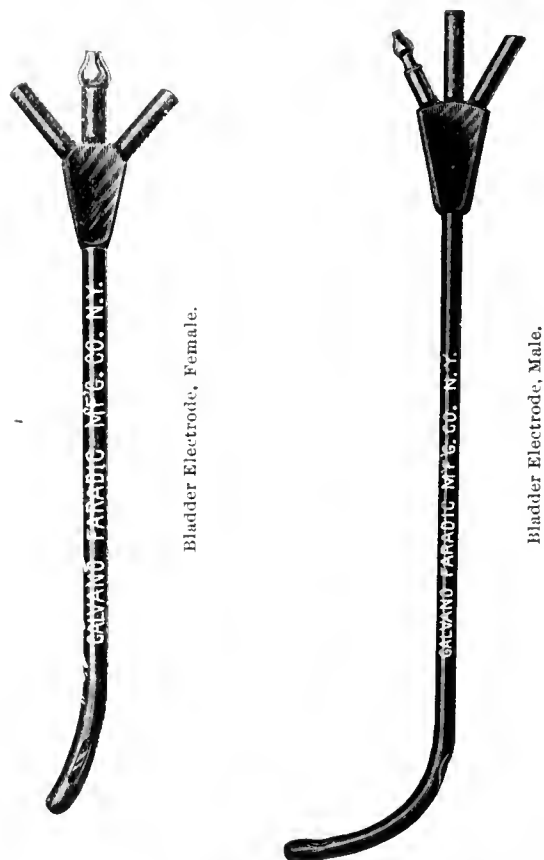
In making the application, the tendency is for the water to flow out against the shield, and in that way to come in contact with every part of the mucous membrane of the vulva. Patients find this method of applying the current exceedingly tolerable, and in the conditions for which I have used it thus far there has been an invariable expression of relief following its use. In conditions demanding it, the vaginal douche is supplemented by a douche to the external genitals as in eczema, etc.

Since I entered upon an investigation of these methods, I have had the opportunity of treating several cases of bladder trouble and of gonorrheal infection. The method should be particularly valuable in cystitis, acute, but especially chronic, in gonorrheal infections of the cyst, in atony and dilatation; in fact, in any condition where the known properties of either continuous or alternating currents would be of value. The applications which I have thus far made have, with low current strength, 5 to 20 milliamperes, been without pain or even irritation.

The electrode for these applications is, like the others, constructed of hard rubber and is similar to the ordinary two way catheter used for vesical irrigation, with a third branch for the battery attachment.

The nature of gonorrhea emphasizes the necessity of re-

sorting to every method which offers a chance for the destruction of the gonococci, ere the opportunity is afforded them of migration and infection of other mucous and serous cavities. The difficulty in the way of doing this is fully recognized. It seems to me that in cataphoresis we have a measure which, from its physical nature, is destined to be of great influence in combating the primary disease. As in four-fifths of the cases the urethra is recognized as the seat of the disease, it is found necessary to direct therapeutic measures to that anatomical site. As it is a fact that the gonococci do not thrive in the bladder, the use of hydro-electric applications as directed to that organ and the vagina can not be depended upon alone to accomplish their destruction. Here, in addition to the use of cupric electrolysis to the urethral canal, the cataphoric douche applied directly to the ostium urethrae itself can not fail to prove helpful. In negative hydro-electric applications with a saline solution, every indication for the washing out of vagina, bladder, and all infected tissues with an alkaline solution is abundantly met, and then by the cataphoric douche the medicament, whether copper sulphate, bichlorid of mercury, zinc sulphate, etc., can be driven directly into the submucous structure of the tissues about the urethra.



In the treatment of atony and dilatation of the bladder the continuous current affords the best results, because structurally we have to deal as in the case of the uterus or intestines with unstriated muscular fiber. The action of the negative electric douche as it impinges on the mucous membrane is necessarily stimulating, inducing muscular contraction, as well as, by its action upon the blood supply, improving the nutrition of the part. The method is unquestionably applicable in every diseased condition of the bladder where electricity is indicated, unless it be a localized lesion, where the galvanic-caustic action of the current is desired.

A limited experience with hydro-electric applications to the nose and ear suggests that they may have their value, at least in the conditions where an ordinary douche would be indicated. In diseased conditions of the nasal passages and accessory sinuses, it is rational to expect that we will get the best result wherever there is an atrophic change. Let us glance for a moment, however, at the inflammatory conditions which precede these atrophic changes.⁶ Here we

⁶ J. Braden Kyle. The Etiology, Pathology and Treatment of Ozena, Medical News, May 5, 1891.

have engorged vessels causing intra-vascular pressure, followed by exudation which relieves the intra-vascular pressure, but which in turn brings about extra-vascular pressure or interstitial infiltration. As a result of the organization of the exudative matter, there will be interstitial thickening followed by contraction, and in either case nutrition will be interfered with, causing a certain amount of atrophy with consequent degeneration and alteration dependent upon the extent of nutritive change. In these conditions I should expect by the judicious use of a cataphoric electric douche, simple or medicated, according to indications, to so relieve such an inflammatory condition as to prevent the subsequent exudation. I have had no opportunity of trying it in these acute conditions, but throw out the suggestion. If the passive congestion of the mucosa, which has a tendency when once established to remain, can by this means be overcome, the atrophies and degenerations will be much less liable to occur. The presence of muscular fiber has been demonstrated in the Schneiderian membrane by Herzfeld of Berlin, and corroborated by Kolliker and Zuckerkandl. This fact would indicate the value in all these conditions of an alternating current douche as well, for wherever there is muscular fiber there will be muscular contraction in response to electrical stimulus, with the result of inviting fresh arterial blood to the part, thereby relieving congestion and stimulating the absorbents into healthful activity. The first indication to be met, viz., that of cleansing the mucous membrane with some alkaline solution, can not be more effectually done than by a negative constant current douche (saline solution) where, by the electrolytic action of the current, there is invited to the part the hydrogen and alkalies. With the electric douche there is to be obtained at the same time the physiologic effect of the current stimulating the parts to a healthy nutrition.

In the atrophies and degenerations where a maximum stimulating effect is desired, a cataphoric douche may be administered. Any drug (soluble in water) indicated in these conditions could be used whose electric diffusion is established. The clinical value of cupric electrolysis (with a copper electrode) suggests a solution of Cu_2SO_4 used as a cataphoric douche. I have used this to advantage in atrophic rhinitis.

The value of copious, hot saline douches in the treatment of inflammations of the ethmoidal sinuses suggests the thought that in electric douches, simple or medicated, we may have an agent of still greater value.

In post-nasal applications the stimulating and consequently curative effect of the electric douche would be greater than that of the ordinary washing out or topical administration of medicated solutions, or here again, a cataphoric douche would not only free the passages from accumulated secretions but drive, at the same time, whatever medicament is used into the submucous structures where it would have an opportunity for beneficent action.

In congested and relaxed conditions of the pharyngeal mucous membrane I use the post-nasal electrode attached to the ordinary irrigating bottle or fountain syringe. Here the douche can only be applied momentarily. Even so, the diseased tissue may be brought much more promptly under the influence of drugs by cataphoresis than by means of the ordinary medicated spray.

In the treatment of thickening of the drum, where it is desirable to bring the membrane under the influence of the negative pole, the water electrode is particularly adapted. One can use requisite current strength without any danger of galvano-caustic action, and whenever it is desired to bring the ear directly under the influence of alternating currents, we have here an extremely painless method of so doing. The indifferent electrode in the treatment of thickening of the drum can be placed at the mouth of the Eustachian tube, thus bringing the diseased tube and drum at the same time within the interpolary influence of the current. In such cases I have used the ordinary copper electrode—nasal—attached to the positive pole at the mouth of the Eustachian tube, and the negative water electrode to the ear. Here, by the electrolytic action at the positive pole, there is obtained an oxychloride of copper which by the cataphoric property of the current is pushed or conveyed along the course of the tube, while at the same time there is a movement of the hydrogen and salts set free by the electrolytic action, toward and to the thickened membrane, where they act to improve the nutrition of the part. There is also obtained, as well, the characteristic influence of the current upon the circulation, inducing first an anemia followed by a hyperemia and ultimately an equalization of the circulation. As a result of such applications patients have

remarked that there was a *smoother feeling* in the ear and a feeling of *life and warmth* not experienced before.

The electrode which I use for these applications to the ear and anterior nares is made of hard rubber and similar in shape to the usual ear nozzle of a fountain syringe. The shorter arm is for the attachment of the hose of the fountain syringe, while the longer one is for the battery attach-



ment. The conducting medium as I have already indicated is a platinum wire carried to about one-third of an inch from the distal end of the electrode, while a number of small apertures cause the water to flow out in the form of a rose.

(To be continued.)

Heilserum in Diphtheria.—Professor Bokai gives the following opinion before the Royal Society of Physicians in Budapest as the result obtained from 120 cases of diphtheria treated in the Stephanie Hospital, Buda-Pesth, Sept. 10 to Dec. 31, 1894. All cases were examined bacteriologically and Löffler's bacillus was found in all but five: 1, serum from a reputable source has a specific and beneficial effect; 2, the serum is superior to all other means of combating the disease, and no untoward effects have been observed, except urticaria in 10 per cent. of cases; 3, in severe laryngeal stenosis threatening death by suffocation, an operation, (intubation, tracheotomy) is a necessary addition to the serum-therapy; 4, in those cases in which the disease assumes a distinctly septic character from the beginning, the value of the serum is doubtful. Heart weakness due to organic changes and leading to paralysis, the serum can not relieve; 5, the question of prophylactic injections, from his lack of experience, is not decided for him, but from his results he believes that protective inoculations will be no less approved than the curative. The statistics of this hospital show that in 1891, of 135 cases of diphtheria 40 per cent. recovered; in 1892, of 92 cases 46½ per cent. recovered; in 1893, 32½ per cent., while in 1894, of 120 cases 74½ per cent. recovered. In the discussion following, Gerloczy referred to his use of serum in fifty-five cases and maintained that the serum offered no sure relief, yet he believed that by its general use the mortality is lessened about 10 per cent. and since he had observed no ill effects he regarded it as his duty to use the serum.—*Wiener klinische Rundschau*, May 5, 1895.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
 SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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 W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JULY 6, 1895.

THE PRACTICE OF MEDICINE IN CITIES.

The rush of young men, not well prepared, into the practice of medicine is likely to be checked and headed off for a time. The State examinations for license to practice will raise the standard and drive out the incompetents and quacks. In some of the large eastern cities new questions of professional peril are coming into prominence. Teachers and specialists in every city have depended very largely on consultation practice. The strain to secure a position in a medical college was, in most instances, to enlarge their acquaintance and consultation practice. This has grown to such an extent that vacancies for teaching are bought and sold, not always for so much money, but for influence and prospective power to help the college and its teachers.

The time came when the would-be medical teachers far exceeded the demand, and the polyclinics were organized. This appeared to be a most fortunate opening for many, and the rush for places and professorships was the same as in the colleges. Free services were offered, and large assessments were made to cover expenses and buildings, all freely paid. The inland practitioner who came to improve and enlarge his knowledge was cultivated as one who would yield large returns in future consultations. Elaborate and exhaustive studies in clinical surgery and medicine, by large, eminent faculties, are served up with earnest skill. Classes of very enthusiastic physicians go away with hearty praise to the faculty and thankfulness. These physicians return to work with not only greater skill and practical knowledge, but a degree of confidence to do all their own surgery, and be their own consultants. They recog-

nize the practical significance of saving the large consultant fees, and doing the work and keeping the case in their own hands. They open hospital rooms and gather round them appliances and nurses for doing the work that large hospitals have concentrated in the cities. Nearly all the large operations in surgery, occurring in persons who are able to pay, are retained and treated by the polyclinic students and graduates. Hundreds of cases from the villages and towns, that were formerly sent to the large cities, are now treated at home.

Physicians who wish to become expert in some line of surgery, take special courses at these schools and then return and treat all these different cases, while the poor, hard-worked professor finds his dream of increasing consultation vanishing into thin air.

The only class of cases that come in from the country are indigents, and the professor's skill and technical knowledge is assumed by graduates in every town of the land. The poor professor is teaching and paying assessments to keep up the school and educating a class of stirring practical men to do the very work he depends on for a living. This is theoretically most commendable, but, practically, to poor men in large cities it is destructive. All medical teachers in eastern medical centers, who have not an income outside of their medical work, suffer and find the strain of practice growing greater every year. A reversion is going on. The country and village practitioner, who attends the polyclinic every year or more, and becomes familiar with the best methods of practice, is the peer of the city professor. He can command and control his cases and collect his fees while living in most comfortable, easy surroundings. His brother in the city must keep up a style of wealth and prosperity, even although grim want may hang round the kitchen door. If he is a teacher his time and money must be spent freely, although nothing tangible come back. His love of science and willingness for sacrifice must rise above every other consideration.

The polyclinics, while increasing the labors and strain of practice in large cities, are great blessings to the profession, especially to the army of isolated inland physicians, who are anxious to keep well up to the frontiers of science.

They are equally valuable to those who realize their failures in early studies and preparation for work. The present popularity of these schools will decline as better educated men come into the ranks of the profession. In the meantime the frantic efforts to attract patients to the cities by free dispensaries and hospitals, where the foolish teachers give away their time and services for nothing must die away.

At present, the hospital dispensary and much of the private practice of medicine in large cities is conducted on the most idiotic and childish principles.

Some surgeon will charge \$500 for an operation which he may have done a dozen times in the hospital within a month free, on persons able to pay.

Bids are made for cases to come to large hospitals where the operations are free, only some nominal price of board is charged. This has become an abuse which has produced much bitterness in many circles. Free medical services, and a craze to teach medicine for nothing, and the increasing strain to secure patients to illustrate the service, and to furnish an income to subsist on, are grave perils to physicians in large cities. It is a question which is the greater abuse, letting in an array of half-trained men to practice or to sacrifice the members who are in, by demands for free services and free labor, and placing them in positions which require the greatest skill and struggle to even make a living.

Now that the first abuse is to be corrected, is it not wise to agitate the next question, How is the practice in large cities to be regulated so that medical men can receive a rational and substantial recognition for their services? How is this foolish competition to become teachers, both cheapening the dignity and quality of the work, to be abandoned? Evidently some radical reforms are necessary, and this subject needs agitation.

THE ANTI-STREPTOCOCCIC SERUM.

Among the more recent applications of serotherapy is that of treating infections of the streptococci with the serum of animals immunized against the microbe which—as comprehensively summarized by a French contemporary¹—causes phlegmon, erysipelas and puerperal fever; which induces suppuration in cellular tissue, as in serous cavities; which is always present in the mouth and pharynx; which may, in short, give rise to a series of affections ranging from simple angina to peritonitis and which, moreover, complicates nearly all infectious diseases, both acute and chronic. To successfully combat this terrible adversary would be to give aid of extraordinary power to the physician, the surgeon and the accoucheur. It is this aid which various observers, especially ROGER and CHARRIN, MARMOREK and CHANTEMESSE hope to have discovered in anti-streptococcic serum. MIRONOFF first and then CHARRIN and ROGER began by immunizing animals against the streptococci and, by injecting five or six cubic centimeters of serum from one of these immunized animals, prevented the development of the erysipelas microbe in the rabbit—one of the most susceptible animals. Recently the last two observers immunized a mule by injecting, in eight séances, 240 cc. of a toxin prepared by evaporating and sterilizing 2,400 cc. of a bouillon culture of streptococcus. With serum from this mule they cured in a few days two women suffering with grave puerperal infection, by injections amounting in

one case to 50, and in the other to 96 cc. The daily dose varied from 8 to 25 grams, according to the gravity of the symptoms; recovery occurred in three to four days and complete convalescence in five to six days. In a weak new-born child, with erysipelas they succeeded in jugulating the affection with 5 cc. of the serum. Finally, in a pseudo-membranous angina, accompanied by serious depression with cardiac complications, temperature 106.2, pulse 148, a cure was obtained in three days by the daily injection of 30 cc. of serum.

At the same time MARMOREK, at the Pasteur Institute, succeeded in immunizing the horse, ass and sheep, either by injecting weak cultures and then more and more virulent, or by increasing doses of a toxin prepared by simply filtering cultures in bouillon through porcelain.

It is important to obtain as active a toxin as possible, and MARMOREK, by passing a series through rabbits, obtained a culture which killed them in thirty hours in the dose of one one-hundred thousandth of a centimeter. The animals were immunized with this very energetic toxin, though this required several months and several hundred rabbits to obtain the required potency.

Erysipelas was also treated by MARMOREK and CHANTEMESSE. Of eighty-six cases, forty appeared benign and were treated by ordinary methods; forty-six were grave and received serotherapy; all recovered save one old woman, who died of pneumonia ten hours after admission. They injected 5 to 20 cc. of the serum. The general condition was ameliorated; the temperature was lowered in a very short time, and where there was albumin in the urine this disappeared very rapidly under the treatment.

These authors claim that albuminuria accompanying erysipelas is cured by serotherapy. This claim is important, for some observers claim that the antiphtheritic serum has an injurious effect on the parenchymatous organs and especially on the kidneys. Some patients recovered in spite of an unfavorable prognosis given by the authors; none of the cases were followed by phlegmon or by abscess as is the rule in grave cases of erysipelas. According to the authors this result is due to the activity of the toxin employed to immunize the animals—the larger the dose of the active toxin the greater their degree of immunity. This immunization is a long and delicate process, for the animals react with extraordinary violence to even the smallest dose of the toxin. These results are encouraging but demand confirmation, for nothing is more variable than the gravity of erysipelas and the prognosis is always difficult.

As to the other varieties of streptococcus infection, the cases are too few to form any reliable opinion, though MARMOREK is still engaged in researches and promises some further observations shortly.

¹ Jour. des Sciences Med. de Lille. No. 17, 1895.

ANTIVENIN, THE LATEST CONTRIBUTION TO SERUM-THERAPY.

According to the *Press and Circular*, June 12, Dr. THOMAS R. FRASER, professor of materia medica in the University of Edinburgh, has made a very significant announcement regarding his original work with serpent poisons. Early in the month of June Dr. FRASER read a paper before the Royal Society, showing that animals may be immunized against the venom of the cobra as well as other serpents. He also showed that antidotal properties inhere in the blood serum of such immunized animals. Dr. FRASER opened his paper with a historical account of the beliefs and traditions of the Hindoos and others, that poisonous serpents are self-immunized by some result of the absorption of their venom.

Since the year 1889, Dr. FRASER has been in receipt, from different parts of the globe, of supplies of snake poison, especially of the Indian cobra, and with this had performed many experiments on animals in the hope of producing immunity. The results he obtained passed his most sanguine expectations.

Continuing its abstract of Dr. FRASER's paper, the *Press and Circular* says:

"Experimenting on rabbits, among other animals, he first satisfied himself as to the amount of the poison which constituted the minimum lethal dose. He then proceeded to inject quantities below this amount, and found that he could gradually increase them to *fifty* times the dose originally fatal. But not only that, for a buck rabbit, which he exhibited, and which was then in about the one hundred and fiftieth day of treatment, had gained enormously in weight, from 2,000 grams to 3,000 grams, and had increased greatly in strength, and especially in virile power. Again, he found that the mixture of 1-240 cc. of serum obtained from a rabbit immunized to thirty times the minimum lethal dose with cobra venom averted a fatal result on injection, while the injection of a similar serum half an hour after the injection of a venom which otherwise proved fatal in one hour, promptly stopped the symptoms which had already commenced, and saved the life of the animal. He called this protective serum by the name of 'Antivenin.' He also mentioned as an interesting fact that the rabbit above referred to had received during the months of treatment *enough cobra poison to kill two horses*, or about two hundred and eighty rabbits if unprotected. Not only are Dr. FRASER's results of the greatest value for the treatment of snake bite in India and other tropical countries, but, as he himself remarked, they possess a deeper significance in accentuating, as they do, the wonderful progress made in serum-therapy during the last few years, and are an earnest of still more wonderful discoveries yet to be made in the same direction. It appears also that immunizing an animal with the venom of one kind of serpent *protects it from the poison of other species.*"

In conclusion, it may be said that Dr. FRASER is well known for his original investigations concerning calabar bean and the other ordeal poisons of

West Africa. We may confidently predict that his findings will be confirmed.

AN INTERNATIONAL CONVENTION OF BACTERIOLOGISTS.

The bacteriologists of the country held a convention, June 21 and 22, in the New York Academy of Medicine, under the presidency of Dr. WILLIAM H. WELCH, of the Johns Hopkins University. On the first day of the conference, papers were read by Drs. FULLER, WELCH, SURGEON-GENERAL STERNBERG and Drs. SEDGWICK and CHEESMAN.

The most important work of the convention was the appointment of a committee to investigate the bacterial field as applied chiefly to the water supplies of cities, and to decide as to the standard types, methods of cultivation, and the interpretation of results.

The following delegates were appointed upon this committee: PROF. J. S. ADAMS of McGill University, Montreal, Chairman; PROF. W. F. SEDGWICK, Biologist of the Massachusetts State Board of Health; Dr. G. W. FULLER, Biologist in charge of the Lawrence Experiment Station of the Massachusetts State Board of Health; Dr. CHARLES SMART, U.S.A., Chairman of the Committee on Water Supply of the American Public Health Association; Dr. T. M. CHEESMAN of the College of Physicians and Surgeons, THEOBALD SMITH of the Massachusetts State Board of Health, Dr. A. C. ABBOTT of the University of Pennsylvania, and PROF. W. H. WELCH.

A LONDON "REFUSE DESTRUCTOR" PLANT ON A LARGE SCALE.

In one of the parochial districts of London, St. Pancras, the problem of disposing of municipal refuse at the lowest cost is being solved. And more than that, this refuse is made of practical value in connection with the parochial electric-lighting works. The city refuse, or "dust," to use the English word, is consumed in specially constructed furnaces, and the heat thus generated used to produce power to run the electric plant.

These new buildings cover an area of two acres and a half, facing King's Road, and the most noticeable feature of the plant is the huge chimney that rises to a height of 231 feet, and that cost over \$15,000 to erect. The total cost of the plant has been \$500,000.

The "dust" is collected throughout the district by carts and carried to a rear entrance, weighed and tipped into enormous tanks on each side of the main shed. To these tanks are attached hoppers, which convey the refuse to furnaces of new design, and considered to be of the best type now existing.

A novel feature of the whole scheme is its general automatic working, which requires the least possible outlay of manual labor. For instance, the furnace

is fitted with an ingenious appliance of alternating bars, moving up and down with an eccentric forward motion, carrying the refuse continually toward the center of the fire.

There are eighteen furnaces, capable of consuming 1,260 tons of dust per week. There is but a small amount of "clinker" left behind, and this is withdrawn every six hours. This can be used to form an exceptionally tenacious mortar, and its sale, (together with certain reduce expenses) will yield a probable gain to the parish of \$25,000 per annum.

The fiery gases from the burning material pass through long flues to the engine room of the electric works, pass around and in front of the boilers into an "economizer," and so into the chimney. The destructors are said to produce 12,000 degrees of heat, and supply from 300 to 400 horse-power to the boilers. Efficiency with economy is proved possible in this scheme. For instance, the water needed is procured by saving the waste steam, passing it through a condenser and a water softening apparatus, pumping it to the top of the building to a cooler, whence it returns to a tank of 115,000 gallons capacity.

There will be a saving in cartage of refuse, a saving in coal at the electric station, and a saving to the taxpayers who will have cheaper and better street lighting, and a valuable asset.

The *Lloyd's Newspaper*, from which the above description is taken, remarks: "The possibilities of the use of city refuse as fuel may be followed by as interesting results as was the discovery of the value of the despised coal-tar, and also of refuse petroleum."

ASSOCIATION NEWS.

Section on Surgery and Anatomy.—*Minutes of Meeting of 1895.* The Section was called to order on Tuesday May 7, 1895, at 3 o'clock p.m. by the chairman Dr. Jos. Ransohoff of Cincinnati, Ohio, who delivered his inaugural address, dwelling in it on the diagnosis and treatment of stone in the kidney and presenting four specimens of kidney stones which he had removed.

The following papers were then read: "Cystoscopy, Catheterization of the Ureters and Catheterization of the Kidneys in the Female," by Howard A. Kelly, Baltimore, Md.; "Aero-Urethroscopy with the Exhibition of a new Instrument," by W. K. Otis, New York, N. Y.; "The Value of Urethroscopy in Chronic Urethritis with demonstration of the Nitze-Oberlaender, Casper and Posner Urethroscopes and other Urethral Instruments," by Ferd. C. Valentine, New York, N. Y., and were discussed by Drs. Otis of New York, Deaver of Pennsylvania, Valentine of New York.

Dr. Valentine also asked leave to present in behalf of Professor Posner of Berlin, Germany, a paper on "Cryptogenic Cystitis and Pyelitis" which was received and read by title.

A paper on "Movable Kidney" was then read by Homer Gage of Massachusetts, and discussed by Dr. Wyman, of Michigan; De Forrest Willard, of Pennsylvania; Weeks of Maine; Ferguson, New York; J. B. Roberts, of Pennsylvania; Fenger of Illinois and Davis of Alabama.

A paper on the same subject by Dr. E. B. Davis, of Birmingham, Ala., was read by title.

A paper on the "Radical Cure of Hydrocele" was read by D. C. Hawley, Vermont, and discussed by Drs. McLean, Michigan; Gaston, Georgia; Vance, Kentucky and Rodman of Kentucky.

A paper on "Erosion, Excision and Amputation in Joint Diseases" was read by De Forest Willard of Philadelphia, Pa. The chairman appointed as a nominating committee Drs. De Forest Willard, Pennsylvania, J. B. Murphy Illinois, Weeks of Maine. Adjourned.

The Section was called to order at 9 o'clock a.m. Wednesday, May 8, and a paper entitled "A Note on the Surgical Cure of Hernia" was read by W. B. De Garma, New York.

The subject of "Appendicitis" was then treated by John B. Deaver, Philadelphia, Pa., and discussed by Drs. Weeks, Maine; McMonigle, California; Wyman, Michigan; Quimby, New Jersey; Murphy, Illinois; Marcy, Massachusetts; Hawley, Vermont; Herrick, Ohio; Willard, Pennsylvania; Bishop, Pennsylvania, and closed by Dr. Deaver.

The Secretary then showed for Dr. J. C. Schepps of Brooklyn, N. Y., an improved elastic tourniquet.

"Thoracic Troubles from a Surgical Standpoint" was the title of a paper by J. McFadden Gaston, Georgia, which was discussed by Drs. Wenz, Pennsylvania; Willets, California; Risley, Pennsylvania, and the Section then adjourned until afternoon.

The Section was called to order at 3 o'clock p.m. Wednesday, May 8, and a paper on "The Treatment of Malignant Tumors by the Toxins of the Streptococcus of Erysipelas," read by Nicholas Senn, Chicago, Ill. Discussed by Drs. W. B. Coley, New York; Sayre New York; Rocky, Oregon; Wyeth, New York; Herrick, Ohio; and Kern, Pennsylvania.

The following papers were discussed together: "Tumors of the Mammary Gland," by W. L. Rodman, Louisville, Ky.; "Is Total Extirpation of the Rectum ever Justified" by J. M. Mathews, Louisville, Ky.; "Colotomy vs. Extirpation in Cases of Cancer of the Rectum," by L. H. Adler, Philadelphia, Pa. Discussed by Drs. Tiffany, Maryland; Keene, Pennsylvania; Fenger, Illinois; Jacobson; Rocky, Oregon; Marcy, Massachusetts; Davis, Missouri, and closed by the readers of the papers.

The Nominating Committee reported the names of Drs. C. A. Wheaton, St. Paul, Minn., for chairman, and Dr. W. L. Estes, South Bethlehem, Pa., for Secretary for the ensuing year. On motion, the secretary was directed to cast the vote of the Section for these gentlemen who were thereupon declared elected.

A paper on "Bronchiogenous Carcinoma," by Charles A. Powers, Denver, Colo., was then read by title.

The following papers were read: "An Original Osteoplastic Operation for the Removal of large Vascular Tumors Growing in the Vault of the Naso-Pharynx, Antrum of Highmore, Sphenomaxillary, and Pterygo-Maxillary Fissures," by John A. Wyeth, New York, N. Y.; "Electrolysis in the Treatment of Sacculated Aneurysm, through Introduced Wire, with Report of a Successful Case," by D. D. Stewart, and J. J. Sallinger, Philadelphia, Pa.

The Section then adjourned until the following morning.

The Section was called to order at 9 o'clock a.m., Thursday, May 9, and a paper on "Some Points in Asepsis in Private Dwellings with the demonstration of some new Aseptic Appliances," was read by Carl Beck, of New York, N. Y., followed by papers on "Ileus," by J. B. Murphy, Chicago, Ill.; "Scientific Uses of the Surgical Flap," George Wiley Broome, St. Louis, Mo.; "The Surgical Technique of Aseptic Wounds," by Henry O. Marcy, Boston, Mass.; "Flat-Foot—Supramalleolar Osteotomy with Report of a Case, Photographs and Specimens of Feet of Man, Orang, Baboon, Chimpanzee and Gorilla," B. Merrill Ricketts, Cincinnati, Ohio.

The Section then adjourned until the afternoon.

The Section was called to order at 3 p.m., and the Secretary having been called away, Dr. J. C. Oliver, of Cincinnati, was elected Secretary *pro tem*.

Dr. Murphy's paper on "Ileus" was discussed and the following papers were read: "Gall Stones in the Common Duct and their Surgical Treatment, with remarks on the ball-valve action of floating Choleliths Stones," by Christian Fenger, Chicago, Ill.; "Skin grafting after the Method of Thiersch," by J. C. Oliver, Cincinnati, Ohio; "Excision of the Knee-Joint, with Report of a Case of complete Dislocation of the Knee, of nine years standing, and with especial Reference to Methods of Fixation," by S. F. Forbes, Toledo, Ohio.

In connection with this paper, Dr. Marcy, of Boston, Mass., showed a case of hip-joint resection done by Dr. L. A. Sayre in 1876. The head and neck of the femur had necroses and the femur was sawed through just below the trochanter minor.

He had excellent motion in the joint and made the difference in the length of his legs, which amounted to six inches, hardly noticeable by means of an "extension shoe," which was laced to his foot, and which allowed the use of an ordinary pair of shoes, the patient walking with the toe pointed instead of at right angles to the leg.

Dr. Marcy also exhibited a series of double tubes made by George Tiemann & Co., of New York, after patterns devised by him many years since and for a long time now in general use. The larger ones are designed for the washing out of the stomach, rectal irrigation, etc. The smaller are catheters in various sizes, both male and female. The efferent tube is twice the size of the direct, in order to prevent over-distension. They are made in the same finish as the rubber catheters. The value of these soft rubber tubes for the purpose of irrigation has somewhat recently been emphasized at the Johns Hopkins Hospital, from which they have been offered to the profession as a recent invention of one of the members of the medical staff. It is on this account that they are presented to the Section.

The following papers were then read: "The New Surgical Splinting—Report of Cases Exemplifying it," by E. A. Tracy, Boston, Mass.; "A Simple Method of Dressing Fractures of the Extremities auxiliary to the Bandage," by John E. Link, Terre Haute, Ind.

The Section then adjourned till Friday morning, when it reconvened at 9 A.M., and the following paper was read: "Deformities following Fractures of the Shafts of Bones," by Thomas H. Manley, New York, N. Y.

The Section then adjourned for the year.

REGINALD H. SAYRE, Secretary.

CORRESPONDENCE.

The Michigan Practice of Medicine Act.

CHARLOTTE, MICH., July 1, 1895.

To the Editor:—In the JOURNAL of June 15, in the editorial columns, I notice the report of the Michigan Medical Society for its recent meeting. I wish to call your attention to this paragraph which I herewith quote: "Michigan, still, by deliberate act of its Legislature, remains the dumping ground for the world's incompetent and dishonest doctors."

The Legislature of Michigan in its last session passed the bill to regulate the practice of medicine and to prevent that which you deplore, as well as all honest and intelligent people. It would have become a law, but for the veto of the Governor, who only exercised that prerogative after the Legislature had adjourned, and could not pass it over the veto for that reason.

Hoping you will correct the misstatement, and do justice to at least a portion of Michigan's unfortunates,

I remain yours, G. B. ALLEN, M.D.

Member of the Legislature and Representative 2d District, Eaton County.

ANSWER. "For of all sad words of tongue or pen

The saddest are these: 'It might have been.'"

PUBLIC HEALTH.

Yellow Fever.—Press dispatches announce the existence of yellow fever at Tampa, Fla., July 4.

Added Duties in the New York Board of Health.—The Health Board of New York City, along with the fire, excise and building departments, since the recent annexation of a territory covering about 20,000 acres of land, with a population of 17,000, must now extend its lines. This recent addition which more than doubles the city's territory north of the Harlem River, adds more than a third to New York's domain. Many a problem of drainage, grading and water supply remains to be solved, with the inevitable conflict between taxpayers and sanitarians.

A Navy-Yard Garbage Destructor.—At the Brooklyn navy yard, a small garbage destructor has been put into operation. The crematory is a structure about 25 x 30. The framework is steel, and the outer walls are made of corrugated iron.

Within this is the oven or crematory proper. This latter is composed of brick, stone and iron. There are six doors or openings to the crematory. One of them is used for making the fire, another for removing the wood ashes, and the other four are the openings through which the cremated garbage is drawn. The garbage is introduced at the top of furnace, the garbage wagon taking its loads there by means of an inclined plane and platform. The fuel used is largely the waste wood which is collected from the work-shops of the yard. The capacity of this destructor is said to be ten tons daily.

"Malta Fever."—In a brief paper contributed to the London *Lancet*, W. Hill Climo, a retired brigade surgeon, points out that the history of the so-called "Malta fever" is strangely similar to what obtained a few years ago in reference to the increasing prevalence of, and mortality from enteric fever in India. From time to time various explanations were hazarded to account for the phenomena connected with it; but they had to be discarded, and now the disease is admitted to be in every respect identical with the typhoid fever of European countries, being specific in origin, and traceable to a sewage-polluted soil affecting the water supply. It is believed that in the near future a like view will be taken of Malta fever and its specific character recognized, the disease originating in local insanitary conditions and the action of climate in its production being chiefly manifested by its influence on these conditions, and not directly on the constitutions of individuals in the first instance. That such grave sanitary defects as Surgeon Climo describes should be allowed to exist unheeded in a military possession of the country which has done so much for military hygiene is quite as singular as the failure hitherto to recognize the specific filth character of the disease these defects have produced.

Death Rates in Foreign Cities.—The following statistics of foreign cities have been collected and collated, by the Paris *Herald*, for the year 1894: "Among the highest death rates are those of Moscow, 34.1 deaths per 1,000 of population; St. Petersburg, 31.4; Rouen, 31.3; Havre, 29.8; Naples, 27.7, and Milan, 25. Dublin had a mortality of 24.7 per 1,000; Munich, 23.7; Cologne, 23.1; Prague, 22.1, and Bordeaux, 21.3. Among the lowest death rates are those of London, Liege and Berlin, respectively 17.7, 17.6 and 17.2. Still lower are the figures for The Hague, 16.9; for Frankfurt, 16.5, and for Bristol, 15.4. In cities where the population fluctuates rapidly, these figures may be slightly too large or too small. But it is very noticeable that in some of the large towns and cities of Europe the actual death rate has been immensely reduced by modern sanitation. The mortality of London in 1870 was 24.3 per 1,000, and in 1881, 21.6. The death rate in Paris in 1881 was 25.5, but it is now only 20.2. As late as 1873 Berlin's death rate was 28, and in 1878 Professor Virchow showed it was increasing. It is, therefore, apparently a great triumph of sanitary science that in 1894 it should be so low."

Infectious Disease Hospital on Wheels.—In a rural section of Scotland there is in use an ambulatory hospital for infectious cases, that has been devised with no small degree of care. The following is a portion of a description thereof in the *Medical Press and Circular*, May 22: "The county authorities of the eastern part of East Lothian have determined to provide their district with three hospital caravans for the purpose of treating infectious disease. The first one was inspected the other day in Leith and gave great satisfaction. The caravan, which will be drawn by two horses, measures, internally, 19 x 10 x 8, giving an air space of 1,520 cubic feet. It contains two beds, curtained off. It has a double lining of wood and an end is made so that the panelling can be removed and the caravan placed against another caravan in corridor fashion. It is well ventilated by means of Tobin's tubes and has another ventilator on the roof. The total cost of

each will be £100. The advantage of such a movable hospital in a rural district is manifest, and even if there is a considerable epidemic in one part, several caravans can be collected together there. The difficulty, we should suppose will be, in such districts, to procure proper accommodation for the nurse required, and also about the efficient and sanitary disposal of excreta and infected clothing. The caravan itself is so made that it can be thoroughly disinfected when necessary."

Double Role of the Staphylococcus Albus.—The white staphylococcus, *S. pyogenes albus*, found in pus and hitherto associated, as the name implies, with pus formation, has been found according to M. Charrin, in considerable numbers in the breast milk of women apparently in the rudest health and whose nurslings thrive on their milk. This discovery, which was proclaimed at a recent meeting of the Biological Society of Paris, would seem, according to Dr. Dolan,¹ to strike a severe blow against the modern germ theory of disease. In which connection Dr. Dolan cites the observation of a writer in *L' Union Medicale*, who says that in reality, as regards the breast as well as the bronchi, intestines, etc., if the pathogenic agent frequently makes its entry from without, it also at times pre-exists within the system, awaiting some occasional cause such as traumatism, a febrile affection, or other exciting agent in order to make its presence manifest by swarming. Dr. Dolan asks: "What is the nature of this occasional cause? Calling it traumatism, etc., does not help toward the elucidation of the knotty point. The staphylococci at one moment are beneficial and wholesome toward their human host; at another they become virulently noxious. What is the real cause of this change of front? It is not too much to say that we know nothing whatever about it."

To Reduce Infant Mortality.—"The Sterilized Milk Charity" in New York City will be continued during the summer of 1895. The fourth of the sterilized milk booths for which Mr. Nathan Straus has the permission of the Park Department to erect, is to be situated in City Hall Park and will probably be completed before this item is published. Three others are already in operation, and the fifth will soon be built in Central Park. The price is one cent per glass. One of the newspapers remarks: "Fewer calls upon the doctor is one of the advantages." Although the enterprise was begun in 1894, as late as July, and many of the booths were in operation barely two months, a total of 600,000 glasses of milk were sold. With the earlier start this year and the increased popular knowledge regarding the plan, the total is likely to be doubled. The scheme has heavy expenses aside from the cost of the milk. There is a pay-roll of those engaged solely in this work which foots up \$300 a week now, and is likely to be materially increased during the height of the season. To begin with, twenty-two young women are employed as clerks in the eleven booths and depots. Then eight men and two boys are needed upon the trucks which are constantly busy carrying the milk from the railway terminals to the central distributing point, and thence to the booths and depots. Tons of ice are consumed daily in keeping the milk cool, and the cost of construction of booths and rent of depots is a considerable item in the expense total.

A Health Commissioner Resigns.—A change has taken place in the New York City Board of Health. Dr. George B. Fowler becomes Commissioner, *vice* Dr. Cyrus Edson, resigning by request of Mayor Strong. Dr. Edson has sustained a good reputation in his public life, but he has the unfortunate handicap to bear of being too closely linked with the malign influences that grew out of Tammanyism. Dr. Edson's father is an ex-Mayor of the variety that sits now

under public condemnation; so that the "Tammany tiger cubs," as the New York *Herald* remarks, are not always judged according to their merits. However, Dr. Edson (unless the reporters have been misled) is reported as paying himself the following delicate tribute: "I have given the best portion of my life to the service of the Board of Health, beginning on the lowest rung of the ladder. I have held nearly every subordinate position to which a physician is eligible. Through all these offices I have been promoted without a backward step. I have served through several epidemics and have had the good fortune to direct my subordinates to such effect as to repeatedly stamp out contagious disease when it seriously threatened the people of the city. I believe that the Board of Health was never so efficient as at the present time." When asked about alleged charges that he had been too free in the use of his official signature in mercantile ways, he is reported as replying: "I have several lawsuits against firms who have used my name to advertise themselves." He said he was not sorry to give up the position, and that he could make more money by his private practice.

"State Care" of the Insane of New York.—Although many strenuous efforts have been made to secure the passage and signature of an act to compel the county authorities of New York to transfer their pauper insane to the State Lunacy Commission, the result has been a failure in 1895. Mayor Strong declined to approve of the law, and the Governor could not sign it without that approval. The New York *Herald* now appeals to the State Commissioners to proceed by urgent measures, through orders of the Supreme Court, to compel the county commissioners to amend existing abuses. It demands that no delay be allowed in the matter of improving the maintenance of "the unfortunate creatures immured in the island madhouses and at Central Islip." The writer further argues the necessity for action by the Lunacy Commission as follows:

"No one, better than the State Commissioners in Lunacy, realizes the shocking state of affairs in the New York city asylums. They knew much before of the evil and neglect, the underfeeding, the wretched food and housing of the inmates, the insufficient number of attendants and the brutal nature of some of the men employed. They knew of the filthy bedding and the filthy bathing. They have made reports upon these features and have made recommendations which have been ignored. It is time for them to act in the premises. The law gives them ample power. They have already resorted to extremities in Kings County, where they compelled the local authorities under an order from Judge Cullen, of the Supreme Court, to amend abuses. Will they act now in the case of New York, or will they permit to exist the abuses of which they complained to Mayor Grant, to Mayor Gilroy and to Governor Morton? The Commissioners, alone, now have the power to terminate the inhumanity that disgraces New York, and which through failure to correct, bears upon the administration of Mayor Strong."

Mayor Swift of Chicago has appointed ex-Alderman Kerr to be Commissioner of Health of that city. Much criticism has been evoked because the appointee is a non-medical man, but it is understood that a new Health Department will be created, on a sound basis, and on a scale equal to the needs of the city, as soon as the ordinance can be prepared, which it is expected will be ready on the reassembling of the City Council after the summer vacation. Dr. John B. Hamilton, the editor of this JOURNAL, has, pending re-organization, been requested by the Mayor to act as consulting hygienist to the Health Department and in that capacity will prepare the plan for the new department. In the meantime, Dr. Frank W. Reilly, the Assistant Commissioner of Health, formerly Secretary of the Illinois State Board of Health, will continue in his present position, to give necessary advice to the new Commissioner in the performance of his daily sanitary duties.

¹ Provincial Medical Journal, No. 160, 1895.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

London: June 8 to 15, 1 death.
 Dublin: June 8 to 15, 13 cases, 2 deaths.
 Alexandria: May 14 to 20, 1 death.
 Cairo: May 14 to 20, 8 deaths.
 Bologna: June 8 to 15, 1 case.
 Calcutta: May 11 to 18, 67 deaths.
 Havana: June 13 to 20, 8 deaths.
 Liverpool: June 8 to 15, 1 case.
 Madrid: May 26 to June 9, 5 deaths.
 Moscow: May 25 to June 1, 3 cases.
 Odessa: June 1 to 8, 6 cases.
 Prague: June 1 to 8, 9 cases.
 Rheims: June 8 to 15, 1 case.
 Rio de Janeiro: May 18 to 25, 4 deaths.
 Rotterdam: June 8 to 15, 1 case, 1 death.

SMALLPOX—UNITED STATES.

Tennessee: Memphis, June 15 to 29, 6 cases.
 Pennsylvania: Philadelphia, June 15 to 22, 1 case, 1 death.
 Missouri: St. Louis, June 15 to 22, 1 case.
 Michigan: June 15 to 22, smallpox reported at Detroit and Olivet.
 Indiana: Evansville, June 19 to 26, 1 case.

CHOLERA.

Bombay: May 14 to 21, 2 deaths.
 Calcutta: May 11 to 18, 48 deaths.
 Biogo: May 27 to June 3, 8 cases, 7 deaths.

YELLOW FEVER.

Havana: June 13 to 20, 10 cases, 5 deaths.
 Santiago de Cuba: June 8 to 22, 19 deaths.
 Maracaibo: June 8 to 15, 1 case, 1 death.
 Rio de Janeiro: May 18 to 25, 23 deaths.
 Vera Cruz: June 13 to 20, 8 deaths.

NECROLOGY.

LOUIS A. HOFFMAN, M.D., died June 1 at his home on Ferry Street, Newark, New Jersey. He was a native of the United States and in his fortieth year. He had been sick about five weeks with an attack of dysentery, complicated with meningitis. He had been a resident of Newark about four years and had served as one of the district inspectors of the Board of Health. A widow and one son survive him.

DR. LEWIS D. HARLOW, M.D., died June 23, of heart disease at his home in Philadelphia. He was in his usual health and attended to his practice up to the day before he died. Dr. Harlow was born June 16, 1818, in Vermont and was graduated in medicine by the University of Pennsylvania, in 1845. After spending a few years in country practice, he came to Philadelphia and was elected to a Chair in the Philadelphia College of Medicine and afterward to a Chair in the Pennsylvania College. He was one of the founders of the Philadelphia Obstetrical Society, and its President in 1878. He was a member of the Academy of Medicine, Fellow of the College of Physicians and other societies. He was a delegate to the AMERICAN MEDICAL ASSOCIATION meeting at Philadelphia in 1872.

ALEXANDER BARNETT POPE, M.D., of New York City, died suddenly June 12, aged 35 years. Dr. Pope was a native of Washington, Georgia, and was educated at the University of Virginia. His medical degree was obtained at the New York College of Physicians and Surgeons, class of 1884. In 1886, he was, for a time on the medical staff of Bellevue Hospital. For some time past he had been connected with the Polyclinic, the Vanderbilt Clinic and St. John Guild. The position held by him at the clinic above named, from 1888, was in the department of diseases of children. Among the other appointments held by him, was that of an attending physician at the Bellevue Hospital Dispensary, chair of general medicine from 1886 to 1888; in the Demilt Dispensary from 1888, in the department of the heart and lungs; which

latter subjects were those of his polyclinic service. The press notices refer to the fact that Dr. Pope was possessed of considerable inherited property in Georgia, and he was the nephew of Prof. Bolling A. Pope, M.D., of Dallas, Texas. It is also stated that several years ago, while treating children, he contracted diphtheria and scarlet fever, and had a long siege of illness which left him with a weak heart.

MISCELLANY.

Dr. A. C. Coffin of Chicago, has been appointed as City Physician to succeed Dr. Todd.

Bequests to New York Institutions.—Under the will of the late Percy R. Pyne, who died at Rome, Italy, in February, certain charitable objects are remembered. The testator leaves the sum of \$20,000 each to the Young Men's Christian Association in this city, St. Luke's Hospital and the American Museum of Natural History.

Conflagration at the New York Quarantine.—On June 18, the Staten Island Station of the Health Officer at the Port of New York was destroyed by fire. The building was a commodious frame structure, built in 1894, at a cost of \$10,000. Dr. Doty's residence, standing on a bluff, just above the station, was spared, although for a time in serious danger. Many valuable records were destroyed in the burning building. The cause of the fire was not discovered.

Selection of Skilled Surgeons Discharges every Obligation.—The Supreme Court of Tennessee puts itself in line with the few courts which have before it passed upon the same question, by holding, in the case of Quinn v. Kansas City, M. & B. R. Co., May 2, 1895, that, having selected surgeons skilled and competent in their profession, a railway corporation discharges every duty that humanity or sound morals impose, and that it is in no way liable for the mistakes they may subsequently commit.

On the Roll of Honor.—There are fifty-three names on the Roll of Honor, inscribed on the dome of the new House of Representatives in the State House at Boston, Mass. Each of these names is chosen as a representative of some great or worthy deed, or the opening of some new epoch. Among these names appears that of Dr. Thomas T. G. Morton as one of the founders of modern surgical anesthesia, chiefly because he made a definite series of experiments with sulphuric ether, in order to test the efficacy of that agent in the production of unconsciousness.

Entitled to Compensation for Making Post-mortem Examination.—Following its decision in the case of Flinn v. Prairie County, reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 22, 1895, page 991, the Supreme Court of Arkansas holds, in Clark County v. Kerstan, decided May 4, 1895, that a physician who makes a post-mortem examination at the request of the coroner is entitled to a reasonable compensation for so doing, but is not entitled to additional compensation for disclosing as a witness the results of the investigation and giving an opinion by reason of that knowledge and skill acquired by devotion to his particular profession, beyond the regular witness fees.

Requisites to Collection of Compensation for Medical Services.—The Indiana statutes make it unlawful for any person to practice medicine, surgery or obstetrics in that State without first having obtained a license to do so, and provide further that no action shall lie in favor of any person for services as physician, surgeon or obstetrician unless he shall have been so licensed prior to the rendering of the services. Under such a law, the Appellate Court of the State holds, in the case of Cooper v. Griffin, decided May 14, 1895, that it is not necessary, in filing a claim against an

estate for such services, for the claimant to allege that he was a regularly licensed physician at the time the services were rendered; but that, in an action to recover for such services, no *prima facie* case is made out without making proof of the issuing of the required license.

A Botanical Garden for New York City.—The New York Legislature in 1893 passed a law making it mandatory upon the city to provide a tract of park land not less than 250 acres in extent and to appropriate \$500,000 for the purposes of a garden, provided that within three years one-half that named sum should be contributed by the citizens for the same object. The requisite subscriptions were raised a short time before the three years' limit was reached, so that it now devolves upon the city authorities to issue bonds and proceed to the erection of the necessary buildings. The gardens will be located in the center of Bronx Park, with the river of that name flowing through the middle of the reservation. The gardens will be patterned after the celebrated Kew Gardens, near London. It is said that in all North America there is only one botanical garden worthy of the name, the one developed by the late Mr. Shawe, of St. Louis, Mo. Apart from the European gardens, admirable collections are to be seen in Mexico, Brazil, Sumatra, Ceylon and Borneo, the excellence of which New York may not hope to rival for many a long year. Still, a good beginning is not to be despised.

A "Pedic Society" Formed.—The union of the chiropodists of the country in an organization has been effected under the laws of the State of New York. A newly passed law gives "protection" to the citizens and to those already in the business by giving the society power to appoint a Board of Examiners, three in number. This board will license applicants that are found competent to practice as chiropodists. All persons now practicing as such in the State shall receive a diploma without examination if they apply to the examining board within sixty days. Persons who have been practicing for not less than ten years without having obtained the certificate for qualification from the State Pedic Society must register by January 1 next, with the clerk of the county in which they reside. Every person on receiving the certificate of qualification to practice shall pay into the treasury of the society the sum of \$15.

The Will of a Salem Physician.—The will of the late Dr. William Mack, filed for probate at Salem, Mass., contains the following bequests: American Unitarian Association, \$35,000, to be added to an equal sum given by his sister, Elizabeth, and considered as the legacy of Harriet O. Mack; Massachusetts Medical Benevolent Society, \$1,000, and to the city of Salem Lodge Hill, in North Salem, for park purposes. The residue of the estate is left in trust, the income, after payment of a few private bequests, to be divided between the Essex Institute and the Salem Fraternity. Upon the death of the persons receiving annuities, \$20,000 of this residue is to be paid to the Salem Fraternity for the establishment of coffee rooms, the balance to be divided equally between the Salem Fraternity and the Essex Institute. Dr. Mack was a graduate of Harvard Medical School in the year 1833.

The "Gold Cure" is not quite Dead in England.—The *Medical Press and Circular* of London has been an outspoken enemy of Keeley of the "gold cure" notoriety. In a late issue that journal returns to the charge, for the purpose of showing up the schemes of the present "promoters" in that city. The following note appears in its issue of May 22: "Not content with past failures to induce the profession to take up his so-called 'Cure for Inebriety,' another attempt is now being made to promote the venture on a commercial basis, and the public are asked to subscribe the sum of £25,000 for

the privilege. A Dr. Wolf is the promoter, and he modestly claims £10,000 of this in cash and £15,000 in fully paid shares. Doubtless, relying on the gullibility of the British public, 'he wishes he may get it,' but he has to reckon with the press, and as the writ Dr. Keeley served on us on a previous occasion did not frighten us, so we shall do our duty to the profession and the public now when the occasion arises."

A Case of Baelz's Disease.—In 1890 Unna described an ulceration of the glands of the labial mucous membrane, to which Professor Baelz, of Tokio, had called attention and to which he gave the name of Baelz's disease. No more cases have been seen until recently, when Van Dort describes one in an unmarried woman of 30, affected with an ulcer of the lips for the previous two months. The affection began with a small painless papule, rather thick, which after a few days began to ulcerate, extending slowly in periphery and depth. The ulcer was localized in the middle of the left half of the upper lip. Its form was oval, the edges red, rather sharp, but little tumefied and covered with crusts in some places. The bottom of the ulcer was covered with yellowish matter, adhering rather closely; the parts surrounding the ulcer were infiltrated. There was no pain, either spontaneously or on pressure; no engagement of the maxillary glands. The patient had frequently had attacks of tonsillitis, but no other antecedents. By application of tincture of iodine recovery ensued in four weeks.¹

St. Luke's Hospital, New York City.—This institution is to receive a legacy of about \$200,000 by the will of the late Rufus Waterhouse, manufacturer of men's furnishing goods. This is in the interest of consumptive sewing women or consumptives dependent upon sewing women. Mr. Waterhouse's wife, whose name the ward will bear, died of the disease, and he saw many of the young women he employed in his business stricken with it, and unable to support themselves. He died a widower and childless, and save for four legacies of \$1,000 each to his brother Samuel, his sisters, Mary E. Dognio and Eliza Hatch and Nancy S. Waterhouse, the widow of a deceased brother, left all his estate to St. Luke's Hospital for the ward. Four trust funds of \$10,000 each, in favor of those named were also created, they to receive the incomes, and the principals to revert to the hospital at their deaths. The beginning of the end of the present St. Luke's Hospital, at Fifth Avenue and Fifty-fourth Street, was inaugurated June 20, when the authorities of that time-honored institution declined to receive private patients, in order to adapt themselves to the restricted accommodations which will obtain until the hospital takes possession of its new home on Morningside Heights in the fall. The capacity of the old institution will be reduced from 225 beds to about half that number. These will be contained in the east half of the institution, until the time comes for a removal to the new site.

Modifications of the Skin in Tuberculous Patients.—Schtangueieff has observed two cases of marked dermal changes in the tuberculose. The first was that of a man 30 years old, suffering with acute pulmonary and laryngeal tuberculosis with aphonia, much emaciated, in a semi-typhoid state and with a temperature of 104 degrees. Suddenly there developed confluent ulcerations of the throat, palate and inside of the cheeks; the surfaces were covered with a whitish coat, like thrush. At the same time there was an intense erythema of the neck, resembling erysipelas or scarlatina, which rapidly extended to the subspinous fossa behind. This eruption lasted for about fifteen days, until the death of the patient. The other case had, for some weeks before death, an erythema of the left foot, with edematous swelling and a sensation of heat. There was at the same time a constant

¹ Rev. de Derm. et Syph., May, 1895.

hyperemia of the cheek and ear on this side, on which also the pulmonary lesion was located. The maximum redness and swelling of the foot coincided with the maximum of the fever. Since observing these cases the author has often observed—especially in the acute stages two or three weeks before death—besides pityriasis and ordinary miliaria, ephemeral spots on the skin, analogous to those seen in diphtheria and measles. The marbled state of the skin is still more frequent.¹

Cæsarean Section: 1887-1895.—At a recent meeting of the Obstetrical Society of France, Dœmelin read a paper on the statistics of Cæsarean section compared with those of Porro's operation. The author has collected 164 cases of the section with a mortality of 22 per cent. for the mothers and 2 per cent. for the children; on the other hand, 55 of Porro's operation gave 25 per cent. mortality for the mothers and 50 per cent. for the children. These are the gross figures. The prognosis grows better each year. Taking only those cases since 1893, the maternal death rate is 16 per cent. for the section and 10 per cent. for the operation. The fetal prognosis is also improving, but is much higher in the Porro operation, being nearly 2 to 1. Speaking generally, it may be said that the general cause of death in the latter is septic infection. The best time to operate is just before or just after the commencement of labor, and if the membranes have not ruptured it is especially favorable. Nevertheless, it is not rare to see successes when the operation has been delayed for several hours or even days after the beginning of labor and rupture of the membranes (Van der Mey, Braun, Galabin, Godson, Gray, Schwartz). Rapidity in operation is of the greatest importance and Kelly, among others, has especially insisted on this. The time consumed should not exceed half or three-quarters of an hour. Comparing the section with the utero-ovarian amputation, it is seen that the tendency, save in special cases, is to return to the simple hysterotomy which may be repeated and, moreover, preserves the child-bearing faculty. The Porro operation is to be preferred when the patient has been in labor a long time and the uterus is already infected, or when serious and rebellious hemorrhage follows the extraction of the child, or in the presence of specified complications. The reasons for operative interference in the collated cases were: 1, contracted pelvis, ninety-four cases; 2, uterine fibromas, nineteen cases; 3, cancer of the cervix, eleven cases; 4, pelvic tumors, nine cases; 5, ovarian tumors, three cases; 6, eclampsia thirteen cases; 7, various causes of dystocia, such as stenosis of the vagina, cancer of the rectum, edematous elongation of cervix, etc.; there were also four cases of post-mortem Cæsarean section. As regards the children, in the operation by section, many are extracted apparently dead and a certain per cent. soon die. During the first year the mortality for these children is 40 per cent. against 18 per cent. for those born naturally.²

Society Notes.

BROOKLYN MEDICAL SOCIETY.—A new organization, named as above, received articles of incorporation on June 12. A board of nine trustees will serve during 1895-96, as follows: Albert H. Brundage, H. Fred. Adams, John T. Gibbons, Stanley G. Clarke, Herman L. Armstrong, William A. Myers, Benjamin F. M. Blake, John H. Droge and Christopher D. Kevin. The ninth annual meeting of the American Orthopedic Association will be held in Chicago, September 17, 18 and 19. The officers of the association are: President, John Ridlon; First Vice-President, Bernard Barstow; Second Vice-President, Louis A. Weigel; Treasurer, E. G. Brackett; Secretary, Royal Whitman.

Louisville Notes.

CHANDLER.—Dr. W. T. Chandler, of Campbellsville, met with an accident while bicycling near his home which will confine him to bed for some time. While coasting down a hill he ran into a drove of hogs, in the road, and was thrown from his wheel.

DENTISTS.—The twenty-fifth annual meeting of the Kentucky Dental Association was held in Lexington, Ky., during the past week. The Secretary's report showed 104 registered dentists in the State. Twenty stood the examination under the new law recently and seven passed.

CHANGE OF ADDRESS.—Dr. Wm. L. Rodman has moved to the house formerly occupied by the late Dr. Hewett, at 821 Third Avenue.

G. A. R.—Dr. W. P. White, Medical Director has furnished the following names as officers for the coming encampment: Director, Dr. W. P. White; Secretary, Dr. Henry E. Tuley; Assistants, Dr. Thos. S. Bullock and Dr. C. T. Pope; Ambulance Corps, Dr. E. L. Pearce; Chairman Ladies' Medical Department, Dr. Julia Ingram; Secretary, Dr. Anna Lawrence.

Chairmen of various wards: First Ward, Dr. Peter Gunterman; Second, Dr. Robt. Fallis; Third, Dr. J. M. Krim; Fourth, Dr. F. C. Leber; Fifth; Dr. T. P. Satterwhite; Sixth, Dr. I. N. Bloom; Seventh, Dr. J. M. Mathews; Eighth, Dr. T. L. McDermott; Ninth, Dr. S. H. Garvin; Tenth, Dr. George Simpson; Eleventh, Dr. W. B. Doherty; Twelfth Dr. H. H. Grant. Dr. Chas. P. Cook, New Albany, Chairman. Dr. T. A. Graham, Jeffersonville, Chairman.

Health of the British Army.—The thirty-first annual report of the Army Medical Department for the year 1893, submitted by Director-General Mackinnon to the Secretary of State for War, has just reached this side of the Atlantic. Some of the prominent points in this issue of the familiar yellow-covered series may be of interest to military surgeons and others. Somewhat over 100,000 men served in the United Kingdom during the year, and of these the statistics are said to be favorable. There was a serious outbreak of enteric fever at Aldershot and influenza continued to cause a large amount of sickness; but with these exceptions it is considered by the Director-General that there was no point concerning the health of the troops of the United Kingdom calling for special notice. The admission rate per thousand of strength was 751.6; the constant sick rate 44.10; the average sick time to each soldier 16.10 days, and the average duration of each case of sickness 21.42 days. These cases represent those that in the United States military service would be reported as hospital cases. The trivial cases which are taken on sick report in this country and add so materially to our admission rates, are not reported by British medical officers. The rate of discharge for disability was 15.70. More than one-fifth of this rate was due to diseases of the circulation and of the nervous system, and one-tenth to tubercular disease. The death rate was 5.13. Concerning sickness, some interesting points may be noted: scarlet fever caused a total of 843 admissions and 14 deaths, this relatively extensive prevalence due probably to the extreme youthfulness of so many of the "men." Enteric fever caused 151 admissions and 22 deaths; 49 of the cases with 9 deaths at Aldershot, and 25 with 3 deaths in Dublin where this fever is notoriously prevalent. Besides these enteric fevers there were 459 admissions for other continued fevers. Taking all forms of venereal diseases together the admissions were equal to a rate of 194.6 per thousand of strength and the constantly sick to 16.68. These rates when compared with the average of the past seven years show a slight decrease in the prevalence of these diseases. In the Channel Islands the admission rate for the year was 327.5; in the Home district 291.2. The district showing the lowest rate of prevalence was that of Cork with 92.4. Alcoholism caused a total of 152 admissions and 5 deaths, 7 of the admissions being for delirium tremens. The British soldier on Home service is not specially exposed to injury, the admis-

¹ Rev. de Derm. et Syph., May, 1895.

² Rev. Med. et Chir. Prat., No. 9, 1895.

sion rate for accident and violence having been only 95.1 and the death rate 0.74. There were 24 cases of suicide during the year. This annual number seldom varies much; the average of the past two years was 21. Gunshot was the method adopted in 15 of the cases.

It appears from the recruiting records of the Home stations that of 64,110 candidates for enlistment inspected during the year 37,769 or 589.13 per thousand were found fit for service. Only 55.51 per thousand were rejected for defective vision. The acuteness of vision required for acceptance is only one-fourth of that called for by the U. S. Regulations. On the other hand, as so many undeveloped boys present themselves before the British recruiting officers, 281.89 per thousand examined were rejected as deficient in height, weight or chest measurement. Excluding boys under 17 years of age, the average age of the recruits finally approved during the year was 19.4 years, the average height 5 feet, 5.8 inches, the average weight 125.1 pounds and the chest measurement 33.6 inches. Of every thousand 75 were well educated, 877 were able to read and write, 16 able to read only and 32 unable to read.

Of the colonies, Canada and Bermuda, each with a strength of about 1,400 men, had the best health records; an admission rate of less than 600 per thousand of strength and a constant sick rate of about 31, although enteric fever was rather prevalent in the latter, increasing its death rate to 10.10 as compared with 4.91 in Canada. There were 43 cases with 9 deaths. The disease was attributed to defective sewerage and the existence of cesspits near and even under the walls of buildings. Cyprus, Malta and Gibraltar had rates which differ but little from those of the United Kingdom, with the understanding, however, that a certain number of cases were sent home as invalids, thus lessening the number of sick present with these commands. At Cyprus, with an average strength of 550 men, venereal affections were the prominent diseases, constituting 165.5 admissions per thousand and 15.65 constantly sick. At Malta, with an average strength of 7,161, there was an outbreak of enteric fever, 101 cases, of which 32 were fatal, and 938 cases of other continued fevers of which 5 were fatal. A committee appointed to investigate this outbreak attributed it to infection in the milk supply and to impure water in the tanks. The fever appeared within fifteen days after heavy rainfalls had filled the tanks, at a time when polluting matter was most likely to gain entrance with the rainfall. At Gibraltar, strength 4,743, the sick rate was higher than in previous years, owing to the prevalence of simple continued fever and to the increased prevalence of venereal diseases. The medical officer in charge of the station hospital considered that many of the febrile attacks were due to chill and that the heading "febricula" would represent their characteristics with greater fitness than simple continued fever. The admission rate for venereal disease was 205.1 and the rate of constant sickness 18.32.

The Mauritius had the largest admission rate. With a strength of 551 its rate was 1,547.7 per thousand; 74.75 of constant sickness; a death rate of 17.30 and 58.78 sent home or discharged. Malarial fevers of a severe and fatal type prevailed on the island during the greater part of the year, many of the cases being called "malignant" by the local practitioners. Observation shows that prolonged residence in Mauritius increases the liability to these fevers and that there is no such thing as acclimatization as regards pure-blooded Europeans; residence in this colony, even when attacks of malarial fever are escaped, induces a general deterioration of the health. In the fatal cases during the year, the blood appeared to be quite disorganized, as evidenced by petechial eruptions, lividity of the skin, by the presence of blood in the vomited matter, urine and stools during life, and by a black fluid condition of the blood after death and very rapid decomposition of the body.

Egypt, with a garrison of 5,073 had the highest death rate 23.25, with 72.29 constantly sick and 94.19 discharged or sent home per thousand. The chief causes of non-efficiency were venereal affections, nearly one-third of the admissions being due to these diseases. India, with a strength of 69,865 men gave the highest rate of constant sickness 76.22 with an admission rate of 1,448.3 and a death rate of 15.21. Enteric fever was not so frequent as usual and cholera was rare; but venereal diseases were largely prevalent and some of the cases of a most virulent type. In the Bengal command the rate of constant sickness from venereal affections was 29.90 and in the Madras command 37.60. The total admissions for enteric fever in Bengal numbered 1,076 and the deaths 276. With seven exceptions the disease was present in every station of the command, 64 in number. Rawalpindi had the

largest number, 94 with 29 deaths. These occurred mostly in young soldiers of less than one year's service. At Umballa 78 cases with 23 deaths; at Lucknow 73 cases with 11 deaths and so on.

The disease is generally believed to be contracted in bazars and villages or by drinking contaminated water from pools and ditches out of cantonments. Mr. Hanken, biologist of the Northwestern Provinces government, found the bacillus of typhoid in several of the surface waters near Lucknow. One medical officer, however, reiterates his belief, expressed in previous reports that a fever of a prolonged nature, having as its pathognomonic sign, ulceration of the ileum, can be caused without a specific excitant; that, in fact, youth, indiscretion, undigested food, undue exposure to heat and to fatigue are factors enough in themselves to produce in many people a fever, the nature of which is such that 25 per cent. of the patients die. Several other observers mention that the cases which have occurred in their practice "have not been produced by specific poison."

The first of the appended papers consists as usual of a report on the progress of hygiene during the year, but there is little in it that is not already familiar to readers of the JOURNAL. The report on the International Congress of Budapest is stale reading, but Prof. J. Lane Notter of the Army Medical School prefaces it with an interesting account of the water and sewerage systems of certain continental cities inspected while en route to the meeting. Surgeon Lieut. Colonel W. S. Pratt reports on the eighth congress of the Association Française de Chirurgie. Surgeon-Major H. E. H. James gives a full and valuable report on the plague at Hong Kong. The remainder of the appended papers are mostly reports of surgical cases occurring in army practice.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 22, 1895, to June 28, 1895.

Capt. ALFRED E. BRADLEY, Asst. Surgeon, will be relieved from duty at Ft. Custer, Mont., upon the arrival there of Major WILLIAM C. SHANNON, Surgeon, and will report at Ft. Yellowstone, Wyo., for duty at that post, relieving Capt. CHARLES M. GANDY, Asst. Surgeon. Capt. GANDY, on being thus relieved, will report for duty at Washington Bks., D. C.

LETTERS RECEIVED.

Ammonol Chem. Co., New York, N. Y.; Austin & Graves, Boston, Mass.; Ashmead, A. S., New York, N. Y.
 Blakiston, P., Son & Co., Philadelphia, Pa.
 Castle, Wilmot & Co., Rochester, N. Y.; Clary, Geo., New Britain, Conn.; Columbia Chemical Co., Washington, D. C.; Corby, S. B., Chicago, Ill.; Cone, A., New York, N. Y.; Clark, A. P., Boston, Mass.; Cleaves, M. A., New York, N. Y.; Crowe, S. W., New York, N. Y.; Cutter, John A., New York, N. Y. Central College of Physicians and Surgeons, Indianapolis, Ind.
 D'Ancona, A. A., San Francisco, Cal.; Davis, J. L., Cincinnati, Ohio.
 Elliott, A. R., New York, N. Y.; Elce Bros., Galena, Ill.
 Fehr, Julius, Hoboken, N. J.; Fringer, W. R., Rockford, Ill.; Frank & Kratzmuller, Chicago, Ill.; Fite, C. C., New York, N. Y.; Fuller's C. H. Adv. Agency, Chicago, Ill.
 Greene, Chas. S., San Francisco, Cal.; Gleitsmann, J. W., New York, N. Y.; Goode, Thos. P., Buffalo Lithia Springs, Va.; Givens, J. W., Blackfoot, Idaho.
 Herrick, S. S., San Francisco, Cal.; Hummel, A. L., Philadelphia, Pa.; (2); Holmes, M. C., New York, N. Y.; Hughes, J. W., Montreal, Canada; Hurd, Henry M., Baltimore, Md.; Henrotin, F., Chicago, Ill.; Halabasta, Jatebouse & Co., London, England; Hickey-Juda, The Co., San Francisco, Cal.
 Kellogg, J. H., Battle Creek, Mich.; Kleene, Fred, Chicago, Ill.
 Jackson, Edward, Denver, Colo.; Janson, E., Astoria, Ore.; Johnson & John, New York, N. Y.
 Lehn & Fink, New York, N. Y.; Lloyd, T. M., Brooklyn, N. Y.
 Mowery, H. A., Marietta, Pa.; Mason, L. D., Greenwich, Conn.; (2); Mueller, V. T., Milwaukee, Wis.; Mann, E. C., New York, N. Y.; Michael, John E., Baltimore, Md.
 Nordhoff, Sofie, Washington, D. C.; Newman, H. P., Chicago, Ill.
 O'Brien, Joel T., Groveland, Ill.
 Pennington, J. A., Chicago, Ill.; Post-Graduate Medical School, Chicago, Ill.
 Robbins, M. M., Aurora, Ill.; Robinson, R. D., La Fayette, Ind.; Rugles Gale Co., Columbus, Ohio; Rio Chemical Co., St. Louis, Mo.
 Stechert, G. E., New York, N. Y.; Standlee, E. L., St. Louis, Mo.; Stokes, W. B., Coldwater, Ky.; Saunders, W. B., Philadelphia, Pa.; Smart, Chas., Washington, D. C.; Stewart, J. B., Atlantic City, N. J.; Seymour, F. F., Fort Dodge, Iowa; Saunders, W. B., New York, N. Y.; Small, A. R., Chicago, Ill.; Smith, J. K., Blanchard, Ohio; Stiles, W. C., Kewanee, Ill.; Scribner's, Chas. Sons, New York, N. Y.; Schieffelin & Co., New York, N. Y.
 Taylor, R. H., Griffin, Ga.; Trueheart, P. P., Kansas City, Mo.; Tucker, John H., Henderson, N. C.
 Winne, C. H., Fort McHenry, Md.; Warner, W. R. & Co., Philadelphia, Pa.; Wyckoff, R. M., Brooklyn, N. Y.; Wells, J. E., Mt. Olivet, Ky.; Wilhite, J. O., Anderson, S. C.; White Rock Mineral Spring Co., Chicago, Ill.; Wimmer, S. J., St. Marys, Pa.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office. Write for them; sent free.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, JULY 13, 1895.

No. 2.

ORIGINAL ARTICLES.

MOVABLE KIDNEY.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, May 7-10, 1895.

BY HOMER GAGE, A.M., M.D.

WORCESTER, MASS.

Uncomplicated movable kidney was first described by Riolan in 1649 and was even then characterized as *non sine vitæ detrimento*. But very little attention was paid to the subject, however, until the beginning of the present century, and even as late as 1859 Fritz could find records of but thirty-five cases. Since then a special literature has been created on the subject by the monographs of Rollet, Landau, Linder and Newman, and by a multitude of important contributions to medical periodicals, and the number of reported cases has become too large to be easily followed. There is, however, even now a very wide divergence of opinion with regard to the pathologic importance of movable kidney, and also with regard to its appropriate treatment. I think it is fair to say that very many medical and surgical authorities still hesitate, as does Mr. Tait, to attribute to the mobility of the kidney the varied train of symptoms with which it is so frequently associated; and in the matter of treatment, one may choose between the extreme views of Keppler, who advises immediate removal through the abdomen as soon as movable kidney causes any disturbance in the system, and of Newman and Drummond, who believe that in almost all cases an efficient external support will afford entire relief; or one may follow the vast majority of recent writers in accepting nephrorrhaphy as the simplest, safest and surest remedy. In view of the still unsettled opinion which prevails with regard to these questions, I have ventured to introduce the subject for your consideration by reporting as briefly as I can, two of the six cases of movable kidney which have come under my own observation; both present histories that seem to me of rather unusual surgical interest, and a sufficient time has now elapsed to enable us to judge something of the permanency of the results:

Case 1.—Mrs. K., 29 years old, was admitted to the Worcester City Hospital Nov. 5, 1891. Until within seven months, she had always been well and strong; had been married five years, but had never been pregnant. For seven months past had had pain in the right side of the abdomen, and in the region of the umbilicus, severe enough to prevent her from doing any but the very lightest housework. The pain had increased gradually but steadily, and, what was especially interesting, had been worse when in a recumbent position. She was a stout, healthy-looking woman, who had evidently been accustomed to hard work. Examination of right side over painful area revealed an oval tumor, hard, freely movable, as large as the closed fist. It could be moved easily into the median line, down to the level of the umbilicus and would, if depressed, disappear up under the ribs. Pressure occasioned a peculiar sickening

feeling, with nausea and faintness. The urine had a specific gravity of 1008, the twenty-four hour amount was forty-seven ounces and there was no albumin. Diagnosis: right movable kidney. On the 23d, I did nephrorrhaphy through an incision three inches long, extending from the top of the twelfth rib downward and forward. The surface of the kidney was scarified and three stout chromicized catgut sutures were passed through the edges of the wound and through the capsule or cortex of the kidney, one-fourth of an inch from its outer border. The wound was closed around a rubber drainage tube, which was removed the third day. At the end of two weeks, she was entirely free from pain in her right side, and at the time of her discharge, four weeks later, there had been no recurrence. She did, however, during these last four weeks, have very severe and unaccountable pains in her left side. Two months later she presented herself at my office, saying that she felt perfectly well, so far as her right side was concerned, but continued to have more and pain in the left side, and had discovered a bunch similar to the one which had existed on the right. She further said that just before the first operation, while lifting a stove, she had felt something give way in her left side and had had considerable pain for several days. Nothing, however, was said about this at the time, nor during her convalescence. The left kidney could be distinctly felt, dropping downward and forward nearly to the umbilicus. The right seemed firmly fixed. I advised her to wear a firm abdominal support, and did not see her again until April. Her own testimony, and her mother's, showed plainly that she had been much better since the first operation. She had gained ten pounds in weight and had been able to do much more work about the house. Still if on her feet very long, or if she tried to walk much, she suffered from pain referred chiefly to the region of the umbilicus. She could not turn over in bed, or make any quick motion, whether lying down or standing, on account of pain in the left side which she described as sharp, hard, and very like the pain in the right side before the operation. For two or three weeks past had noticed some pain in region of right kidney. The left kidney could be easily felt and was rather more movable than at previous examination. The right one was just palpable beneath and below the margin of the ribs and could be made to slip back against the posterior wall. No relief having been obtained from the abdominal supporter, I sutured the left kidney on April 10, 1892, through an incision similar to that made use of before. I found it even more movable than the right had been and could push it easily down to the brim of the pelvis. Three sutures of silk, instead of catgut, were passed exactly as in the first operation, a drainage tube inserted, and the wound closed. I allowed the tube to remain a week and the sutures a week longer. She remained in bed four weeks, and although having some dragging pain on the right side, was entirely free from pain on the left.

I heard from her nearly two years after the second operation. There had been no recurrence of pain on the left side nor about the umbilicus. She had occasionally some dragging uncomfortable sensations in the right loin, but considered herself entirely well, had gained much in weight, and was doing all her own housework.

Case 2.—Unsuccessful nephrorrhaphy followed by nephrectomy. Mrs. R., 41 years old, was referred to me by Dr. E. M. Frissell of Webster, Dec. 2, 1891. She had two children aged 18 and 14 years, had had one miscarriage thirteen years ago, and a second one, one year ago. She was always frail, had had more or less dyspepsia for twenty-five years, and about the time that her dyspepsia began, she had several hysterical seizures which lasted from three to five hours each and made her almost insane. For two years she had felt a drag-

ging pain in the right side with severe paroxysms of short duration; excited especially by any sudden movement of the body. She was soon rendered incapable of attending to her own work and was obliged to lie down most of the time. In June, 1890, a diagnosis of movable kidney was made at the Massachusetts General Hospital, and a support applied which afforded only a very temporary relief. Her condition became steadily worse and at the time when she was sent to me she had not been out of the house for many months and could walk but very little, was nervous and hysterical and constantly dependent upon morphin and stimulants. There was upon the right side a movable tumor of renal outline, somewhat larger than a normal kidney. It would slip back under the rib, but could be easily brought within reach by firm pressure over the lower part of the thorax and on coming forward superficially against the abdominal wall could be carried down to the umbilicus. Firm pressure elicited the same sickening feeling with pain, nausea and faintness observed in the previous case. On Dec. 5, 1891, I operated through the usual oblique lumbar incision, using six carbolized catgut sutures. I tried to place them so superficially as to include only the capsule, and I am sure that I did not obtain a firm hold upon the kidney. She was able to be up in a wheel chair at the end of two weeks, and on December 29 returned home. She remained perfectly well and free from pain and from dyspeptic symptoms until the following April, had gained nine pounds in weight and been about among her friends more than for years. In April, however, she began to lose flesh and strength and to suffer so much from pain that she was again confined to the house, and most of the time to her bed or couch. She had severe paroxysms of sharp cutting character, beginning in the right lumbar region and shooting down into the right hip. Morphin and stimulants were again freely used, and she had some trouble with her stomach, though not so much as formerly. During the summer she began to feel the same old lump, and in December, 1892, came to me for a second operation. At that time, the kidney could be felt exactly as before. I operated on December 11, this time through a vertical incision from the tip of the twelfth rib. There were some old adhesions between the kidney and the lumbar muscles, but they were so long as to permit of free mobility in all directions. I followed this time the method of Edebohls, splitting the capsule along the outer border of the kidney and folding back a strip about one-fourth of an inch wide on each side. Five silkworm gut sutures were then passed through the deep fascia on the outer side of the wound, through the double layer of the capsule, the renal substance, out through the double layer of the capsule on the posterior surface of the kidney and up through the deep fascia again on the inner side of the wound. These closed the deep wound and brought the inner surface of the capsule and the denuded surface of the kidney firmly against the deep fascia. The superficial wound was then closed and no drainage used.

Convalescence was even easier than from the first operation, although the patient was kept in bed for several weeks, in the hope of favoring stronger adhesions. So fearful was she of dislodging the kidney again, that although free from pain except a dragging sensation in the right side, she could not be persuaded to move about except in her chair, and it was two or three months before she would even walk across the room. She continued very nervous and apprehensive until June, when pains returned again as severe as ever and she felt sure that the kidney was again movable. Severe paroxysms of intense nervousness began to appear more and more frequently with other hysterical manifestations, and she again resorted to morphin and stimulants in still larger quantities. So deplorable had her condition become that I was besought by her friends and by herself to remove the kidney altogether, and in December, 1893, she reëntered the hospital for that purpose. Her general appearance was better than at the time of either of the previous operations. The kidney could be readily felt through the abdominal wall and seemed to be movable, though within a much smaller area than before. It was removed through a vertical incision, without difficulty, the vessels ligatured separately, and as a whole, and the wound closed. Upon exposing the kidney, deep in the wound were found the old buried silkworm gut sutures still intact, and there were intimate fibrous adhesions holding it firmly against the transversalis fascia. Its apparent mobility was due simply to the relaxed flabby condition of all the tissues. A sinus persisted for some weeks after the operation, from which were afterward removed the silk ligatures and several of the old silkworm gut sutures. The wound healed immediately afterward and she returned to her home in January, 1894. She

has since then remained almost perfectly well, free from all hysterical manifestations, stronger, able to do more work and to be about more among her friends than she had been for years before.

Case 1 is interesting, in the first place, as one of double nephrorrhaphy, of which, as will be seen by the accompanying Table A, I can find but five instances. It is also interesting because of the absence of all those vague and troublesome symptoms which often accompany movable kidney, such as the gastrointestinal disorders and the manifold symptoms of neurasthenia. The disability was in this case purely the result of pain, and pain referred to regions of the kidneys alone, and apparently dependent entirely upon their mobility. To the absence of these other indefinite and very troublesome symptoms, as well as to the absence of the more commonly recognized causes of movable kidney, such as rapid emaciation, repeated pregnancies, relaxed abdominal walls and ruptured perineum; to the absence of all these is due the very satisfactory and permanent result of the operations. The trouble on the left side seemed clearly the result of overstrain. That on the right could be attributed only to hard work, but whatever the cause, the important feature is, I think, that the symptoms on both sides were purely local, and I am very sure that the more these local symptoms are complicated by, or result from, other general or constitutional conditions, especially disorders of the nervous system, by just so much the greater will be the probability of failure from the operation.

This, it seems to me, was exactly the trouble with the second case. The failure of the first operation was due to a faulty technique. I used plain carbolized catgut for my sutures and tried to place them in the fibrous capsule of the kidney, to avoid as much as possible passing them into the substance of the kidney itself. Chromicized gut would have been better, but even that is decidedly inferior to silk, kangaroo tendon or silkworm gut, and the sutures should be passed directly through the substance of the kidney. Whether splitting and reflecting the capsule as proposed by Edebohls and practiced in the second operation, is necessary or not, I do not know. In a thin subject it is easily done but in a stout one it presents many difficulties, and its added efficiency is at least doubtful. The failure of the second operation is, I think, exceedingly interesting and instructive. Upon reopening the wound one year later, the kidney was found firmly fixed to the muscles of the back in a position but little lower than that which it would normally occupy. The silkworm gut sutures were found after the lapse of the year just where they had been placed relatively to each other, but no longer passing into the renal tissue. I could displace the kidney only so much as I could move the deep muscles and fascia, but so thin had the patient become that I could easily feel it from the front, and could push it up into considerable prominence. Strictly speaking, however, there was no independent mobility of the kidney. Still, after a lapse of several months, all her symptoms had returned, if possible more aggravated than before, and this was as true of the local symptoms referred to the kidney itself as it was of the more general and more serious manifestations, dependent upon a disturbed nervous and mental organization. After the first failure, I think she had come to look upon the kidney as her natural enemy and was encouraged by the advice of friends to believe that its removal was the only

DOUBLE NEPHRORRHAPHY.

Case.	Authority.	Sex.	Age.	Symptoms and History.	Operation.	Results.
1	Lindner. Ueber die Wanderkinder der Franken, Berlin, 87, II, p. 507.	F.	35.	Five years ago fell on ice. Severe abdominal pain, especially in region of kidneys, and associated with much emaciation. Both kidneys easily palpated.	Simultaneous operation on both sides.	Patient up in four weeks; same troubles returned a few weeks after operation, and patient died one year later of melancholia and insanity.
2	T. M. Rotch. Boston Med. and Sur. Jour. 1892, cxxvi, p. 522.	F.	27	Severe headaches with occasional nausea and vomiting for ten years. For two years abdominal pain, relieved by lying down, referred to coccyx, both inguinal regions and back. Occasional palpitation, constipation, dyspnea, dizziness and frequent micturition.	Left kidney sutured Sept. 22, 1891, and right Nov. 7, 1891.	Feb. 21, 1892. Patient still complained of various nervous aches and pains, but the nausea, sense of weight in the abdomen and headaches were relieved.
3	Tillmann. Deutsch. Ztschr. f. Chir., xxxiv. Festschr. c. Thiersch., Leipzig, 1892, p. 634.	F.	49	Vide case No. 3 in table No. 2.		
4	Edebohl. New York Jour. of Gyn. and Obst., 93, III, 588.	F.	39	Suffered for ten years; frequent painful micturition, occasional complete suppression. Right kidney movable 12 cm., left 10 cm.; both normal in shape and size.	Simultaneous operation on both sides.	The symptoms, nervous, gastrointestinal, genital, vesical and urinary, which had existed so long, had almost entirely disappeared after the operation.
5	The same.	F.	26	Dysmenorrhoea, pain in left ovarian region, general pelvic distress, intolerable bearing down sensations, no hysteria. Right kidney displaced downward 15 cm.; left 13 cm.	Simultaneous operation on both sides.	Uneventful recovery, too early to determine permanent results.

NEPHRECTOMY AFTER UNSUCCESSFUL NEPHRORRHAPHY.

Case.	Authority.	Sex.	Age.	Symptoms and History.	Operation.	Results.
1	Kummel. Deutsch. Med. Woch., 1887, No. 4, p. 963.	F.	60	Acute pains for one year, occasioned by movable kidney; was much emaciated; slept little; had acquired opium habit.	Nephrorrhaphy by suture through renal substance—pains returned in one month. The kidney still in place and fixed. Nephrectomy June 26, 1877.	Pains all ceased after four days. No subsequent report.
2	Agnew. Philadelphia Med. News, Jan. 29, 1887.	M.	32	In 1878 felt something give way while working; since had severe pains in lower region, paroxysmal, intensified by work. Some albuminuria, no casts. L. Kidney easily felt and moved.	Nephrorrhaphy with stitches through capsule, old symptoms returned in less than a year, much worse; kidney again worse. Nephrectomy by lumbar route, April 23, 1885.	"Remains well up to present time," i.e., 1887.
3	Tillmann's Deutsch. Ztschr. f. Chir., xxxiv—Festschr. a. Thiersch., Leipzig, 1892, p. 634.	F.	49	Wandering kidney on both sides; in bed for twenty-five years; walking or standing caused severe abdominal pain. Had a laparotomy for supposed ovarian tumor then formed, then ventral hernia and later floating kidneys.	Nephrorrhaphy May 19, 1889. L. Nephrorrhaphy Sept. 11, 1889. Six months later left kidney again worse; lumbar nephrectomy in May, 1890.	Remained hysterical and died 2½ years later from intercurrent affection.
4	M. Juinne. Bull. et Mem. Soc. de Chir. de Paris, 1891, n. s. xviii, p. 533.	F.	25	Violent, painful convulsions and frequent desire to urinate, and diminished urine. Origin in the lumbar region. Convulsions last intermittently three or four days and recurred several times a month, with vomiting and fever.	Nephrorrhaphy; for one month no convulsion, pains returned and pus in urine; nephrectomy three months later, kidney firmly fixed and normal.	Temperature became normal and pus disappeared. No late result.
5	L. H. Dunning. Am. Jour. of Obstetrics, Dec., 1894, p. 891.			Pain, vomiting. Bedridden for four years.	Nephrorrhaphy; pains and vomiting unrelieved; then lumbar nephrectomy.	Pain entirely relieved. Vomiting persisted several months, then gradually disappeared. Now, at end of eight years, in comparatively good health.

chance of permanent relief. She was continually feeling for it and trying to find it, and when at last she did find it, even though it was not movable, the whole train of symptoms naturally followed. The presence of this neurasthenic or hysterical condition is the most important point of contrast between these two cases, and it is just this that, in my opinion, made the difference in the results. I must confess that I did the nephrectomy with very great reluctance, and that I felt very skeptical of its result. I have, however, been happily disappointed and have been pleased to learn, as I shall hope to show you a little later, that the operation has in other hands succeeded where nephrorrhaphy has failed, and that under such circumstances it has a legitimate place, offering a reasonable prospect of final success. In the present case, this relief has continued long enough, I think, to warrant the prediction that until some

other local disorder shall destroy her nervous balance it will remain permanent and complete.

It has always seemed very strange to me that the literature of movable kidney contained so little reference to the association with it of a strongly neurasthenic habit or temperament. Morris, Newman, and the recent systems of surgery hardly mention it. Nowhere, so far as I can discover, has there been any satisfactory study of the relations of the movable kidney to its accompanying neuroses. Four of the six cases which I have observed have certainly presented two very different groups of symptoms; one group consisting of pain, tenderness with dragging sensations, with sense of weight and fullness in the hypochondrium, all symptoms directly referable to the kidney itself; and a second group made up of loss of flesh and strength, palpitation, various gastric and intestinal disturbances, ovarian and uterine

neuralgia, dysmenorrhea, and other evidences of permanent neurasthenia, accompanied in one case by a condition of mental depression amounting at times almost to insanity. Whether this second group of symptoms is a cause or a result of movable kidney, I am not able to determine. I feel very sure that it is more than a coincidence. Of the thirty-one cases reported by Drummond, he says, "twenty-two were exceedingly nervous and might very properly be described as decided neurotics, and it is noteworthy that these were the cases in which the dyspeptic symptoms were most marked. . . . So often is a marked nervous habit to be met with in cases of movable kidney with symptoms, that I have been led to ask myself the question, Would the symptoms arise were it not for the neurotic tendency even with a pronounced degree of ectopia? It must, I think, be admitted that in the great majority of cases they would not. But that the kidney condition determines the region and distribution of the disturbance, there can no doubt, and further, it would seem that in some cases at least it is the cause of the neurotic temperament." These functional neuroses accompanying movable kidney seem to me to be identical with those so commonly observed in cases of ovarian neuralgia where the ovaries seem perfectly healthy, and also identical with the neuroses so often associated with coccydynia. Surgically, they are of the utmost importance in determining the prognosis and treatment. Whenever they are absent, as in the first of the cases I have just reported, I think nephrorrhaphy may be undertaken with very positive assurances of success. When present, they lessen very much the probability of securing permanent relief. In the event of failure, nephrectomy, as is illustrated by our second case, still offers some hope of a favorable result, but even that, like the removal of the ovary and the coccyx is often unsatisfactory.

Since the introduction of nephrorrhaphy, nephrectomy for the relief of uncomplicated movable kidney has met with but little favor. Suture of the kidney not only is easier and very much safer, being attended by a mortality that is almost *nil*, but it seems to meet more perfectly the indications for surgical interference. No one now credits the dictum of Keppler, that a movable kidney is in itself a menace to its possessor's life, and should be immediately removed. On the contrary, the prevailing surgical opinion is rather that of Landau and Mr. Knowsley Thornton, who regard the "removal of a kidney simply because it floats or is mobile, as quite unjustifiable." In fact, I think most surgeons would go a step further than Mr. Thornton, and say that no operation should be undertaken on a healthy kidney simply "because it floats or is mobile." It is only when by its mobility it occasions symptoms that interfere with one's ordinary occupation or habit of living that any operation is indicated. Nephrorrhaphy is then certainly the operation of choice, but in the event of its failure, nephrectomy is, I think, not only a justifiable but a reasonable procedure as is illustrated by the second case here reported. I have further collected five other cases, as will be seen by the accompanying table, in which the failure of future has been followed by the successful removal of the kidney. One of them in which the nervous symptoms were especially prominent is reported as having remained hysterical until the time

of her death, two and one-half years later from some intercurrent affection. Agnew's case remained well nearly two years after the removal of the kidney, and Dunning's was in comparatively good health eight years after operation, while the remaining two cases were immediately relieved of their symptoms, but were reported too early to give permanent results. These cases are too few and the records too meager to enable us to draw any positive conclusions. They are more than sufficient, however, I think, to justify us in attempting a radical operation when the simpler alternatives have failed.

In calling your attention to this subject by reporting these two cases, I have been actuated by the desire to emphasize more particularly two factors in the consideration of movable kidney, which are, it seems to me of very great importance, and which do not often receive the attention they deserve. They are: 1, the frequency with which movable kidney is associated with a marked and very distressing neurotic habit and under these circumstances nephrorrhaphy is often unsuccessful; and 2, the possibility of securing permanent relief by nephrectomy when nephrorrhaphy has failed.

APPENDICITIS.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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From my experience in appendiceal work, and particularly during the past year, I feel that I have a right to make a further contribution upon this much debated subject. Notwithstanding the vast amount of literature which has appeared, and the numerous discussions which have occurred upon this subject in the past twelve months, I regret to say that there are still too many skeptics, first as to the prevalence of the affection, and second, as to the importance of the only curative treatment, namely, operation. I had hoped that the nomenclature of this subject had been definitely settled and that appendicitis was the accepted term for inflammation in the right iliac fossa, which we now know invariably originates within the appendix, but a recent article by Frederick Treves in the *British Medical Journal* describes appendicitis under the headings, typhilitis and perityphilitis, terms no longer accepted by American surgeons.

As I have before remarked, the diagnosis of appendicitis is not a difficult one to make. I must confess I have been astounded when attacked by a few prominent clinicians on making the above statement. The history of onset in the great majority of cases of acute appendicitis, as well as in acute attacks supervening upon an already chronically inflamed organ presents a picture, the outlines of which are so striking that if once seen it must be everlasting.

The initial pain, the gastric disturbance, the point where the tenderness to touch is most intense, the torpid bowel, all these following closely upon either the ingestion of indigestible substances or the ingestion of digestible substances, if the integrity of the lining membrane of the digestive tract has been disturbed, as by sudden exposure to cold, fright, grief, etc., these symptoms, I say, form the background of such a picture.

The rigidity of the abdominal walls of the lower

right quadrant of the abdomen, nausea if not vomiting, the disposition to flex the thighs upon the abdomen, the limited abdominal respiration, the increased pulse rate, the elevation of temperature, the intense thirst, the pain referred to the back, the abdominal distension, complete the picture in detail. There is now left the finishing touch, which is true in both senses of the word, that of locating the inflamed organ by palpation. While the tenderness early in the attack is diffuse, yet the point of greatest tenderness can, by careful examination, be most clearly defined over the position held by the appendix.

The etiology and pathology of appendicitis being intimately associated, I have thought it best to describe them together.

From my experience in the past year I have no reason to change the views expressed in former articles regarding the etiology of this affection. I still believe that there is a certain proportion of cases of appendicitis in which foreign bodies are an active factor in its production, when a catarrhal condition of the mucous membrane already exists and, especially when associated with it is the bacterium commune coli. Foreign bodies may, however, remain and cause little or no disturbance until some indiscretion in diet or exposure to cold or dampness excites a catarrhal condition, when their presence adds to the irritation thus produced and prevents drainage of the organ by occluding its lumen. They are the important factors which favor ulceration of the walls of the appendix and perforation or even gangrene of the entire organ.

Occlusion of the lumen of the appendix may also result from one of the following conditions: a very long meso-appendix, a shortened meso-appendix, a meso-appendix due to infiltration, containing an excess of fat, adhesions, thickening of the mucous and sub-mucous coats or displacement of adjacent viscera.

All inflammations of the appendix are septic; consequently, drainage is essential for a spontaneous recovery from an attack. The mucous membrane of an appendix beyond the point of obstruction undergoes structural changes which render otherwise innocuous materials (bacteria, etc.,) actively malignant and thus favor migration.

In cases of chronic appendicitis, a catarrhal condition of the mucous membrane of the appendix primarily renders it predisposed to slight irritation and though macroscopically and microscopically the mucous membrane of such an appendix would show but little evidence of disease, this is clinically disproved. I have seen cases of recurrent appendicitis where all the symptoms disappeared after the removal of the appendix, which showed but slight disease of the mucous membrane.

I recall one case in particular, where the patient had been an invalid for seventeen years. The removal of the appendix which was small, and the mucous membrane which showed but slight pathologic changes, was followed by a prompt disappearance of the symptoms. This patient is to day perfectly well and leading a comfortable and happy life.

Many of the cases of chronic intestinal indigestion of both the catarrhal and the nervous type, also cases of chronic enterocolitis and colitis, I maintain are due to structural changes found in the appendix, which I have removed for the relief of one or more of these various conditions.

The appendix is a highly organized structure, as much so as is any portion of the alimentary canal. It possesses the same number of coats, has its individual mesentery and is equally as well supplied with blood vessels, nerves and lymphatics as are the intestines. The point of essential difference, however, is that it has but one opening and this is the reason that inflammations of this organ are of so destructive a character and hold a place second to no other intra-abdominal inflammation.

Catarrhal inflammations of the appendix are very common, but heretofore have not been recognized as attacks of appendicitis. When the inflammation is more marked there are other factors which enter into the case. If the bacillus coli communis is present in a virulent form or is associated with the staphylococcus we have an infective appendicitis which is of the virulent type; when this condition is associated with a fecal concretion or other foreign body causing pressure, necrosis occurs and we have perforation. In infective appendicitis we frequently find minute points of suppuration in the mucosa; these foci start in the glands which are infected and then suppurate. The virulent bacilli can and do migrate through the walls of the inflamed appendix and cause suppuration around the organ without perforation.

The termination of an attack of the infective variety of appendicitis depends upon the direction which the bacilli take. If they pass into an appendix whose lumen is not encroached upon, the attack may terminate favorably. If the migration is through the walls into the right iliac fossa, suppuration about the organ occurs and we have a peri-appendiceal abscess, or a general infective peritonitis. This is the awful uncertainty, and places upon the physician a terrible responsibility. In support of my position, I will simply refer you to the statistics of the early operative treatment and to those of the so-called conservative or expectant treatment.

This is the view I have held, and when the opportunity has presented itself acted upon, and I have yet to record the first death where the appendix was removed in the early stage of the acute attack.

The personal equation in the resistance to septic absorption is a matter of the greatest importance and one which figures conspicuously in appendicitis. Two cases, in which there is, as nearly as it is possible to demonstrate pathologically, a parallel condition of affairs, may show very different degrees of infection; one patient will be profoundly septic while the other will show but slight evidences of poisoning. This fact must be understood and borne in mind by the physician in attendance upon a case of appendicitis; otherwise he will be less likely to appreciate the responsibility of his position.

The symptoms of appendicitis present such a vivid picture clinically that I can not conceive how, ordinarily, they could be misinterpreted. The cramp-like pain in the epigastric or umbilical region, which ushers in the initial symptoms of this affection, is severe and usually constant, although it may be intermittent, and is associated with nausea, vomiting and extreme restlessness. The pain may be referred to these regions for a period ranging from one to twenty-four hours, but later is confined to the iliac fossa where it manifests itself in wave-like paroxysms. With the advent of general peritonitis the pain becomes diffused. The nausea and vomiting

usually cease in favorable cases after the pain is referred to the region of the appendix. In unfavorable cases it becomes regurgitant and persists until the end.

Rigidity of the abdominal walls which in the majority of cases is most marked on the right side, occurs before the pain localizes itself in the right iliac fossa. There is usually constipation but occasionally diarrhea. Where constipation persists it is due to one of two causes, either an intestinal paresis of septic origin or the use of opium.

Tenderness is the most important symptom of appendiceal inflammation. Deep palpation over a normal appendix will not elicit tenderness. There is only one condition which renders difficult or impossible the palpation of an appendix, viz., marked tympanites. Tenderness may also be elicited through the rectum in the male, and the vagina and rectum in the female, when the appendix is directed into the pelvis. The point of greatest intensity of tenderness is over the inflamed appendix. Excruciating tenderness indicates pus, and in some cases is elicited only by vaginal or rectal examination.

Temperature and pulse rate in moderately severe cases bear no relation to the amount of disease going on within. I have seen cases with abscess and even perforation in which the pulse rate and temperature were normal. These are explained by the various pathologic conditions found in the peritoneal cavity in appendicitis. A sudden fall of temperature in acute cases should be looked upon with suspicion, as this only too often indicates perforation of the appendix.

The ordinary form of appendicitis is readily diagnosed, but I have met with some variations which have been misleading and puzzling; cases in which the pain has been referred to the left side, to the spleen, to the bladder and to the testicle.

The history of attacks is at times indistinct, one being frequently only able to get a story of a chain of vague symptoms which patients refer to as an attack of cholera morbus. Again, I have seen cases in which a persistent colitis or entero-colitis, were the only clues to the real cause of the trouble. There is one symptom, however, which is constant and that is tenderness; this, in the majority of cases is accompanied by a palpably enlarged appendix. If one palpates the right abdomen of patients who suffer from dyspepsia, entero-colitis, or colitis with or without histories of attacks of appendicitis, the number of tender, enlarged vermiform appendices he discovers will astonish him. The following case will illustrate: Miss W., age 16; no history of an attack of acute appendicitis; had been suffering for some time from a severe colitis. Her appendix was tender and was easily palpable. I advised its removal. We found the appendix constricted and indurated at its extreme tip, bound by adhesions to the surrounding bowel, and the omentum adherent to the outer wall of the cecum. The appendix contained pus. I have come to the conclusion, after a varied experience in appendiceal work, of accepting the histories of attacks of cholera morbus as those of acute attacks of appendicitis and have yet to see the first operative case presenting such a history which did not substantiate this belief.

The diagnosis of appendicitis can be made early, and when made, should be followed by operation for the removal of the inflamed organ. A case of *bona*

fide appendicitis should not be allowed to go to the point of suppuration. A point upon which all authorities on this much debated question agree is that there is no sign or symptom, class of individuals, age, or time of disease which foretells perforation, gangrene and pus. No man can tell how the case may proceed from hour to hour and therefore the only logical conclusion at which one of experience can arrive is immediate early operation.

The prognosis depends not only upon the character of the attack and the complications which may supervene, but especially upon whether or not an early operation is done. In other words, the earlier the operation is performed the better the prognosis.

When the collection of pus is circumscribed and the general peritoneal cavity walled off, the prognosis is generally favorable. If the general peritoneal cavity be infected the prognosis is grave, although if operation is at once resorted to there is a possible chance of recovery; while if the infection be late or operation deferred, a fatal termination is invariably the rule. When a circumscribed appendiceal abscess ruptures and evacuates its contents into the bowel, recovery from the attack usually follows, while evacuation into the bladder is fatal in about 50 per cent. of the cases. The age of the patient is a decided factor in the prognosis, as the disease is more fatal in the very young, on account of the slighter powers of resistance.

Appendicitis is a surgical affection and should be so treated. The first question which arises after the diagnosis has been established is the character of the attack and what will be the probable outcome? It is here that we come up against the stone wall of fact, backed up with logical conclusion based upon experience. We can not say positively which case or class of cases will recover from an attack and which will go on to suppuration, gangrene and perforation. The question is, Shall we guess, and run the risk at the patient's expense? or shall we accept the only other alternative and remove the organ at the incipency of its inflammation? The operation has been performed so often by skilled surgeons with a mortality of 1 to 2 per cent. and in many instances without a death, that there is absolutely no ground for attacking the procedure upon the score of fatality. Hernia is not a frequent sequence of abdominal section and is not the bugbear it is thought to be by the opponents of the knife. We can not accept objections to scientific procedure, upon the score of prejudice or on general principles, but must meet facts with facts.

A record of 100 appendisectomies with one death and no hernias speaks for itself. The records of McBurney, Richardson, Fowler, Murphy and others stand out like the "handwriting on the wall," to substantiate the scientific wisdom of early operation, and to stamp delay as dangerous and unscientific.

Early operation is a conservative and not a radical procedure. We are not governed by the same reasons that influence us to perform the radical operation for the cure of a simple hernia, or for the removal of the uterine appendages for a fibroid. But we see before us the probable consequences of allowing suppuration, gangrene and perforation to occur in the peritoneal cavity which may or may not be protected by nature's kindly action.

The proportion of cases of appendicitis which have one attack, then become perfectly well and are

cured of the disease, is so infinitely small, compared to those which have repeated attacks with an interval of invalidism, that I do not believe the rare exception should interfere with the rule.

One of my recent cases had had three attacks, with the interval filled in with gastro-intestinal uneasiness and tenderness over the appendix, increased by the slightest dietary indiscretion. He decided he would be operated upon as he considered the risk of another attack far greater than that of operation. On the day of operation he remarked that the tenderness was less pronounced than at any time for three months previous.

The appendix which lay behind the cecum and colon, first observed a northerly and then a southerly direction, making an acute flexion; it was firmly bound down by strong adhesions. The omentum was adherent to the base of the organ as well as to the cecum. An interesting feature in the case was the presence of a neighboring knuckle of small bowel which was anchored to the base of the appendix by an adhesive band, causing an acute flexion. This condition would have been capable of producing an attack of acute mechanical intestinal obstruction upon the slightest provocation. The appendix was thickened and contained pus. It is now four weeks since the operation, and he says he has no dyspeptic trouble and feels the first relief since his initial attack nine months ago.

The early operation is, as a rule, a comparatively simple abdominal procedure. The operation at the end of an attack or during the interval between attacks is usually more difficult than when done very early in the attack before adhesions are formed. After pus has formed, an operation for the removal of the appendix calls for the best judgment and skill, along with experience in this particular line of work. One meets with pus which has originated in an appendiceal inflammation, in every conceivable part of the peritoneal cavity, and only too frequently the entire cavity is invaded.

The appendix holds a northerly position in so large a percentage of cases that it is common to meet with many cases of acute appendicitis in which the purulent collection is post-cecal or post-cecal and post-colic. In this class of cases I invariably remove the appendix. With the proper abdominal technique, an important part of which is the disposition of the sterile gauze by which the greater peritoneal cavity is temporarily sealed off, the risk of infecting this membrane is reduced to a minimum. To one whose experience in this class of cases has not made him expert, I would strongly urge that having opened the peritoneum in cases of this character, and recognizing the position of the swelling, that it is far safer for him to immediately close the abdominal wound and complete the operation by draining the collection through the loin space. This is not only feasible, but at the same time safer than to take chances on exposing the peritoneum to contact with pus, of the character which is generated in connection with appendicitis. In those cases where the abscess points anteriorly, one of two procedures is to be followed out; evacuation without any attempt to remove the appendix, or, first carrying an incision through the abdominal walls to the inner side of the collection, in this wise opening the general peritoneal cavity, which is to be protected with sterile gauze, to be followed by a second incision down over the most

prominent part of the swelling. The pus is evacuated, the cavity then washed out thoroughly, and the appendix removed. This latter plan of operation should only be practiced by a surgeon who is an adept in this line of work.

When the general peritoneal cavity has been protected in the manner referred to, the appendix removed and the wound cleansed, the first packing of gauze is to be withdrawn and replaced by a fresh piece which is allowed to remain *in situ* for two or three days, the time depending upon circumstances. By a strict observance of this step in the technique, the peritoneum can be left permanently sealed off. This anticipates nature's means of closing off the abscess cavity by adhesive inflammation. When the permanent gauze packing has been removed, the wound is closed by sutures introduced at the time of the operation.

I do not consider the evacuation of an appendiceal abscess without removal of the appendix in any way curative. On the contrary, experience has taught me that these cases are equally liable to recurrent attacks. I have operated for removal of the appendix upon too many cases, with such a history, to regard the simple evacuation of the pus other than merely palliative. Cases in which the abscess has ruptured into the colon and the rectum, suffer from subsequent attacks and for these during the quiescent period I have removed the appendix. In only a small percentage of the appendices removed under these circumstances do we find evidence of a previous perforation. From our knowledge of the pathology of this subject we know that perforation is not necessary for pus formation.

I take this opportunity of adding a remonstrance against the median incision in the operation of appendicitis. The number of cases are limited where this route offers any advantage. In the majority of cases, therefore, and from this we must reason, it is contra-indicated, first, on anatomic grounds, second, on the ground that the peritoneal cavity can not be so well protected against infection. Granting that what I have said is true, the median operation is unsurgical. A knowledge of the topographical relations of the appendix, must impress one's mind with the fallacy of the median operation.

In suppurative cases it is impossible to open and drain an abscess in the right iliac fossa through a median incision, no matter how large, without infecting the peritoneal cavity. A large incision is always to be avoided in abdominal work. Where the appendix lies to the outer side of the cecum or behind the cecum or colon the difficulties of this route would be increased. To gain access to the retro-colic space by way of the median incision would probably call for division of the internal layer of the ascending meso-colon, always to be avoided as it is preferable to go through the outer layer of the meso-colon on account of the relation the blood vessels hold to the former.

The two incisions to be considered are through or immediately to the inner side of the linea semilunaris (not cutting the rectus but pushing it inward), or through the abdominal walls after the manner proposed by McBurney.

The McBurney operation which offers a better safeguard against ventral hernia, is especially adapted to chronic cases. In favor of this operation is the direction of the deep incisions which do not entail

cutting the nerves of the abdominal walls. Some of the nervous phenomena which have been said to follow the operation of removal of the appendix through the semilunar line, I believe have been due to the section of the nerves which must follow opening the abdomen by this route. With McBurney, I would not recommend it to one who has not had a considerable experience in appendiceal work, as it is more difficult to perform than is the operation through the semilunar line. In either operation the incision should be small. In the McBurney operation the incision through the internal oblique, the transversalis muscle, the transversalis fascia and the peritoneum is of necessity small. Ordinarily, in cases of chronic appendicitis, the incision in the peritoneum need not be more than an inch in length, just sufficient to admit the index finger to pick up the cecum, the landmark in finding the appendix.

The medical clinician carefully views and studies the exterior of the abdomen, and upon the information thus gathered bases his conclusions as to what may be going on within. The surgeon sees the process and, if he has had a large experience, sees so much of the destructive possibilities of the disease that he naturally comes to the conclusion that an inflamed appendix is better in the laboratory.

THORACIC TROUBLES FROM A SURGICAL STANDPOINT.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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In this notice of some of the phases of thoracic surgery there has been nothing of an exhaustive nature undertaken, but only an attempt to bring to the attention of surgeons the great landmarks which should prompt to further investigations in this very important branch of surgery. While many have explored every nook and corner of the abdomen, and have brought forth rich fruits of their labors, comparatively few have turned their attention to the contents of the chest.

It is true, that a few individuals have devoted their energies zealously and successfully to the investigation of the surgical disorders of the chest; but the data for studying the results of traumatism or diseases of this part of the organization are scattered throughout current literature, so as to render it difficult to arrive at satisfactory conclusions. With a firm conviction that these disjecta membra may be collected and systematized in a manner to prove instructive and profitable to the medical profession, this contribution is now presented.

There are such conflicting views in regard to the various practical measures which have been adopted in thoracic troubles, that any one who seeks for authority in the treatment of the injuries to the walls of the chest and to the viscera within, or for the diseases of the thoracic cavity, is involved in doubt and uncertainty.

The more extended such investigation may be, the greater is the confusion from direct antagonism in the practice of those whose names are prominent in the department, and there is a pressing demand for methodic rules in the management of this class of cases.

No greater boon could be conferred upon the profession than a thorough analysis of all the details available in connection with the pathology and treatment of surgical disorders of the chest, and a work which may afford a rational and comprehensive grouping of the therapeutic agencies indicated in the different troubles of the thorax ought to prove a most acceptable offering to the surgeon.

The conical space within the chest, having its apex upward, is occupied on each side by the lungs, and between them lies the heart with its investing pericardium and the arch of the aorta with the descending aorta. The pleural serous covering of the viscera is reflected over the inner walls of the thorax and the two membranes being approximated form an antero-posterior partition constituting the mediastinum. The different spaces included between the folds of the pleura are designated as the anterior, posterior, middle and superior mediastina, and play a prominent part in the rôle of thoracic troubles, amenable to surgery.

In different divisions of the mediastinum, we find the trunk of the pulmonary artery, the ascending vena cava, the innominate veins, the phrenic nerves, the vagus nerve, the esophagus, the thoracic duct, the bronchial lymphatic glands, the cardiac lymphatic glands and the posterior mediastinal gland, with other highly organized structures. This fruitful field for investigation has only recently awakened the interest of original workers and it is expected that it will be explored more fully in future.

If a patient is so unfortunate as to suffer from a surgical disorder, he does not always require the use of the knife, and I appeal to my intelligent colleagues to disabuse the minds of people as to surgeons being mere operators.

It may be that the critical reader shall expect some explanation of the term surgical disorders, employed for generalization of chest troubles. All departures from the healthy or normal condition of the tissues, involving any material modification of structure, either in size or density, may be included under the designation of surgical disorders. As has been intimated already, this does not imply a necessity for the employment of the knife or any other surgical instrument, but may be appropriately submitted to medication as a part of the surgical treatment.

In illustration of the transition of cases from the domain of medicine to that of surgery, an instructive and interesting report of Christian Simpson, giving four cases in which he had successfully used a new method of bleeding in pulmonary congestion, with a trocar, may be presented. This is an extension of Harley's method of performing hepatic phlebotomy, which was laid before the profession in 1886. There is, however, an improvement upon that process, which meets the sanction of Harley. After the withdrawal of twelve ounces of blood from the lung, the canula was kept in position with the fingers over the end to allow of a clot forming, and then it was slowly withdrawn. The patients were immediately relieved. A modification in the mode of procedure is proposed by Harley that makes the plugging of the wound by the coagulation more secure and effective, while it obviates its detachment. His proposal is that the trocar being thrust some distance into the tissues of the organ from which it is desired to extract blood, before placing the point of the finger on the mouth of the canula with the view of arresting the blood flow,

it should be slightly withdrawn—say, about half an inch or more—in order to leave an empty passage wherein a sufficiently large blood clot may form and fill the channel. In this case, the surrounding tissues of the organ will, in contracting upon the clot, hold it so firmly by their own resilience that, on the withdrawal of the canula it will break off from the end of the much larger mass, which remains as an effective plug in the wound. This mode of relieving sanguineous engorgement of the lung is worthy of further trial.

There seem to be very few points definitely settled in regard to the appliances specially adapted to the surgical disorders of the chest.

There is a marked discrepancy in the views of different observers touching the efficacy of aspiration simply, or the continued drainage aspiration upon the siphon principle in purulent pleurisy.

The discussion has been kept up in regard to medicated injections into the pleural cavity after operations, for the purpose of correcting septic processes, and as to the employment of irrigation for the entire removal of purulent collections from the thorax. The apprehension which heretofore existed in respect to the entrance of air into the chest, upon the withdrawal of a purulent collection has undergone some change from further experience as to its effects, and less concern is manifested as to it in making single or double incisions for the purpose of drainage.

The difficulty of locating foreign bodies in the bronchial tubes, either by exploration through the trachea, or by physical signs from without through auscultation and percussion, has heretofore proved a serious barrier to accurate diagnosis of the location of such bodies, but the accidents involving the bronchi from the entrance of solid matters into the air passages have generally led to operative measures for their removal. There has, however, existed considerable skepticism as to the propriety of undertaking any operation for the removal of foreign bodies from the bronchial ramifications, and Kocher consigns operative measures in those cases to the domain of experiment. A few fortunate results have been reported from time to time in the extraction of articles of different forms from the bronchi, affording encouragement to further diligence in this department of exploratory work.

There has been notable progress latterly, in the management of abscess of the lung and gangrene of the parenchymatous structure of the lung. Resections of a greater or less portion of the pulmonary tissue have clearly demonstrated the fact that thorough decarbonization and oxygenation of the blood may be effected by one lung.

The preparatory treatment of a case for an operation, and the subsequent management, often demand a resort to the use of medicinal agents by the surgeon, and the old distinction of external and internal treatment belongs to an exploded régime. It sometimes occurs that a surgical case escapes recognition by the attending physician until it has reached a point that does not any longer admit of relief by an operation, though clearly indicated at an earlier period.

Again, there are instances in which the efforts of nature may be assisted so as to overcome complications, by means which are not regarded as strictly surgical, yet all such resources pertain to the surgeon. He should avail himself of all agencies calculated to relieve his patient without an operation, and it is

more creditable to heal a diseased part by conservative measures than to mutilate or excise an organ. We should not, therefore, ignore therapeutics in surgical treatment.

All concur in removing large accumulations of fluid, after various modes of internal treatment have failed to give relief; yet the conditions for this procedure, in the view of many having ample experience, indicate an apprehension of consequences which may be averted by energetic measures of treatment by medication at the outset.

The development of pneumo-thorax, either spontaneously or from traumatism, has been met by two distinct processes; one being by aspiration of the chest, so as to take away the superfluous air, and the other by the introduction of an innocent solution of boric acid or chlorid of sodium by a canula, while another alongside of it allows the air to escape from the thoracic cavity. Thus the space previously occupied with air will be filled with the fluid to be removed by siphonage, or which in due course of time is absorbed. Of course, perforations of the lung will be reduced in size by the partial collapse from the outside pressure of the fluid.

The mode of treating wounds of the parietes of the chest has given rise to much discussion. While the weight of authority is favorable to closing incised or gunshot wounds of the walls of the thorax, there are advocates for laying open freely all the parietal structures in traumatic injuries of the chest walls and lungs which are accompanied with internal hemorrhage.

It would appear from the favorable view taken by some surgeons in regard to the practice of laying open the chest, in cases of considerable hemorrhage into the pleural cavity, that this procedure was the recognized treatment. On the contrary, this practice is in opposition to the best established principles which govern the treatment of penetrating wounds of the thorax. The course adopted generally by those surgeons having the largest experience in the treatment of thoracic wounds has been to allow of the escape of all the blood which may flow out of the wound when placed in a dependent position, and afterward to close the opening by suture so as to shut off the pleural cavity from the external air.

It is recognized that all penetrating wounds of the thorax may be closed hermetically, by suture or otherwise, after allowing the discharge of fluid blood from the opening. It is also allowed by the best authority, that of experience, that foreign bodies lodged in the bronchi may be reached through an incision of the trachea at the lowest available point. Experiments for reaching the bronchi through the chest wall afford little encouragement for operation upon the human subject. Medication as a preventive and curative agency in pleuritic effusion is worthy of trial before having recourse to aspiration. Aspiration is indicated where there are large serous accumulations in the chest and likewise in pneumothorax, but can not be relied upon for the relief of purulent collections. Partial resection of ribs is attended with better results in some cases of empyema than the complete removal of the segments of several ribs. The excision of a small portion of one rib with the introduction of drainage tubes has been generally attended with good results.

A few years ago it was thought that a most desirable consummation had been reached by Estlander's

operation in empyema, but to-day serious misgivings are entertained by the conservative surgeons in America and in Europe as to its applicability, except in extremely rebellious fistulous openings of the thorax.

Quenu recommends for opening the posterior mediastinum (*University Medical Magazine* for July, 1892), to make a vertical incision 15 centimeters long over the angles of the ribs, between the spinal border of the scapula and the vertebral column about four fingers breadth from the spine, the middle of the incision corresponding to the spine of the scapula. By retracting the inferior border of the trapezium upward and inward, three ribs may be divided and resected for 2 centimeters and this permits the hand to penetrate by stripping off the pleura. This opening in the thoracic wall extends from the inferior border of the second rib to the superior border of the sixth, and drawing back the ribs enables one to explore the hilum of the lung, the aorta and that portion of the esophagus which extends from the root of the bronchus to the diaphragm. If, instead of stripping off the pleura, it is incised, the upper lobe of the lung and even the summit of the thoracic cavity are easily accessible and more readily than by resection of the ribs in front below the clavicle. It is asserted that this opens the way for relief in abscesses and other affections of the mediastinum.

A point of much importance in connection with the restoration of the respiratory function to the disabled lung without risk of injury to its structure, in aspiration and valve drainage, when no air enters to replace the fluid, is the gradual and partial evacuation of the purulent contents. An enfeebled and contracted lung can not expand suddenly to fill up the space occupied by an extensive collection of pus, and to avoid an injury to its tissues the discharge should not be completed at one time but in two or more evacuations. Levasheff has recommended the withdrawal of a certain amount of the intra-pleural exudation and replacing it at once with an equal quantity of a solution of chlorid of sodium. He says that after this operation has been repeated from two to six times, the pleural cavity would contain nothing but an indifferent salt solution which would be rapidly absorbed. While those with a limited sphere of work in the graver classes of chest trouble have claimed satisfactory results in treating empyema by thorough drainage without the resection of ribs, others have found that after these measures have failed, a resort to extensive removal of several ribs has succeeded; when the lung has become materially diminished in size or totally unfitted for the function of respiration by contraction and adhesion, it is evident that the walls of the thorax on the corresponding side should be proportionately reduced, and the only practicable mode of effecting this is to excise portions of the ribs.

Yet the growing conviction of those who have had the largest field of observation seems to be adverse to Estlander's operation except in extreme cases.

Quenu, at the suggestion of Estlander, first executed section of the ribs without resecting them, while Delorme improved upon this idea of a trap-door to reach the contents of the chest; and Jennings, Richelot, Morreau and others have done it.

The following thoraco plastic operation done by Mr. Subbotin, a Russian surgeon, some five years ago, offers many advantages over other modes of lessen-

ing the space around the collapsed lung; a segment from two to three inches long is first resected from the seventh rib and the pleural cavity is opened and washed out. This opening is then plugged with gauze. Then a vertical incision about two inches long is made along the outer border of the pectoralis major muscle. Through this the sixth, fifth and fourth ribs are exposed without being denuded of periosteum, and from each of these a little wedge is removed by means of Liston's bone scissors so that the rib is made movable. A similar vertical incision is then made in the posterior axillary line, serving for the exposure and division of the same ribs in this situation. These two incisions not opening into the pleural cavity are sutured without drainage. The portion of ribs lying between the two points of section are thus enabled to sink in and when healing has taken place they protect the thoracic cavity and support the vertebral column.

While there may be cases of pulmonary abscess with adhesion, relieved by simple incision and washing out the cavity, the procedure of Runeburg in excising a large piece of rib directly over the abscess and making a free opening directly into the pleural sac, with a smaller opening into the pulmonary tissue, is often indicated.

It is held that abscess of the lung presents signs and symptoms which admit of a positive diagnosis and that operation is often demanded. Perier, of Paris, reports the case of a man 58 years old, in which an incision was made in the left second intercostal space and the lung tissue, covered by pleura, was seized with a pair of forceps. The pleura and the lung were incised and about two fluid ounces of pus were discharged, when two long drainage tubes were secured in the cavity which had been washed with camphorated naphthol. The operation gave an entirely satisfactory result.

A case of pulmonary gangrene is reported by Delageniere, of Mans, in which resection of lung gave a favorable result. He infers from this and nineteen other recorded cases of pneumotomy for pulmonary gangrene, that the operation has hitherto failed to give the desired result, because surgeons have been content merely to drain the gangrenous focus instead of extirpating it as completely as possible.

It seems to be demonstrated beyond a doubt that interference in all cases of abscess of the lungs which have not opened into the bronchi is attended with success, and that gangrene of the lung is completely amenable to surgical interference.

The operation of thoracotomy for abscess and gangrene of the lung should be accompanied with antiseptic applications and gauze tamponage. The great importance attached to the operation of pneumonec-tomy is demonstrated by the extensive notice in medical journals in different countries, of the excision of the apex of lung for tubercular disease in March, 1892, by Tuffier. The first pneumonec-tomy ever reported was performed by Milton Anthony, of Augusta, Ga., in March, 1821, for an injury inflicted originally by a fall from a horse. A rib was fractured, empyema resulted, and four years afterward Anthony found the lung tissue in a disorganized condition, when he removed portions of the fifth and sixth ribs and detached all the diseased parts of the lung with his fingers.

A personal examination of twelve dead subjects by

Eugene Rochard, of Paris, for the determination of the average tract of the interlobular fissures of the lungs, will doubtless be of service in surgical treatment of abscess and gangrene of the lung by trans-costal openings. This is ascertained to occupy a zone containing the fifth and sixth ribs, which are the ones therefore to be taken out by the surgeon. The fifth intercostal space in front and on the side is the one most commonly in communication with the oblique fissure. It will be observed that this corresponds very nearly to the free spot of Marshall which is near the attachment of the costal cartilage of the fifth rib, which has been indicated as the most favorable point for entering the thoracic cavity.

Two cases are described by J. H. Cox, one being aspirated with good effect, and the other from neglect of this procedure, terminated in pointing and spontaneous discharge through the chest wall about the seventh interspace. There was an average discharge of one quart a day for eight months, of thick creamy pus; but in a year afterward this had entirely ceased. This case affords an illustration of the unaided power of nature.

Those who have kept abreast of the advances in surgical resources for chest troubles will fully appreciate the aggressive work in this department. But, unfortunately, there are comparatively few of the medical profession who have taken the trouble to ascertain the facts in regard to the various measures which have been adopted in wounds of the thoracic walls, or in the modification of the pleural contents from diseases. The aggressive spirit manifested by the operative measures of those who have been reaching out for relief in treating the disorders of the chest has been checked to some extent by the difficulties met with in some departments of original work.

There has been exhibited also by a few prominent investigators, a tendency to masterly inactivity in certain fields of exploration, which is now held to be conservative surgery. But a retrospect of the result indicates decided advancement.

A NOTE ON THE ADVANCE IN THE SURGICAL CURE OF HERNIA.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In order to bring into marked contrast the operations now being extensively done for the cure of hernia, with those of the past which have failed, we must devote a few moments to the review of the latter.

It would be a waste of time to go back farther than the past twenty years, and it would be impossible to even name *all* of the various procedures that have been advocated during this period.

In 1876, Czerny gave to the profession the operation bearing his name, which, with various modifications, and under the names of their authors held the field for ten years. The neck of the sac at the external ring was tied off, but its removal was seldom attempted. The pillars of the external ring were then brought together as tightly as could be done without constricting the cord. The suture ma-

terial was usually catgut. In 1886, the MacEwen operation spread rapidly over the surgical world. MacEwen dissected out the hernial sac, folding it upon itself into a bunch or "boss" which, after being pushed up through the canal, was stitched to the abdominal wall at the internal ring, where it was expected to act as a barrier to the re-descent of the hernia. In certain very favorable cases this hope was realized, but in a large percentage of the very class of cases which were in the greatest need of surgical aid, nothing but disappointment was in store for the surgeon and his patient.

Then came the method bearing the name of our eminent countryman, McBurney, which rapidly took the lead of all others in this country. This operation, while it did not prove a success as regards permanence of cure, was a long step in advance, in that it opened the canal to the internal ring and removed all foreign substances. The error in its technique was in closing the wound by cicatricial tissue which did not prove stable in character.

Next in line, and in importance, came the almost simultaneous publications of Halsted and Bassini, in 1890, of methods in many respects similar, but with the evidence in favor of Bassini in that he had been using his operation since 1884, and was able with his first publication to give a report of over two hundred cases. Not only was this a larger number of cases than the author of any previous operation had ever reported, but the results as presented were such as had never been secured by any other method and his death rate so light as to remove it from the list of dangerous operations.

This operation has now been under trial in this country for the past four years, with results fully equalling those presented by its author, and, personally, I can say far in excess of my most sanguine expectations. I had for some time used the operation of Barker, of London, with fairly good results, but have now not only abandoned it, but have become an enthusiastic advocate of the method of Bassini.

The operation needs little description at this late date. Its details are within the reach of all, and quite familiar to most of my hearers. The canal is, in every instance, opened to the internal ring. The sac is separated from the cord, ligated, and cut off flush with the peritoneal surface. The cord is elevated and the original canal for its transmission obliterated. The divided structures are brought into apposition and held by a suture material which is not quickly absorbed, and which does not act as an irritant to adjacent tissues. While Bassini uses silk for this purpose, most operators in this country are using kangaroo tendon, and are quite willing to confess their obligations to our former President, Dr. Marcy, for this valuable material.

Without further detail, let us consider *why* this operation, and Halsted's, as well, is liable to cure where former methods have failed. The secret, if there be any, is soon discovered by those who adopt it, and it is this—that the canal is cleared of all foreign substance—then the repairs begin at the internal ring, and the structures are restored to as nearly a normal condition as is possible.

In my operations I have found in the canal in various cases, since doing the Bassini operation, the following substances which, if they had not been removed, would have furnished strong predisposing causes for the recurrence of the hernia:

1. Tough and thickened sacs, a persistent tube with serous lining.
2. Good sized bunches of soft fatty tissue connected with the cord.
3. Lipomatous growths—extra-peritoneal.
4. Enlarged veins connected with cord.
5. Masses of adherent omentum inside of sac and in vicinity of internal ring.

In former methods none of these complications were found, but as I have had opportunity to demonstrate upon some of my own patients, they have been the cause of recurrence. The opening of the canal throughout its entire length has therefore been, it is believed, the most important advance in the surgical cure of these cases.

Twenty years ago to remove a portion of the omentum was deemed a hazardous undertaking and for this reason, large and hypertrophied masses were returned to the abdominal cavity. These have not infrequently acted as a foreign body producing peritonitis. If the patient was fortunate, and escaped this accident, the hardened plug of fat remained at or near the internal ring, ready to act as a wedge for re-dilating the canal. Later, several eminent operators were unfortunate enough to have sepsis or secondary hemorrhage following its removal. At present, this is all changed, and the speaker has now operated upon forty-five cases, in patients of all ages, from 13 to 70 years, where pieces of omentum of various sizes have been removed, and without an accident of any kind. There have been enormous masses, requiring the ligation of numerous large vessels in some instances. Formerly, operators were in the habit of surrounding large masses of this tissue by a single ligature, and that usually of catgut, cutting it off and dropping the stump back into the abdomen. Under pressure the fatty tissue was rapidly absorbed, the ligature slipped off and hemorrhage occurred. I regret to say that this method is still followed by some surgeons, to the very great risk of their patients. In a recent report of these cases before the Surgical Section of the New York Academy of Medicine, which will be published shortly in the *Annals of Surgery* (June 2, 1895, p. 658) I have demonstrated a method which seems to insure the greatest amount of safety. This is to use silk as the ligature, to tie every vessel that is large enough to be seen, without including any fat. I have applied over twenty silk ligatures to a single omentum. I have used silk in all of my cases, and have seen no bad effects from leaving it in the cavity of the abdomen.

The method of tying off omentum, which is suggested, has also another advantage. When the omentum returns to the abdomen its edge is free to spread out naturally, instead of being held in a mass in the vicinity of the canal.

I regret to see that two of our countrymen have recently advocated operations, each different in character, where attempts are made to utilize the hernial sac, to fortify the parts against a return of the hernia. The word regret, is used because I am convinced that the sooner we recognize the hernial sac as a foreign body, the sooner will we come to a definite understanding as to just how much we can promise our patients who suffer from hernia. It is surely a step backward.

In closing, we can put the facts of our advanced position in the surgical cure of hernia in a few brief sentences:

1. Asepsis has so far removed the dangers that we are justified in doing a truly "radical" operation.
 2. Any method that fails to remove all abnormal tissue, or that uses suture material quickly absorbed, invites failure.
 3. Mortality has been reduced from 8 per cent. to a small fraction of 1 per cent.
 4. The time of confinement to bed has been reduced from three or more weeks to eight or ten days.
- We can not at this time speak with absolute certainty, but we have the best reasons in the world to believe that the number of permanent cures have been advanced from 40 or 50 per cent. to at least 90 per cent.

REPORTS ON TYPHOID FEVER CONTINUED.

NO. VIII.

Read before the Ohio State Medical Society, Columbus, Ohio,
May 17, 1895.

BY JOHN ELIOT WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

A few days since I overheard a physician say: "There is no physician in the world so learned and possessed of such perfect integrity as to have been able to convince me by any statement that the uniform results I have seen Dr. Woodbridge secure in the treatment of typhoid fever were possible."

When asked by his interlocutor what he regarded as the strongest evidence of the truth of declaration "that typhoid fever can be aborted," he answered: "Seeing it done. After that, the charts and reports of the cases of other physicians who have treated typhoid fever by Dr. Woodbridge's method and thus have succeeded in saving the life of every patient and greatly shortening the duration of the disease." His remarks prompted me to amend the report which I had prepared, of cases of typhoid fever which I had treated during the past year, by embodying in it some accounts of the failures and successes of other physicians who have essayed the abortive treatment of the disease; relying on the directions which I had given in papers (written only to prove that the disease could be aborted); on hastily written letters; on instructions given orally or on bedside consultations. Many of them have shown their enthusiasm over the results of their trials and tests of this method of treatment by sending me clinical charts of the cases; and gratefully acknowledging their indebtedness to me for their marvelous success; a most laudable example of true courage and heroism, to thus report results (the very possibility of which had been so strenuously denied) which it is devoutly to be hoped may be largely followed.

As the object of this paper is to place the Ohio State Medical Society in a position to reach a just conclusion of the veracity of the affirmation "that typhoid fever can be aborted," I shall draw from all these sources. Many of the original charts (copies of which I hand you) and the letters from which extracts are made are here for your inspection.

Those of you who were present at the last meeting of this society, when I read my paper on "Typhoid Fever," will remember that a member arose in his place and said: "Being from Dr. Woodbridge's town and society, I wish to say that we have had several 'fights' on this subject, and we have been watching

his cases for several years to see if he could make his pledges good; but so far we have been unable to discover that he has made any failures, or had a death from typhoid fever." . . . "And we intend to continue to watch him in the future and if he have a death we will report it." The fact that no such publication has been made, may be accepted as conclusive testimony that for thirteen years I have had no death from the disease and have aborted every case of typhoid fever which has come under my care at a reasonably early stage of the disease.

During the past year I have treated alone or in consultation, 58 cases of typhoid fever; during the same period, there have been treated by 117 other physicians, acting under my advice; by consultation at the bedside; in conversations in which I have given very complete and precise counsels in regard to the guidance of the patient throughout the illness—more than eight hundred cases.

I have seen in consultation during the past twelve months two fatal cases.¹

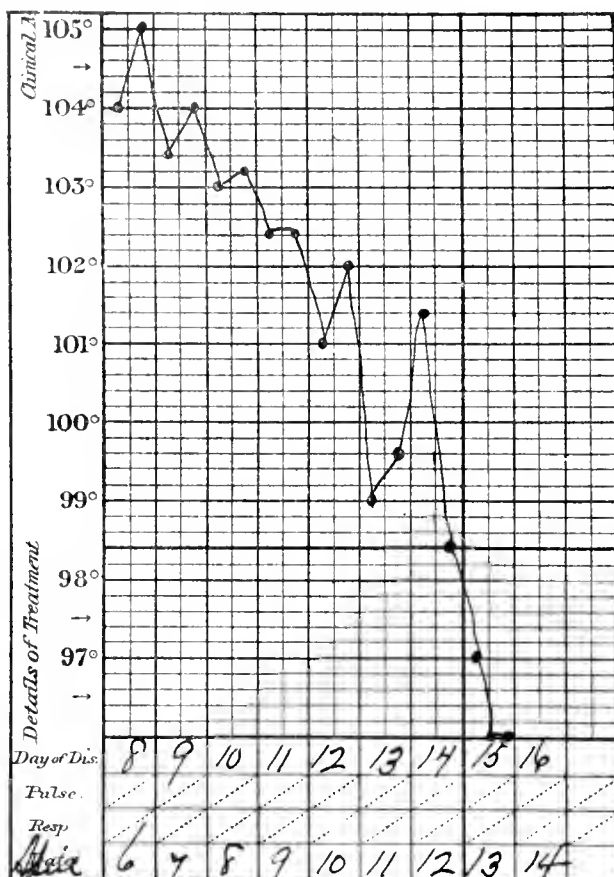
Case 1.—Mr. H. C. O., of Sewickley, Pa. This patient had been feeling sick and miserable, and, under the impression that he had la grippe had been taking quinin for several days. Yielding to the inevitable, he finally went to bed and sent for his physician who found that he had pneumonia. Later, he had an alarming hemorrhage of the lungs. No pathognomonic symptoms of typhoid fever were observed until the night of December 1, during which he had numerous profuse intestinal hemorrhages. I was called the next day and found him in a condition bordering on collapse, bleeding from both the lungs and bowels, and he died before the hemorrhages could be arrested.

The only other fatal case which I have seen in consultation, occurred in the practice of Dr. M. V. Cunningham; whose experience in the Cook County, Ill., Hospital and at the Emergency Hospital, during the World's Columbian Exposition, had served to render him an unusually accurate diagnostician, and taught him to appreciate the value of antiseptic medicine. Conservative to a degree—educated to believe that there was no power in medicine to abort typhoid fever—he had watched my cases with the eye of an unfriendly critic, until forced by the logic of my repeated successes, he called me in consultation several times, and consequently was able to produce such brilliant results in a number of instances that I had the most implicit confidence in his ability to treat typhoid fever in a perfectly scientific manner.

Case 2.—James K., aged 24 years. (See chart marked "Dr. Cunningham, No. 3.") This patient was very sick on March 13. On April 1 he sent for a physician, who (according to the statements of the family) made a diagnosis of la grippe and called again the next day. The patient growing worse, Dr. Cunningham, who a few weeks earlier had treated a small niece of the patient through a very severe attack of typhoid fever by the method I had advised, with unusual success; (see chart marked "Dr. Cunningham, Case No. 1, Ella G.") was called on April 6, and he called me in consultation on April 7. I found that the patient had been so sick nine days before I saw him as to lead to the obvious conclusion that he had been sick even longer; a conclusion fully justified by his condition, his temperature having been the previous day 105 degrees; his bowels excessively tender and tympanitic; nervous symptoms exceedingly bad; his tongue very dry and brown, also tremulous. He had persistent hicough and was delirious. The next morning Dr. Cunningham came to my office to say his patient was so wildly delirious that his father who was taking care of him was unable to give him medicine and could with difficulty keep him in bed; and consequently wished to send him to the hospital—a desire which met my heartiest concurrence. This, unfortunately, was abandoned on account of expense.

I did not hear from the patient again till April 10, when

Dr. Cunningham invited me to see him, remarking in a pleased way: "I would like you to visit him once more before he is well; and you must hurry or you will be too late, for his temperature was 101 this morning, and at the rate it is dropping it will be normal in a day or two." Visiting him about 10 A.M., we found his temperature 100.6-10 degrees; his tongue moist and less coated; his head clear; his abdomen quite flat and entirely free from tenderness; tympanitis very slight; nervous symptoms greatly improved; and sleeping naturally. He had taken no antipyretics or stimulants. His condition having improved so rapidly since my last visit, I told the Doctor that I believed his patient would be well in less than ten days; and according to reports, he continued to improve till the following evening, when his symptoms were all better and his temperature was 99.6-10. Up to this time the disease had run the usual course expected under antiseptic treatment, and, save that it had been instituted too late to prevent necrosis and ulceration of Peyer's glands which needs must have time to heal by granulation, the patient was nearly well.



Dr. Cunningham's case. James K.; 24 years; date of admission April 6, 1895.

Consequently I was greatly surprised, when Dr. Cunningham telephoned me the next day that the patient had had two convulsions during the early morning and was very restless, delirious and seemed to be suffering great pain, apparently abdominal, as indicated by the manner in which he rubbed and tugged at this region.

Examination revealed a doughy mass, filling up the abdominal cavity, most solid on the right side. He continued to have convulsions; his mouth and tongue became dry and parched; his temperature became subnormal; he grew more restless; his delirium became more profound; and he died of shock, two days after the accident.

The autopsy revealed an intussusception, the obvious cause of death by shock to the nervous system, already exhausted by the long and exceedingly severe delirium and under great strain on account of the septic condition due to the enormous pyogenic surface; the whole of the small intestine being inflamed, and all of the agminated glands of Peyer, in the more

¹ Since this paper was written, a third case, which I saw only once on the twenty-ninth day of the disease died.

than six feet of intestine examined—ulcerated. The stomach and intestine above the intussusception were full and distended—below it, empty and collapsed.

This case presents the strongest possible confirmation of the correctness of my diagnoses—because there is not, among all the cases I have reported as typhoid fever, a single case which offers fewer pathognomonic symptoms of the disease than this one. It positively confirms my declaration that "typhoid fever can be aborted;" for severe as it was, and despite the fact that treatment was so long deferred that necrosis of Peyer's gland was unavoidable; it yet pursued the ordinary course toward recovery, and before the unfortunate accident occurred which caused the death he was practically cured.

It presents the most convincing and irrefutable evidence of the validity of my assumptions as a whole; and it seems to me that it should overwhelm with shame and confusion the arrogant and impudent critics who, forgetful of my nineteen years of clinical experience, with a method of treatment to which they have not given the slightest attention, presume to say that because the clinical chart does not present the so-called typical "typhoid fever curve"—*ipso facto*—it ceases to be a typhoid fever chart.

If any one of the gentlemen are present who in former years have criticized my charts (and in doing so have positively asserted that a chart showing a steplike decline in the temperature, which touches normal in eight or ten days, could not be one of a case of typhoid fever) will scrutinize well the chart marked "Dr. Cunningham's Case No. 3., James K.," and examine also that book of charts—in it he will find that there are not three charts which depart further from the so-called typical "typhoid fever curve than the thermic line," on the chart of this man, whose small intestine presented the most extensive series of ulcerated Peyer's glands that I have ever seen.

Had the physician who was called to attend this man on April 1, made a correct diagnosis or, failing to do so, had he called in consultation a physician who, if unable to make a positive diagnosis, would at least have given the patient the benefit of the doubt, and immediately instituted proper antiseptic treatment; the misfortune of an intussusception may still have befallen the patient, and he may have died; but he would have been spared those days of burning fever; those sleepless nights of wild delirium; the necrosis of Peyer's glands and their consequent dangers.

I have known all these years that these were the clinical charts of cases of true typhoid fever; known that some of them were charts of cases of the disease in which necrosis and even ulceration of Peyer's glands had already supervened; and I have also been aware that there were among them the charts of patients who, but for the treatment I had advised, would have been sleeping beneath the sod.

In nearly every medical society before which I have presented dissertations on typhoid fever, certain members have wisely delivered themselves of one or more of the following sage citations, either literally or with a very slight re-arrangement of words as, for instance: "We all know that typhoid fever is a specific infection which must run its course of four, five, six or ten weeks or longer;" or it may be that one will sapiently remark: "If there is one fact in medicine that is well established, it is that the course of the disease in typhoid fever can not be shortened by

a single day;" and these erudite persons seem to deem these parrot-like assertions as incontrovertible testimony, amply sufficient to confute totally and instantaneously the whole of the accumulated evidence of my clinical experience; quite sufficient, too, to disprove the statements of all the proficient physicians who have corroborated my diagnoses and results. But it should be remembered that unwarrantable assumption is not valid reasoning and the plausible arguments that have been adduced in confutation of my claims are not more convincing than have been opposed to every step in the progress of medicine.

In the Cleveland Medical Society where, without malice toward any member of the medical profession of that city or county; but for the two-fold purpose of emphasizing my confidence in the potency of antiseptic medicine; and also of letting the profession abroad, comprehend and realize that I had attained the unattainable—that I had, in defiance of all known laws of pathology, "achieved a victory" over diseases of a microbic origin, which, when accepted by the medical profession, would add perceptibly to the average duration of human life, by greatly reducing the mortality from this class of diseases—I told what I had accomplished; described my method of procedure; stated in strong language the responsibility which I believed devolved upon those members of the profession who, knowing or having the means of learning how to save the lives of all cases of typhoid fever and who failed to give their patients the benefit of the knowledge; thus nettling the members of this, as well as of my own local society, to such an extent that had my house been made of glass, it would have been about my ears—for my expressions were harshly criticised and in the heat of debate many broad and preposterous arguments were advanced.

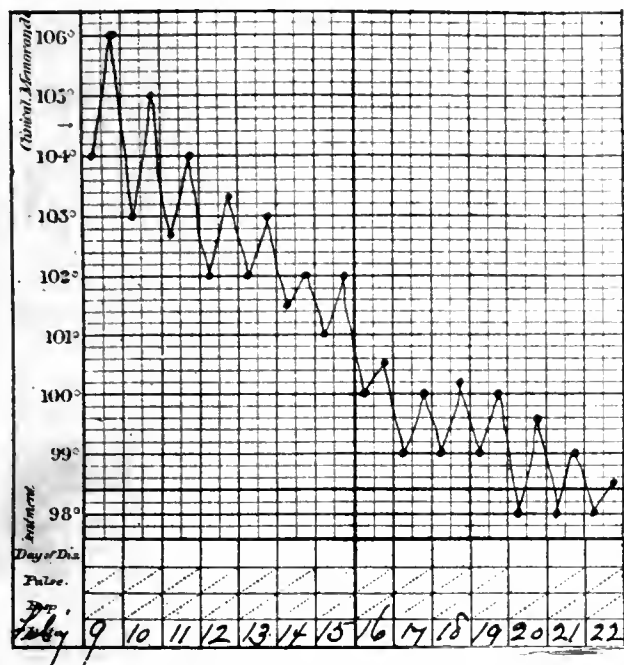
The ubiquitous professor, already in possession of all of this world's knowledge that is worthy of his attention, was ridiculously conspicuous in a way that would have been laughable had not the subject been so serious; and exposed his ignorance, not only of antiseptic medicine, but of the true character and pathology of typhoid fever. Thus, one savant added superciliously and blusteringly to his remarks: "He claims that the temperature has gone to normal in four or five days after intestinal hemorrhage. Absurd! What could he do for the ulceration of the bowels?" As if the ulceration of Peyer's glands were the cause of the elevation of the temperature. Absurd! And as a climax and a final adjustment of the subject said, sententiously: "Talk of aborting typhoid fever. Impossible!"

To me, and to those who have with ease, confidence and tranquillity aborted the disease, these infelicitous comments are "absurd," indeed.

A latter-day Sydenham, gifted with peculiar perspicacity, selected three charts as looking very much like the record of the temperature in cases of malarial fever. The fact of the matter is, that his extraordinary clear-sightedness availed him nothing for he had, unluckily for himself, chosen the charts of three cases of typhoid fever which occurred during two epidemics. The patients had been examined and the diagnosis verified by no less than six different physicians at the bedside; and no doubt was expressed, at the time, as to the character of the disease. It is hardly conceivable how so grievous a

mishap could have befallen the critic, for unfortunately, the lines on the charts did not delineate the rise and fall of the temperature of malarial fever—a blunder most inexcusable even in the most inexperienced medical man. The arguments thus adduced by notable professors whose reputation for scholarship beyond measure has heretofore been undisputed have been puerile indeed—unworthy alike of the speaker, his auditors and the topic under discussion. It is hard to understand, too, how a philosopher so penetrating, so profound, could be so willfully blind as not to have observed that at least fifty of these were the clinical charts of typhoid fever patients each one of whom had been examined by from two to six physicians, the diagnoses and results of treatment attested to, and all of these facts written on the face of the original charts, which were signed by physicians whose integrity and experience in diagnosis can not be questioned.

But when these charts were criticised, and when the fact that the temperature touched normal in



Dr. Justice's case. Lorenzo C.; date of admission Feb. 9, 1895.

seven or eight days was said to be proof that these patients did not have typhoid fever, I knew that if the opportunity should ever present itself, I would be able to demonstrate on the cadaver the truth of my statements. I little expected, however, that I would live to see a case of *aborted typhoid fever* in the dead-house.

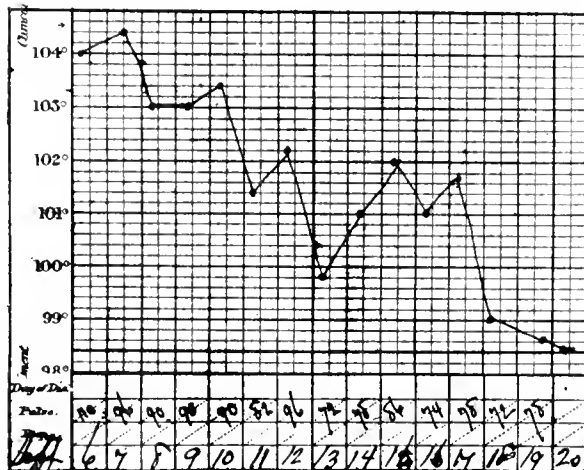
But here I present to you a temperature chart kept at the bedside of the patient by the attending physician, Dr. M. V. Cunningham (Case No. 3—James K.) in which the temperature touched normal on the seventh day of treatment; the thirteenth day of the disease. And here I present to you, both dried and moist specimens of the intestine of the same patient, showing the characteristic and extensive ulceration of Peyer's glands. Here is the intussusception which caused the death. Please open the bottles and investigate to your entire satisfaction. The history and the pathologic specimens prove conclusively that one case of typhoid fever was aborted. "*Ab uno disce omnes.*" Thus, this obscure colored man—dying—

has rendered a greater service to the world, than can her most distinguished citizen—living.

It is interesting to note that every adverse criticism of my theories; my management of disease or of my conclusions, have come from those having no practical and, I fancy, very little theoretical knowledge of the subject; while those who have tested my methods have favored me with more valuable reports and kindly expressions of approval than I have been able to transcribe or properly answer.

I append a few of them here. I presented others in my papers read before the Sections on Pediatrics and Practice of the AMERICAN MEDICAL ASSOCIATION.

Dr. John McCurdy, one of the most distinguished physicians in the State of Ohio; many times President of his County Medical Society; ex-President of the Ohio State Medical Society; during the war, Regimental, Brigade and Division Surgeon; Assistant Medical Director, and Acting Medical Inspector of the 14th Army Corps, has had 320 cases of typhoid fever under his care at one time. A firm believer in the idea that any limitation of the course of the disease in typhoid fever was impossible; in the County Medical Society in 1880 he spoke eloquently against the acceptance of my theories, and in 1893, in the



Dr. I. F. Reed's case, No. 1. Clarence F.; age 21 years; residence, Massillon, Ohio; date of admission Sept. 6, 1894. After the 21st temperature remained normal, pulse 76. Treatment "Woodbridge" formulas for aborting typhoid fever.

same Society in which he had spoken thirteen years before, said: "Dr. Woodbridge has made the greatest discovery that has been made in medicine for a hundred years. I have treated typhoid fever by his method for several years, and have aborted a large number of the sixty-five or seventy cases treated since 1890, although I have not been able to abort every case and have had two or three deaths; these occurred, however, in cases that came under my care at the end of the second week of the disease or later. I know that this treatment has power to destroy the specific poison of typhoid fever and if begun early will abort the disease. It is the best treatment I have ever seen advised."

At a public banquet given to the Chamber of Commerce, at which there were probably three hundred guests present, Dr. McCurdy, in responding to the toast, "The Medical Profession," said: "We claim that one of our number here is the discoverer of a treatment for that universal and justly dreaded disease, typhoid fever which, as a rational and scientific plan of waging battle with that life destroyer, is far

in advance of any treatment yet practiced. This treatment has stood the crucial test of years, in hundreds of cases, and the theory is fully sustained by the long list of victories achieved."

Dr. C. R. Justice, the very able Health Officer of Poland, Ohio, and ex-Member of the Pension Board, with whom I have had seventeen bedside consultations over cases of typhoid fever during the past year, had for years condemned my theories and denounced my position as "absolutely untenable;" until I had learned to regard him as a devotee at the shrine of the "expectant method," who would go on to the end of his professional career treating the disease symptomatically; accepting the long weeks of sickness of his patients as something entirely beyond his control, and the deaths as visitations of Providence for which he was in no way responsible. I was greatly surprised, therefore, to learn that he had been investigating the subject for months. That he has continued his investigations to good purpose is proved by the success he has secured in treating some very severe cases of typhoid fever (a few of the charts of which are submitted for your inspection), and by the fact that I was able to write to one of his brother practitioners of his town, advising him to call Dr. Justice in consultation, as he had treated so many cases by my method that I felt perfectly safe in saying to the friends of the patient that if they called him early enough they need never fear that he would have a death from typhoid fever, or that any of his patients would be severely ill.

Your attention is especially invited to the clinical chart of Case—(Dr. Justice, Lorenzo C.) who had been under the care of two other physicians at a neighboring town. He had been sent home with the statement that he had a severe attack of typhoid fever and would necessarily be sick a long time. He arrived, wildly delirious, with a temperature of 106 degrees and all other symptoms characteristic of the disease. His temperature touched normal on the eleventh day and in a few days he was out driving, feeling perfectly well.

Dr. Justice has treated during the year, by my method, twenty-three cases without a death; although some of them have been complicated by grave pre-existing or concurrent affections and some of them came under his care at late stages of the disease. In speaking of the treatment, Dr. Justice said: "Looking back over the past, I can see where I could have saved many lives had I understood this method of managing typhoid fever as I now do; and I think I would be committing a crime were I to treat a case of the disease in any other way than that advised by Dr. Woodbridge."

Dr. J. A. Dickson, of Youngstown, Ohio, a gentleman of the highest integrity, a physician whose reputation as a general practitioner is happily not marred by his success as a laparotomist, sends me the following report:

"YOUNGSTOWN, OHIO, April 29, 1895.

"I have treated several cases of typhoid fever with Dr. Woodbridge's treatment, and find that it will invariably cut the fever short, if begun early enough in the disease; the illness lasting often but a few days; the temperature soon dropping to normal and remaining there. I have tried also the mixed treatment; that is, using the tablets as directed and also, perhaps, some turpentine emulsion, quinin, etc., but find that it pays better to 'hew to the line.' I have recently been treating a case of typhoid fever, which came to me from another physician who was ill. It had not been treated by Dr. Woodbridge's method, and when I first saw

the case I found the temperature 104 degrees, the pulse 100. I immediately began with the tablets, giving one every fifteen minutes for the first day, one every half-hour during the second day, and one every hour during the third day, etc. During the second day the temperature came down to 101.8, upon the third day it was 101.4, fourth day 101.4, fifth day, 101.2, sixth day 98.6. After this the temperature remained normal for four days, when the patient came down with pneumonia, with the characteristic râles, egophony, hepatization and expectoration—from which he is now recovering. The temperature upon the onset of the pneumonic trouble went up from normal to 101.8 the first day, and gradually to 103 degrees, but the tongue was moist and there were no symptoms of typhoid fever.

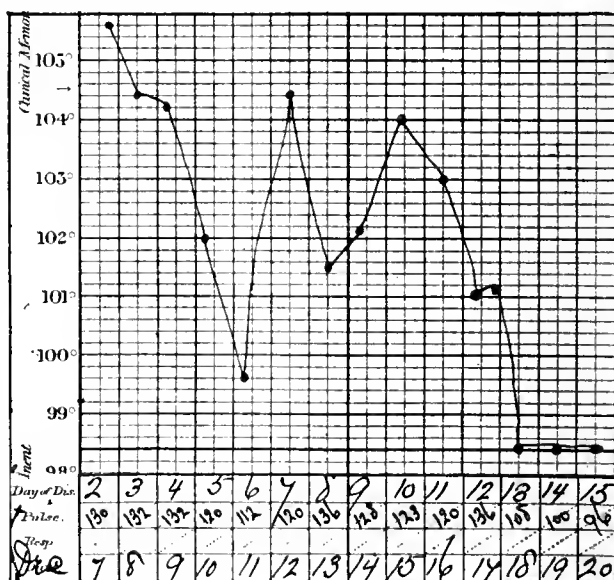
"If I were stricken with typhoid fever, or one of my family were taken down with the dread disease, I think I would feel like sending for Dr. Woodbridge from the Atlantic Coast to the Golden Gate. J. A. Dickson."

There must be royal blood coursing through the veins of Dr. Reed of Massillon, Ohio, for of such material as he is made, made they the kings and rulers of the earth in olden times. In one of the darkest hours of my existence he wrote me as follows:

"MASSILLON, OHIO, Nov. 14, 1894.

"J. E. Woodbridge, M.D.,

"Dear Doctor:—I wish to add a word of encouragement to you against the many denunciations of your treatment of ty-



Dr. Reed's case, No. 2, Wm. G.; age 16 years; admitted Dec. 7, 1894. Delirium, some cough and lungs filled with mucus; three weeks before was treated by Dr. Waldron, of New Berlin, for malarial fever. Was moved, and for a week nothing was noticed until the night of December 6, when his parents found him hunting water and delirious. On the third day mucus râles in both lungs; sixth day became slightly hepatized in both apices; ninth day apex and base of both lungs hepatized, leaving an area of about six inches for breathing capacity; tenth day hepatization not so great; fifteenth day both lungs clear. Patient worked at a place where there were three cases of typhoid fever, and made a visit before he was taken sick. Treatment: I used no treatment for lung trouble except that which I used for the treatment of fever; and for that only the "Woodbridge treatment." Result most satisfactory, as shown by chart. Patient is up and doing well to-day, Jan. 18, 1895. Family history: Mother had two sisters, father and mother, who died of pulmonary phthisis.

typhoid fever. I wrote for your formula some time ago, and you referred me to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, from which was obtained the required knowledge. My father, Dr. T. J. Reed, has also used it; we have met with very good success, and can offer only words of praise in its favor. We have been giving about 30 grains of quinin per day (this being a great malarial district), for four days, and if at the end of that time we found the temperature high and the symptoms the same or aggravated, we put them on the treatment prepared under your formula, and although we have not aborted the disease in every case inside of ten days, we have done so, with the exception of two cases, inside of fourteen days, and seldom see them after the sixteenth day. I have kept diligently the charts of the cases I have had and have taken

pleasure in showing them to other physicians who laughed at my daring to use the treatment. They take a different view of it now, though. Had I but known a few hours earlier of your intention to speak in Cleveland, I should have gone there and let my voice help to defend you; or if not allowed that, at least it might have been some satisfaction to you to have seen the few charts (ten in all) we have been able to prepare. Hoping that you may meet with greater encouragement at the hands of the profession, and that I may be able to meet you personally at some future time, I remain

Yours truly,

T. F. REED."

A few days later Dr. Reed kindly sent me the charts to which his letter refers, with the accompanying letter:

"J. E. Woodbridge, M.D.,

"Dear Doctor:—I send you by this mail, a few of my charts that were unmistakably typhoid fever cases and some of them were the last cases of from two to four in the family who had similar attacks, but of which I regret to say no records were kept. We have had, in all, about twenty-five cases, and these charts are examples of them. We are well pleased with the results we have had, and can positively say that it is due to the form of treatment. I hope the charts will be of use to you, and anything I have or may get is at your disposal.

"I should like to have the charts returned, as I have no duplicates and want to keep them for future use. The temperature marked was taken at the height of fever. Wishing you better success, and acceptance of your theories.

I remain very truly yours,

"T. F. REED."

(To be continued.)

CONSERVATIVE SURGERY ON THE BATTLE-FIELD AND FIRST AID TO THE WOUNDED.

BY N. SENN, M.D., PH.D., LL.D.

COLONEL AND SURGEON-GENERAL OF THE ILLINOIS NATIONAL GUARD;
PRESIDENT OF ASSOCIATION OF MILITARY SURGEONS OF ILLINOIS; EX-PRESIDENT OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.
CHICAGO.

(Concluded from page 14.)

Autotransfusion.—In threatening danger to life from hemorrhage much can be gained from autotransfusion. The exclusion from the general circulation of unessential parts of the body will often secure for the vital organs an adequate blood supply. Autotransfusion for this purpose is secured promptly and efficiently by elastic constriction of one or more extremities at their base. This can be accomplished by Esmarch's constrictor, suspenders, or in the absence of elastic material, by the use of the Spanish windlass. According to the urgency of the symptoms presented, the base of one or more extremities is constricted after rendering the limb comparatively bloodless by elevation. By exclusion of the circulation from one or more extremities, intravascular pressure compatible with essential functions is restored and life is bridged over for a sufficient length of time for the employment of remedies of more lasting value.

Shock.—Next to hemorrhage, shock should receive the surgeon's attention. It is often difficult to differentiate between the symptoms produced by shock and hemorrhage. The non-professional assistant should be made to understand that the maximum symptoms of shock are developed almost immediately after the receipt of the injury, while in hemorrhage the intensity of the symptoms increases progressively. Even in a complete transverse tear of an

artery the size of the common carotid, it requires at least five minutes to produce death from hemorrhage in intense shock, symptoms pointing to a fatal issue appear almost immediately upon the receipt of injury. Shock is the result of a reflex vasomotor paresis and, consequently, if severe, calls for the most energetic and prompt treatment. A patient suffering from shock should be kept in the dorsal recumbent position and treated by active stimulation. Inhalations of nitrite of amyl and hypodermatic injections of strychnia in doses of from one-fifteenth to one-twentieth of a grain, repeated every half hour, until reaction takes place, constitute the most successful treatment. The administration of alcoholic stimulants, camphor and ammonia is also indicated, as well as the external application of dry heat. In the transportation of patients suffering from shock, the greatest care should be exercised not to subject them to any unnecessary movements, and it is of special importance that the recumbent position should be maintained until reaction is established. No operation of any considerable importance should be performed until the patient reacts from the immediate effects of the injury.

Primary Dressing of Wound.—Perfect aseptic surgery upon the battle-field is a happy dream which will probably never be realized. The bullets, as recent experiments have shown, are frequently contaminated with pathogenic microbes, and often carry with them infectious fragments of clothing and

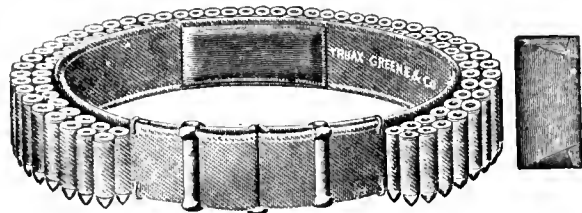


FIG. 12.—Cartridge belt with package sewn on inner surface.

other foreign substances, as well as microbes from the surface of the injured part. Again, in large battles the number of wounded is so great and the number of those to whom their treatment is intrusted so small, that the necessary antiseptic precautions to obtain an antiseptic condition of the wound can not always be carried out. The duty of the surgeon upon the battle-field in rendering the first aid to the wounded, after having given proper attention to the treatment of shock and hemostasis, will be to prevent subsequent contamination of the wound by protecting it with an antiseptic occlusion dressing. Shaving and disinfection of the surface in the vicinity of the wound will be out of the question under such circumstances. Search for bullets and efforts to secure their removal must be postponed until the patient reaches the field hospital, where these procedures are facilitated and the attending danger of causing infection diminished by a more complete instrumentarium and more efficient means to secure asepticity of the wound and its vicinity.

Behind the fighting line, and at the first dressing station, the primary dressing of the wound should consist of the antiseptic package which every soldier should carry with him. The best place where this package should be kept has not been determined. Esmarch suggests that it should be sewed in some part of the uniform. It appears to me that no part of the clothing of the soldier would be a sufficiently

NOTE.—The "denunciations" to which Dr. Reed refers, are those of physicians who denounce the abortive treatment of typhoid fever without trial or investigation, as they would denounce anything which did not chance to fall within their intellectual horizon.

safe place for this most important outfit when in active service. In the heat of battle the soldier often relieves himself of a part of his clothing, his knapsack, but there are two things which he will not part with willingly, and these are the cartridge belt and gun. It appears to me that this package could always



FIG. 13.

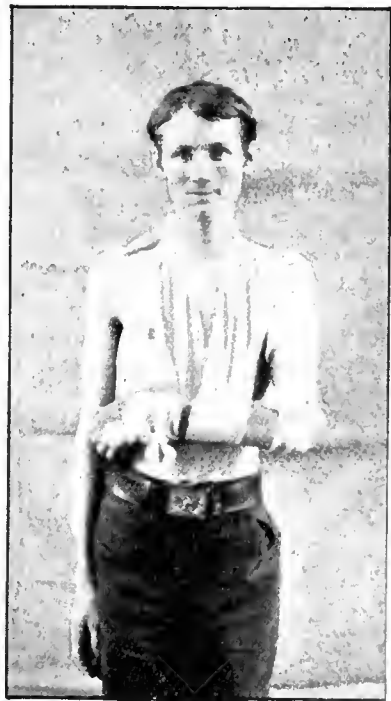


FIG. 14.

be found upon the wounded soldier if it were sewed upon the inner surface of the cartridge belt. The package should be thin and correspond in width with the cartridge belt. Esmarch's package used in the German Army contains: one triangular bandage, one

safety-pin, two compresses of salt sublimate mull, 10 cm. wide and 100 cm. long, each wrapped in impermeable paper, one salt sublimate cambric bandage, 10 cm. broad and 2 m. long. All these articles are wrapped in gutta-percha paper. This package is too cumbersome and contains articles which can be dispensed with in the dressing of wounds upon the battle-field. In the majority of cases the first dressing is only a temporary one and is replaced later when the wound is subjected to thorough examination and treatment by a more efficient one. The package should be as small and compact as possible and should contain only such articles as are absolutely necessary to protect the wound against infection during the interval between the receipt of the injury and the arrival of the patient at the field hospital. Cotton is the most compressible hygroscopic dressing material and the most efficient filter in preventing the access of microbes to the wound. Two



FIGS. 13, 14, 15.—Showing primary dressings of the head, upper and lower extremities.

drachms or half an ounce of compressed salicylated cotton will furnish the necessary material for a primary occlusion dressing. This can be held in place in almost any part of the body by a triangular gauze bandage, assisted, if circumstances make it necessary, by the cartridge belt, gunstrap, or articles of the patient's clothing. A safe and efficient antiseptic powder which does not easily deteriorate should invariably constitute a part of the package. A combination of boric and salicylic acid is the one I should propose for this purpose. Two grams of boric acid and half a gram salicylic acid, thoroughly triturated, should be incorporated in the center of the compressed cotton, the cotton surrounded by the triangular gauze bandage and with the addition of a safety pin wrapped in gutta-percha tissue.

In applying the dressing, the compressed cotton is loosened, the wound freely dusted with the powder

contained in the center of the package, the wound well covered with the cotton which should overlap its margins, and the dressing held in place by the triangular bandage and such additional extemporized means of retention as may be necessary.

For the purpose of preventing rapid decomposition of the blood which will soon saturate the primary dressing, and with a view of guarding against infection of the wound from this source, it is absolutely necessary to incorporate with the dressing material and bring in contact with the wound a safe and efficient antiseptic which, in this package, consists of a combination of boric and salicylic acid.

Immobilization of Injured Joints and Fractured Limbs.—In the case of fractures and joint injuries, the affected limb should be properly immobilized to prevent additional injury and pain during the transportation of the patient to the field hospital. As it



FIG. 16.—Immobilization of arm and forearm by fastening the sleeve to the coat near the wrist and elbow joints with safety pins and inserting hand underneath coat on opposite side between two buttons.

is impossible for the surgeons and Hospital Corps to carry with them upon the battle-field, material for splints in sufficient quantity, they must depend upon articles which can always be found upon the battle-field, in securing for the limb a proper mechanical support. A few of such extemporaneous dressings will be shown in the following figures:

The splint should be well padded with the blanket, or articles of wearing apparel. In compound fractures and penetrating wounds of joints, perfect immobilization by a plaster-of-Paris splint should be secured as soon as possible, but as this can not be done behind the fighting line, for obvious reasons, the temporary improvised dressing should be replaced by the permanent fixation dressing at the field hos-

pital. Antiseptic precautions and perfect immobilization will be the most important elements in the conservative treatment of compound fractures and penetrating injuries of large joints.

Transportation of Sick and Wounded.—Increased and improved facilities for rapid transportation of the wounded from the fighting line to a place of safety, will be an essential requirement in securing the greatest amount of benefit from conservative surgery upon future battle-fields. The general introduction of the new infantry weapon will make it necessary to establish the field hospital farther in the rear of the line of battle than formerly. Unless a natural protection by a hill or deep ravine is available, it will be necessary to locate the field hospital at least 3,000 meters from the line of action. This will necessitate an improved ambulance service. The



FIG. 17.—Mitella by fastening lapel of coat on injured side with two safety pins in such a position as to support the forearm in a flexed position.

latter will be resorted to in transporting the severely wounded from the point where the first aid is rendered to the first dressing station.

A well-trained Hospital Corps, and the use of improved litters and ambulances will be instrumental in securing prompt and easy conveyance of the wounded from the line of duty to their destination. An efficient bicycle litter is a much needed desideratum in the transportation of the wounded from the fighting line to the first dressing station and field hospital.

The Surgeon's Work at the Field Hospital.—The conservative work begun on the battle-field is continued at the field hospital, which offers additional facilities for the practice of ideal conservative surgery.

It is here that efficient measures can be employed to correct the injurious effects of profuse hemorrhage and to overcome the symptoms of prolonged shock. It is here that every serious wound will be thoroughly examined and under strict antiseptic precautions will be subjected to the necessary treatment. It is here where permanent hemostasis will be substituted for temporary measures. It is here that the abdomen and cranial cavities will be opened for penetrating wounds requiring such intervention for the arrest of hemorrhage, the removal of foreign infected

the different parts of the body, regardless of the resistance offered by the osseous structures at a distance intended for shooting to kill. In the presence of a wound of entrance and exit, the use of the probe should be dispensed with, as an exploration of this kind would yield no indications of diagnostic value and might become a source of infection or a cause of renewal of hemorrhage. The jacketed bullet is less liable to undergo deformation in striking a hard object such as bone, and is also less likely to become deflected than the leaden bullet. Additional modifi-



FIG. 18.—Saber splint for leg and thigh.



FIG. 18 a.—Gunsplint.

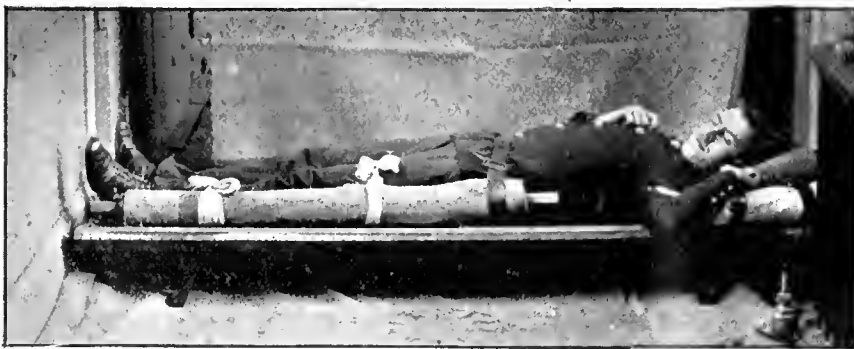


FIG. 19.—Stick and blanket splint.

bodies and the direct treatment of visceral wounds. It is here that permanent plaster-of Paris splints will be substituted for the temporary fixation dressings, in cases of compound fractures and penetrating wounds of joints.

Indications for Probing and Extraction of Bullet.—The modern small caliber bullet will render a resort to the bullet probe much less frequent than was the case in the wars of the past. Owing to its greater velocity and power of penetration it will pass through

cations of the character of the bullet wounds will render the use of the probe less frequent in the future than the past. Search for the bullet under antiseptic precautions is justifiable in gunshot fractures, penetrating wounds of the cranium and joints. It is absolutely contra-indicated in penetrating wounds of the chest and abdomen. In bullet wounds of the soft parts, an attempt in this direction is warranted when the surgeon has reason to believe that the bullet is located



FIG. 20.—Bark splint for forearm and wire splint for arm.

in a place accessible to its safe removal. Probing for bullets, on the whole, has done more harm than good in the past, and the limits of the indications for this procedure will be greatly narrowed in the future. If the bullet can not be removed without performing a formidable operation it is much better to permit it to remain and wait for additional indications than subject the patient to additional risks incident to the operation. The modern bullet in an antiseptic wound will become encysted like the leaden

bullet and, in the majority of cases, will remain permanently in the tissues as a harmless foreign substance. If the nature of the injury makes the search for and an attempt at its removal necessary, the exploration should be made systematically and under the strictest antiseptic precautions.

The metal jacket of the modern bullet detracts from the value of the famous Nélaton probe, and has made the equally famous American bullet forceps obsolete as an instrument of extraction. The porcelain bulb of Nélaton's probe will, however, answer a useful purpose in following the track made by the bullet and in demonstrating the presence of a foreign substance in the soft tissues. The porcelain bulb of the ordinary Nélaton's bullet probe is too small, especially in searching for bullets of large caliber. It is much easier to follow the tubular wound made by a bullet with a probe, the porcelain bulb of which approximately corresponds in size with that of the bullet. As in instrumentation of the urethra, a false passage is more likely to be made with a small than a large instrument. I have had a bullet probe made which is supplied at both ends with a porcelain bulb, one of which corresponds in size with a 22 caliber bullet, the other with that of a 38 caliber.

The porcelain bulb of the ordinary probe is very liable to become detached in exploring deep wounds, and may be lost in the wound, as happened in one of my cases. To prevent such an accident, the bulbs of my probe are drilled through, the ends of the silver probe pass through, and are clinched in a depression on the surface of the bulb. In searching for bullets it is of the greatest importance to bring the parts and tissues of the body as nearly as possible in the exact position they occupied when the injury was received. That no more force should be employed in using the bullet probe than in passing a catheter is simply to repeat a cardinal rule to which there should be no exceptions. Skill in the delicate manipulation



FIG. 21.—Litter transportation.

of the instrument, patience and perseverance will accomplish more than force in these cases. Bullets which can be felt under the skin opposite the wound of entrance are extracted without exploration of the wound canal. If the bullet occupies a locality where its presence would be incompatible with a good functional result, as the cavity of a large joint, it becomes usually necessary to enlarge the wound with the knife, chisel and mallet to follow the course of the bullet and to effect its extraction. In one case I removed a 22 caliber bullet from the center of the knee joint by such a procedure, in a boy 14 years of age, who recovered with nearly perfect use of the limb. A similar case is reported by Volkmann. The metal jacket of the modern bullet will make it necessary to construct bullet forceps with great grasping power to facilitate its extraction. In pene-

course of the bullet at a point opposite the wound of entrance, for the purpose of establishing thorough drainage and to facilitate the removal of the bullet.

Laparotomy.—In my address at the last annual meeting, I discussed the advisability and feasibility of laparotomy upon the battle-field in cases of penetrating bullet and stab wounds of the abdomen, and I shall not occupy your time on this occasion by further remarks on this subject.

Amputation.—The object of conservative surgery upon the battle-field, as well as in civil practice is to obviate, whenever possible, the necessity of mutilating operations. Prompt and careful hemostasis, antiseptic precautions, immobilization of compound fractures and injured joints, and early and careful transportation of the wounded from the field to the temporary hospital are the most fruitful resources



FIG. 22.—Manner of transferring patient from litter to ambulance.



FIG. 23.—Senn's bullet probe.

trating gunshot wounds of the skull, Flührer's aluminum probe and his technique in removing a bullet from the cranial cavity merit the earnest attention of every military surgeon.

Craniectomy.—Operative interference is indicated in every case of penetrating gunshot or stab wound of the cranium. The object of such operation is to secure asepticity of the wound and its environment, removal of loose spicula of bone and infected foreign substances, arrest of hemorrhage by torsion, ligation or tamponade and, if feasible, removal of the bullet.

The wound of entrance is enlarged with chisel or rongeur forceps sufficiently to enable the surgeon to meet the indications for the operation. If the bullet is lodged in the interior of the skull, it may become necessary to make a circular craniectomy in the

of the modern military surgeon in the prevention of complications that so often necessitated intermediate and secondary amputations in the wars of the past. A primary amputation for gunshot wound of the extremities is only justifiable by extensive injuries of soft parts and fractures and joint wounds complicated by injury of large vessels and nerves. In other words, the indications for a primary amputation will be studied and sought for, more by the character and extent of the injury of the soft tissues than the extent of the bone or joint lesion. In doubtful cases the patient will be given the benefit of the doubt, as under antiseptic precautions the risk to life is greatly diminished in the attempt to save a limb by conservative treatment. The conditions which will demand an intermediate or secondary amputation in cases

thus treated will prove less perilous to life than in the past, an additional inducement to practice conservatism in doubtful cases.

Resection.—Primary resection for gunshot wounds of joints for obvious reasons has become an obsolete operation in modern military surgery. The most brilliant results have already been obtained by conservative treatment of such cases. The military surgeon will make it his duty in such instances to resort to such measures as will prevent complications necessitating secondary resection and amputation. Thorough disinfection of the wound, removal of loose fragments of bone and infected foreign substances including the extraction of the bullet, if this is found within or in the immediate vicinity of the injured joint, gauze drainage and immobilization of the limb in a circular plaster-of-Paris splint are the most effective measures in accomplishing this end.

I have briefly sketched in this paper the essential topics which will engage the attention of the military surgeon in the future in keeping pace with the rapid advances of modern surgery, and which will enable him to extend the blessings of conservative surgery to the wounded upon the battle-field of the future. The members of this Association should regard it as their duty to so perfect themselves in the principles and details upon which rests ideal conservative surgery, as to apply it in practice should they be called upon to serve their country upon the battle-field.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI.)

BY BYRON ROBINSON, M.D.

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CHICAGO.

(Continued from page 637, Vol. XXIV.)

Development of the great omentum did not seem to give anatomists any amount of trouble before the digestive canal was carefully followed in all its fetal stages. Is it true? From the old descriptions of anatomists some modifications, it seems to me, must be introduced. The two blades of the peritoneum which extend from the greater curvature of the stomach to the transverse colon are recognized by all as correct. But it is the relation which the transverse colon sustains to this fold that needs modification. I will proceed with a few simple diagrams to make myself better understood. The first, (Fig. 11) will represent the adult stage with the relations of the transverse mesocolon. The mesogaster extends from the mid-dorsal line to the stomach as a double fold of peritoneum. It grows or expands toward the left in the form of a pendulous bag. When the stomach has assumed the adult position, the mesogaster becomes the great omentum and hangs down from the great curvature of the stomach in front of the small intestines. The object of the diagrams is now to show how the transverse colon gets between the blades of the great omentum, and then it will fit the old descriptions of anatomists who knew not embryology. Figure 12 shows how the fold of peritoneum (*d*) passes back to the spine. I wish to show that the peritoneal fold (*d*) is dragged out from between the stomach and colon. I wish especially to show that it does not coalesce. In the early embryo the cecum remains in the center of the body in proximity to the navel, so that there is at first only a descending colon existing which has a mesentery.

By the rotation of the great umbilical loop and growth of the colon, there finally exists a transverse and ascending colon. Until the great intestinal loop rotates, the whole of its colon is fixed to the mid-dorsal line by its mesentery. This mesentery extends as high as the lower end of the mesogaster. By a glance at Fig. 2 it will be readily seen how Haller, Müller and Meckel come by their views. With them the lower blade of the great omentum and the upper blade of the mesocolon coalesced, *i. e.*, the loop or fold of peritoneum represented by (*d*) becomes adherent; it is cemented together and has lost its epithelial surface and that would produce Fig. 1 again. Now, the view held in this work and gained by embryologic and adult animal investigation is that the fold of peritoneum (*d*), is drawn out as far as the transverse colon (*c*), and is readjusted, displaced. Haller, Müller, Meckel and many older anatomists asserted in order to sustain their theory, that the transverse mesocolon consists of four layers. It seems to the author more reasonable to accept the theory of displacement or re-adjustment, since coalescence is not a general rule in tissue life, especially when it has been once differentiated into organs. Toldt claims that the theory of coalescence is reason-

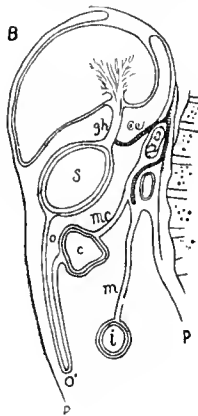


Fig. 11.

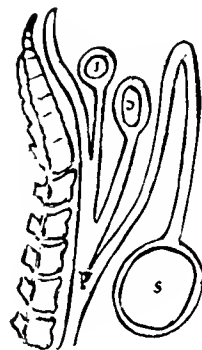


Fig. 12.

Fig. 11—*s*, stomach; *m c*, meso-colon; *o*, great omentum; *m*, mesentery of small intestine; *c*, colon; *p*, parietal peritoneum; *i*, small intestine; *g h*, gastro-hepatic omentum. This figure represents the adult condition of the peritoneum and in the next figure I wish to show how the peritoneum develops from the fetal to the adult condition.

Fig. 12 shows the fold of peritoneum, *d*, against the dorsal wall; *s*, stomach; *c*, colon; *i*, small intestine. The object of the diagram is to illustrate how the fold *d*, descends to allow the transverse colon to finally lie between the meso-colon as in Fig. 16.

able, and as proof offers the white line existing along the left side of the descending colon. I have examined such white lines, but they seem to be situated distant from the colon. It might be pertinently asked, Why does coalescence, especially, associate itself with the transverse colon and omentum? The assertion of old and even modern anatomists to the effect that the two ascending layers of the omentum can be stripped off the upper transverse blade of the mesocolon, in fetuses, I do not believe to be true; at least in no fetus of any age could I separate the ascending layers of omentum from the transverse mesocolon. The view that makes the two ascending layers of the omentum pass to the vertebral column and then return (or at least one blade return) over the transverse mesocolon and at the same time coalesce, I do not believe will be sustained by careful investigation in embryologic and adult mammalian life.

The following statements I can make from human embryologic work: take an embryo of about an inch long and the colon will consist of a transverse

and ascending part which has, so far, no connection with the great omentum. Now, the ascending layers of the great omentum pass directly back to the spinal column, but do not touch the colon to be fixed to it as in Fig. 13. Again, the under blade of the omentum passes downward to become continuous with the upper blade of the transverse mesocolon as in Fig. 13 at *d*. The whole interest, now, lies in the peritoneal fossa at *d*. The final disposition of the fossa, *d*, will determine the theory of coalescence or displacement, Fig. 14. If the fold of serous membrane, *d*, is dragged out displacement triumphs, but if the fold at *d* adheres, coalescence carries the day. Now, take embryos of about one and one-half to two inches and we find distinctly that the transverse colon is beginning to assume relations with the great omentum. But significantly it begins on the right end—a very important matter. The reason is the close relation that the right end of the transverse colon bears to the duodenum and consequently the mesogaster. The mesoduodenum is really a part of the great omentum. As a matter of fact, the great omentum assumes relations with the transverse colon gradually from right to left. This, in my opinion proves that this new relation of the omentum and transverse colon comes about by displacement (from right to left) rather than coalescence, *i. e.*, the fold,

embrace the transverse mesocolon and again converge to form the transverse mesocolon. It may be asked, What are the forces which tend to displace the fold, *d*, *i. e.*, what drags the fold of peritoneum, *d*, from between the omentum and mesocolon. The rapid increase in the size of the stomach and its being forced downward by the liver may be factors. But it is more likely to be the rapid increase of the transverse mesocolon. It also fills with meconium and will drag on its mesentery. The increase in size and dragging from meconium contents are no doubt the essential factors. A curious feature of embryos under one and one-half inches or up to two inches, is that the colon is the smallest part of the digestive tube and the colon has no bands, no appendicæ epiploicæ and no sacculations. But in fetuses of some three inches an extraordinary rapid growth occurs in the colon, and meconium begins to accumulate which no doubt accounts for many new changes in the relation of the colon and the blades of the great omentum. Hence, from considerable personal observations on embryos, both human and animal, and investigations on adult man and mammals, I am of opinion that the transverse colon assumes its relations with the layers of the great omentum by displacement and not coalescence.

Dr. Lockwood has written an excellent article on

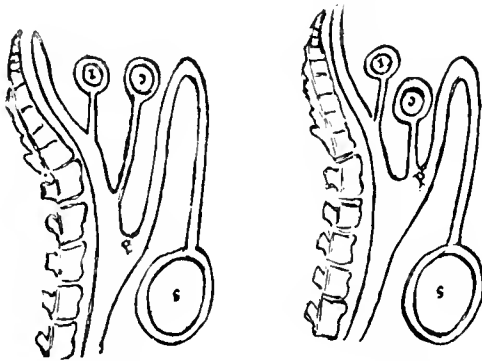


Fig. 13.

Fig. 14.

Fig. 13 shows the fold of peritoneum, *d*, gradually being drawn out from between the layer of omentum and mesocolon; *s*, stomach; *c*, colon; *i*, intestine. The fold, *d*, is being gradually displaced and not coalescing with its adjacent layers.

Fig. 14 illustrates further progress in displacing or dragging out of the fold *d*.

d, is gradually displaced from right to left and the relation of the great omentum and colon assumes adult relations. (Fig. 15.) As the relations of the omentum and colon gradually arise, we can not trace the two ascending layers of the great omentum back to the spine, because the transverse colon has gained access to the space between the lower blades of the omentum as seen in Fig. 1. Beside, I never could discover any positive evidence of adhesions or coalescence between the lower blade of the omentum and the upper blade of the transverse mesocolon. The fold, *d*, becomes gradually drawn out from between the lower blade of the great omentum and upper blade of the transverse mesocolon as is represented in Figs. 12, 13, 14, 15, and 16 until the adult condition, Fig. 11 and 16 is reached.

Fig. 15 shows the last stage of the displacement of the fold, *d*. The dog, in my opinion, gives the best base to work on. In the dog, one can easily observe how the process proceeds. In Fig. 1, it can return on itself, so that the two ascending layers of the omentum, as they pass back to the spine diverge to

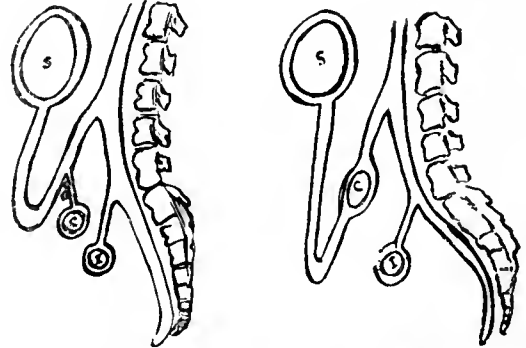


Fig. 15.

Fig. 16.

Fig. 15 shows the fold, *d*, almost entirely drawn out or displaced. It is the stage just preceding the one where the transverse colon lies in the mesocolon through displacement or readjustment and not coalescence.

Fig. 16 represents the final adult condition of the omentum, *i. e.*, the transverse colon, *c*, now lies between the blades of the mesocolon, or, in other words, between the layers of the secondary mesogastric. The peritoneal folds and pocket connected with *d*, have disappeared.

the development of the great omentum, to which the reader is referred. Dr. Lockwood makes the significant remark that coalescence is not a common occurrence. The size of the great omentum is a very variable matter. In man it normally reaches in the pelvis. In the dog it reaches well in the pelvis. In the pig, so far as I have examined, it is not quite so liberal. The great omentum is not so liberal in the horse or ox as in man and animals. There is no rule or principle in comparative anatomy, known to me, whereby one can estimate in any animal the amount of great omentum. It is reported present in all mammalia, but least developed in cetaceous animals, hence the difficulty of comparing it in animal species. In about three hundred bodies examined, living and dead, I found the omentum in various conditions as regards size. In quite a number of humans, both living and dead, I have found the omentum so large that it covered nearly every abdominal viscus out of sight. In one autopsy, performed by Dr. Waite and myself, the omentum was so large that scarcely a point of the liver was visible, after opening the ab-

domen as wide as possible with a crucial incision. In some parts the omentum was about an inch thick, so that such a body would possess at least six square feet of great omentum. A dog is much more liberally supplied with great omentum than man. In short, so far as I can observe by peritoneal examination, man has relatively less peritoneum than any other animal. The great omentum may spread over all the abdominal viscera, except a portion of the liver and stomach. I have seen it cover almost the whole of the abdominal viscera and become tucked in around the edges like a bedquilt, forming a wonderful protection against infectious invasion and also a wonderful protection against the distribution of pus. In general, children have not large omenta. The omentum increases especially from the sixth fetal month until birth. It then grows rapidly in the first and second years of life. It must be remembered that the omentum exists distinctly in fetal life from the second month on, and I think I have found it at the end of the first month. So, for large sized omenta we must look at extra-uterine life, just beyond the age of childhood, in the early stages of adolescence.

The omentum is variously supplied with fat. One can observe it as transparent as glass in subjects dying of long and continuous wasting diseases. I have observed the human omentum loaded with fat an inch thick. When the fat first begins to accumulate in the omentum it assumes the paths of the blood vessels and in various animals it appears in streaks of elegant figures. In most animals with a large omentum the accumulation of fat is at first quite ornamental, as it figures the highways of nourishment. The color of the fat varies from a white marble color to that of a pronounced yellow. The fat is inclosed in the meshes of the connective tissue, especially in the mesenterii membrana propria. The omentum is inclined to fat accumulations in all animals which I have examined (or noted in comparative anatomy works). The fat seems to be in indirect amount to the size and number of the blood vessels, hence the greatest accumulation of fat is at the roots of the omentum, along the greater stomach curvature or along the colon transversum. So far as I have been able to observe, the fat in the omentum is in direct proportion to the fat in other portions of the body. When the fat is abundant one can observe that it molds itself to the various chinks and depressions existing between the adjacent viscera. It tucks itself down in the crevices between intestinal coils and clefts of organs. After a certain amount of fat accumulations in the omentum one can not determine the course of vessels.

The position of the omentum I have observed in some animals and in over one hundred humans. It may reach into the floor of the pelvis or it may be rolled up behind the transverse colon until it will not be visible on opening and turning outward the abdominal walls. The first and most generally applicable statement in regard to the position of the omentum is that it tends to the left in nearly every case. This seems to be on account of the relation of the omentum to the spleen and ligamentum phrenico-colicum. Also because the last relation of the transverse colon and omentum is assumed at the left end of the transverse colon, *i. e.*, in the ligamentum phrenico-colicum. The acquired relations of the left lower border of the great omentum with the

ligamentum phrenico-colicum arises in fetal life—in the fifth month and more completely later. The left-sided tendency of the great omentum is also induced by the greater curvature of the stomach being well disposed to the left of the median line.

(To be continued.)

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

*Fourth Annual Meeting held in New York Academy of Medicine
New York, Sept. 25, 26, and 27, 1894.*

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 32.)

Mr. F. B. N., age 28. Presented himself for treatment, June 5, 1894. Impairment of general health. Has had catarrhal trouble for many years. For four years tinnitus aurium, at first in both ears, never bad in right ear and disappeared after a month. Trouble in left ear persistent. Once in a while has a roaring, never without the hissing noise. Post-nasal dropping, formerly profuse discharge from anterior nares, but now dry with scabs and crusts. No odor. Has been under the care of specialists for past four years.

Physical examination: tonsils enlarged, swollen, intensely red. Uvula swollen, elongated, tipped with string of mucous and deflected to the side. General relaxed condition of pharyngeal mucous membrane with marked congestion and hypersecretion. Left Eustachian tube thickened and not free to Politzer's test. Hypertrophy of middle turbinated, left nares. Has been treated for thickening of left Eustachian tube and drum of left ear. Passage of left nares obstructed by enlarged turbinated bone, middle.

Diagnosis: atrophic rhinitis, with thickening of left Eustachian tube and drum.

Treatment: in all thirteen hydro-electric applications, negative, water slightly saline, one quart, have been administered to ear at intervals of four and five days, current strength 4 to 6 milliampères. Occasionally, not oftener than once in eight days before beginning the nasal douches, the indifferent electrode was the copper sound at the mouth of the Eustachian tube; at other times, the ordinary electrodes (area fifteen square inches) at the nape of the neck. After first negative douche there was complete cessation of the hissing sound and it remained in almost complete abeyance for an hour; much modified during the day. It has continued to gradually grow less and from a sibilant hiss has become a sound of a similar nature reduced at least a half. Hearing distance—test by means of watch—has increased two inches. At one time tinnitus disappeared for one hour and a half immediately after treatment.

For the atrophic rhinitis seven applications of the Cu_2SO_4 cataphoric douches were given at intervals of seven and eight days, 3 gr. to 1 qt., sp. gr. 1002, percentage strength 0.02057. Indifferent electrode, fifteen square inches in area, placed at nape of neck, current strength 3 to 10 milliampères.

After first nasal douche there was a good deal of smarting and burning through nasal passages and in frontal sinuses, with suffusion of eyes and coryza, also a headache which lasted during the entire day. Subsequently there was a very free watery discharge from anterior nares. Three days later the tonsils, uvula and entire pharyngeal mucous membrane were found markedly less swollen and congested, with very much diminished secretion. The watery discharge from anterior nares continued in gradually diminishing quantity during the week and was slightly increased at each subsequent treatment but not to the same extent as after the first application. Nasal respiration became freer; scabbing ceased, also post-nasal dropping; tonsils and uvula returned to normal size and color. Two cupric punctures of 11 milliampères each to the hypertrophied, middle turbinated, left nares, resulted in a marked diminution in its size. These were not made until the establishment of relief by means of the electric douche. General health very much improved.

In administering the intra-nasal douche, the left nares, narrowed by the hypertrophied turbinated, was preferably utilized for the inflow so as to secure perfect drainage.

Left Eustachian tube free. Patient continues under care. Other cases of atrophic rhinitis have been treated in the same manner with the same clinical results.

THE STOMACH.

For some time electricity has been used within the cavity of the stomach by means of a specially devised electrode in the hands of Dr. Max Einhorn of New York. His method is to have the patient drink a requisite amount of water and then to swallow the electrode, which is subsequently attached by means of its conducting cord to the battery terminal and the pole indicated. Possibly, in general conditions, there is no better method of applying the electrical current.

My experience with hydro-electric applications to other cavities suggest the value of the electric douche, simple or cataphoric, in diseases of the stomach. If judiciously applied, and by an expert, one can not fail to see its possible value in many conditions, among which may be mentioned, atony, hyperesthesia, subacute gastritis and dilatation.

Since beginning this paper, I find that Rosenheim⁷ suggests the use of a stomach douche non-electrically applied, and while advising the use of electricity in nervous dyspepsia, in chronic gastric catarrh and in severe affections of the sensory and secretive apparatus of the stomach as in gastralgia and hypersecretion, he does not, so far as I can ascertain, combine the use of the douche and the electric current.

I simply suggest the use of an electric douche in these conditions of the stomach and have arranged to have an electrode constructed for that purpose. If an electric douche applied to the surface of the body has a more stimulating action upon the skin than to be immersed in the constant current bath, may we not expect better results from the use of the douche to the stomach than by permitting the patient to swallow the water and then dropping in an electrode. The action of the douche heightens the sensibility of either skin or mucous membrane, quickens motor excitability and can not fail to influence nutrition and absorption by its control over the distribution and circulation of the blood current. The function of the current in either event is to establish artificially the local electro-motive forces which stimulate metabolism. Would it not be possible in this way to bring reflexes under the effects of the stimulation much more readily than by any other method?



Electrode for external use.

I have also used hydro-electric applications of the constant current 3 to 10 milliamperes to the face in acne, comedones and the general mal-nutrition of the skin, which exists in these conditions with success, and present an electrode here for such applications.

The same electrode I have found useful in localizing the electric douche, simply or medicated, upon patches of eczema and other diseased conditions of the skin.

Cataphoresis.—The amount of cataphoretic transfer depends upon the quantity of electricity, the coulombs transferred through the partition, the resistivity of the solution and upon the nature of the porous septum. It is independent of the area or thickness of the septum.⁸

A solution of sulphate of copper of requisite strength can be used to advantage in gonorrheal cases. In the later stages of gonorrhea, in conditions of pelvic congestion, uterine catarrh and in some leucorrhœas, hydrastin thus diffused would be of much greater efficacy than in its ordinary administration by the mouth, or by means of vaginal injections. Bichlorid of mercury in solution can also be used according to the indications and in strength of 1 to 1,000. In all such instances we are enabled to avail ourselves, not only of the electric diffusion of the drugs, but the physiologic action as well. That drugs thus used enter the local and ultimately the general circulation, no longer admits of doubt. This diffusion takes place, as a rule, from the positive to the negative pole, but in some instances from the negative to the positive.

Appropriate tests will at any time determine the drugs thus used in the urine, demonstrating beyond cavil that it is not a mere topical application, but that there is a systemic influence.

In the treatment of syphilis, Gartner⁹ and Ehrmann obtained not only the specific action of bichlorid of mercury

upon the disease, but ascertained its presence in the urine as well after from fifteen to twenty minutes' treatment with the galvanic bath, containing from 4 to 6 grams of the drug. The positive pole was used and a current strength of 100 milliamperes. These experiments have been corroborated by Kroneld in Professor Lang's clinic in Vienna. In the treatment of gouty joints with bromid of lithium cataphoresis, lithium has also been found in the urine.

Labatut,¹⁰ who asks in general, what are the laws of quantity and quality which govern the transportation of material into the tissues, has chosen lithium for experiments and in the center of a rectangular glass case he put a piece of horse muscle and a solution of chlorid of lithium. Electrolysis was carried on for an hour with 0.08 of an ampere, then the muscle was cut into equal parts and the lithium extracted. Six-tenths of the amount used was found. First there is a transport of lithium into the dead tissues and second, the first effects of this means of introduction is local, the several effects becoming manifest after diffusion into the circulation. Lithium has also been found in the urine by spectral analysis in a patient treated four days.

I have used in these hydro-electric douches a variety of medicaments, among them copper sulphate, zinc sulphate, bichlorid of mercury, iodid of potassium and hydrastinin.

The strength of the copper sulphate as well as zinc sulphate has varied from three to nine grains to the quart. As yet I have not seen fit to use solutions of greater strength, but doubtless shall.

The specific gravity of these solutions is low and their resistivity is high. The amount of transfer I hope to approximately determine, for instance, in the case of a vaginal application by the change in the specific gravity of the solution which has been used cataphorically.

A solution of Cu_2SO_4 grs. iij to Oij has a specific gravity at a temperature of 59 degrees F. of 1.002, a percentage strength of 0.020507 and a resistance of 500 ohms.

Even with a high E. M. F., say 90 volts, a cataphoric douche, vesical, vaginal, rectal or nasal, will only give from 3 to 10 milliamperes.

Case 1.—July 14, 1894. Eczema of vulva, six months' dura-

tion, intolerable itching and intense burning. Mucous membrane of vulva intensely reddened and irritated. Dilatation of capillaries about meatus urinarius. Same redness extending into vagina. Characteristic vesicular eruptions extending from vulva to thighs and up to abdomen. Treatment: hydro-electric douche, vaginal, negative, 25 milliamperes, two and one-half quarts, also to vulva and all irritated parts, one pint, 5 milliamperes. Immediate relief. Hyperemia immediately diminished.

July 16, 1894. Reports great relief. Treatment: hydro-electric douche, vaginal, negative, (salt water always used with the douche for negative applications) 30 milliamperes, three quarts. Afterward douche to external genitals Cu_2SO_4 gr. vj to a quart, positive, localized also to a protruding hemorrhoid, size of a hazel nut.

Resistance immensely increased and current strength small, with solution of Cu_2SO_4 . Hemorrhoid quickly became anemic and diminished in size one-third.

July 18. Marked improvement, practically well.

July 21. No symptoms, all eruptions had disappeared. Hemorrhoidal mass shriveling as before with treatment.

July 23. No itching, no symptoms of any sort.

July 27. Same treatment. Discharged. Improved.

Case 2.—Mrs. C. Ovaritis, right, exudates, right side, and fibroid tumor, interstitial, developed in right and anterior walls of uterus. Pain, soreness, sensitiveness to pressure, cruralgia, constipation, premature and profuse menstruation, impaired health, etc. Here hydro-electric douches only were given, negative, 20 to 50 and 75 milliamperes. Result, complete relief of all symptoms, disappearance of exudates with return of uterine mobility, regular bowels, regular and normal menstruation, relief of crural pain and establish-

¹⁰ Labatut (In Revue d'Electrotherapie, January, 1894, page 185.

NOTE.—I have been obliged to give up determining even approximately, the amount of transfer by the change in the specific gravity, as the secretions present in the drainage and the difficulty of maintaining an absolute temperature of the solutions interfere with the accuracy of such an observation.

⁷ Berlin Klinik, May, 1894.

⁸ Prof. A. E. Kennelly.

⁹ Lewandoski Electro-diagnostik und Therapie. Wien and Leipzig, 1892.

ment of general health. Fibroid mass firmer, harder and more defined. No increase in size, nor diminution, but utter cessation of symptomatic evidence of disease. Here current traversed tissues of least resistance and expended energy on ovary and exudative mass.

Case 3.—M. M., single, age 31. Vulvitis. Presented herself May, 1894. Mucous membrane of the vulva swollen, red, sensitive and bathed in profuse glairy discharge. General congestion and relaxation of vaginal walls and uterus. Uterus sensitive, cervix slightly eroded. Lower bowel filled with fecal matter. General health markedly impaired, patient excessively nervous. Treatment: electrical douche, vaginal, negative, 30 milliampères, two quarts.

In administering treatment, a certain amount of overflow was purposely allowed, bringing thereby the vulvular mucous membrane much more completely under the influence of the water electrode. Patient left the office feeling very much relieved from the distressing local sensations.

June 2, 1894. Patient reports that she is very much better, local sensations and consciousness markedly diminished. Has lost her anxious face. Looks brighter and more hopeful.

Physical examination: diminished swelling and redness, with no appreciable discharge. Very little sensitiveness. Repeated treatment.

Case 4.—K. I. H., age 28. Intestinal catarrh, began in 1884. During acute attacks, four or five passages a day, at other times one or two. For past seven months, notices at times "pipe-stem" substances, whiter than feces. Occasional pain after stool. Passes a great deal of gas from bowel. Patient easily tired, complains of frontal headache, almost constant for the past three weeks. Patient feels weak, flushes and pales easily, appetite fair, sleeps well.

Sept. 13, 1894. Treatment: hydro-electric rectal douche (two quarts saline solution), 20 to 30 milliampères. Electrode introduced as high as sigmoid flexure. This treatment repeated daily for six days. Steady improvement each day as regards bowels and general health. At present, Sept. 25, 1894, patient has only one movement a day, well formed, gas almost gone, followed by no discomfort.¹¹

Case 5.—A. T., age 20, seamstress. July 14, 1894. Atony of the intestine; constipated for past two years, constantly under medical care, much medicine, high injections for four months prior to coming under care, in a kneeling position, followed by movement, but impossible to get a movement without them. Medicine without effect. Gaseous eructations; stools hard, round balls, dark brown color. Face covered with acne. Suffers from much bloating and distension of the bowels. Headache, dizziness, impaired circulation and unhealthy appearance. Four rectal douches were given with saturated saline (rock salt) solution, the electrode carried as far as the sigmoid flexure, with an Apostoli pad, thirty-six inches area over the abdomen. The last three were given consecutively. Two quarts of water were used at each sitting, and from 20 to 30 milliampères of current. The first and second treatments were followed by a free action of the bowels. At the third treatment the stool was much more natural and very free, while after the fourth application there was a perfectly free and formed movement. The patient was very much better, felt well, and looked a different person than when she first came to the office. The headache was relieved as well as the distressing symptoms from which she suffered. She was given to take, after the action had been established, cascara mixture consisting of:

Fluid extract cascara sagrada	4 dr.
Dilute nitro-muriatic acid	3 dr.
Tinct. nux vomica	4 dr.
Elixir calisaya bark	to 4 oz.

One teaspoonful three times daily in wine-glass of water. Patient did not return for further treatment.

Case 6.—K. E., age 38, married. July 20, 1894. Pruritus vulvæ—diabetic—referred by her physician for local treatment only. Sugar present. Polyuria. Violent itching and irritation, for relief of which patient resorts to most extreme measures. All parts of the skin and mucous membrane about vulva thickened and reddened. Small papules scattered over the mucous membrane. Discrete vesicles scattered about the nates and inner aspect of thighs. Treatment: electric douche, vaginal, negative, salt water, three quarts, C. S., 40 milliampères. During progress of treatment patient complained of pain which she likened to labor pain, showing the intense action of the current on the muscular fiber of the

uterus administered in this way. Pain ceased with the cessation of the treatment. The electric douche applied to entire external genitals, with douche-pan under patient. From the time of treatment on July 20, up to the morning of July 23, when the patient reported through another person, there had been no return of the symptoms, save a slight irritation that morning. Establishment of menstruation prevented patient's return for treatment July 23, and the day following I left the city for my vacation. Case not followed up.

Case 7.—M. H., age 26, single. July 13, 1894. Referred to me by physician at the Florence Mission. Two years since laparotomy. Removal of right ovary and tube. Now gonorrhœal vaginitis and urethritis. Opportunity for infection three months ago. Since, micturition frequent with stinging and burning pain; itching and burning about vulva. Characteristic creamy discharge oozing from vagina and meatus urinarius; extreme redness about vulva; localized redness and discharge at meatus urinarius. Vagina reddened and bathed in creamy discharge. Slight granular erosion of cervix uteri. No sensitiveness of left tube or ovary. Normal in size. Treatment: electric douche, cataphoric, 3 gr. Cu_2SO_4 to quart of water, two quarts. Four applications in all were made, extending over a period of ten days. Current strength from 5 to 20 milliampères. After first application there was no return of the burning, stinging pain upon micturition, no itching, nor smarting of external genitals, and micturition was only of normal frequency. At time of second visit, examination was made three hours after patient had bathed the parts, and there was absolutely no discharge. At time of third visit, slight milky discharge about mouth of urethra, localized. Electric douche, cataphoric, Cu_2SO_4 , 3 gr. to the quart, three pints; 6 to 10 milliampères of current was administered at this visit to the bladder by means of the two way vesical electrode. The douche was also applied to the mucous membrane about the mouth of the urethra. No pain nor discomfort. Patient discharged July 23, 1894, without symptoms and without any local evidence of disease, the parts only moist as in health.

Case 8.—M. B., age 42, widow. Referred with diagnosis of rectal stricture. Extremely constipated for two years. Subject to violent attacks of pain; colicky; cramping; preceded by inability to empty bowels. Pain relieved by movement consisting of tiny tape-like stools covered with mucus, pale in color. Present condition the same. Daily movement obtained under influence of drugs. Character of stools as for past two years. Appetite fair. Sense of distension after eating, gastric and abdominal, gaseous eructations. Circulation poor, extremities cold. Headache, sense of vertical pressure, dizziness, sense of oppression in chest, easily fatigued, locomotion difficult, sleep broken.

Physical examination: abdomen covered with fat, pendulous, marked distension of cavity. Percussion note extremely dull over transverse and descending colon; resonance poor, entire surface; some tympanites. Rectal examination: sphincter ani normal. Hemorrhoidal veins distended. Digital examination: rectum free in middle and lower thirds. At proximal end of upper third, encountered numerous folds of mucous membrane similar to invagination with sensation communicated to finger as of a doughy mass beyond.

Diagnosis: impacted colon, with fecal tumor at sigmoid flexure. Treatment: rectal electrode carried to sigmoid flexure, negative, Apostoli pad over abdomen, forty-two square inches, positive, two quarts salt water, lukewarm, 15 milliampères for five minutes.

The desire to empty bowels urgent. Resulted in profuse, ill-smelling movement, with large hardened fecal masses, followed by a second movement and a period of extreme exhaustion with chilliness. A half pint of warm water was given by the mouth which, with rest, soon restored patient to her usual condition. In all some six applications were given, 15 to 20 milliampères, for from five to ten minutes, resulting in daily movements. Subsequently Franklinization, with long percussive sparks, was employed, resulting in improved muscular tone. No evidences of a stricture found. Under care two months. Recovered.

DISCUSSION.

DR. WALKER asked the strength of the saline solution for use in the intestinal treatment?

DR. CLEAVES replied that she had used it under and to the point of saturation, usually the former. Quite an important part of the paper was the use of drugs cataphorically in the vagina and bowels, and in nasal applications. So far, she had used sulphate of copper and zinc more than anything else in gonorrhœal vaginitis, nasal catarrh, etc.

¹¹ Patient remains perfectly well and has had no return of her intestinal trouble. The Franklinic current, positive insulation, with long percussive sparks was given to further metabolic processes and encourage nutritional gain.

DR. MASSEY said he had tried the negative electrical treatment of the bowel with some satisfaction in cases of membranous enteritis. He also thought it had a general solvent action on pelvic exudates.

(To be continued.)

Colorado State Medical Society.

Abstract of the Proceedings of the Twenty-fifth Annual Meeting, held at Denver, June 18 and 19, 1895.

[Special correspondence of the JOURNAL.]

(Continued from page 28.)

WEDNESDAY, JUNE 19.

ENLARGED PROSTATE AND ITS SURGICAL TREATMENT

was the subject of a paper by DR. WILLIAM P. MUNN, of Denver. The enlargement of the prostate which frequently causes trouble after 60 years of age is not due to hypertrophy of the gland but to fibroid growths within it. The resulting relaxation of the sphincter causes inability to retain the urine in the bladder, the encroachment of the enlarged gland upon the urethra in front causes retention, and the decomposition of the retained urine renders it acrid, causing pain. He presented some special forms of prostatic catheter. They retained the elevated beak, which he thought the one valuable feature of the ordinary instrument, but were furnished with a longer, flatter, slightly irregular prostatic curve. He thought that so long as the urine could be kept clear, retained from three to four hours, and passed without pain, palliative treatment was to be relied on. But when in spite of the best care the urine became cloudy, could not be retained more than an hour or two, and suffering was impairing the patient's general health, that operative measures should be promptly resorted to, before the general condition became such as to render improbable a favorable result. He would first resort to prostatotomy, perineal or suprapubic according to the case; and would reserve castration as a last resort. He reported six cases operated on, with two deaths and two complete recoveries, one of the latter only after castration.

IS BICYCLE RIDING A CAUSE OF IMPOTENCY?

DR. JOHN T. DAVIDSON, of Denver, thought that as bicycle riding became more general the number of cases of impotency would be found to be on the increase. He had not found any riders who admitted such an influence on the part of the wheel, and did not think it a necessary result from proper riding. But stimulation of the perineum would in time render it less sensitive to other stimuli; and traumatism, especially from riding on an improperly fitted saddle, was likely to aggravate or excite other troubles that are recognized as causes of impotency.

"Alopecia Prematura" was the subject of a paper by DR. J. M. BLAINE, of Denver, who attributed it chiefly to two causes—the custom of using water on the hair at too frequent intervals; and frequent shaving, which by a counter stimulation of the face tended to lessen the nutritive supply of the hair follicles of the scalp. The share of this latter factor was indicated by the fact that among races that plucked the beard, or had little beard to start with, idiopathic alopecia was unknown. Of predisposing causes, he regarded heredity as more common than disease of the scalp during childhood.

DR. P. R. THOMBS, of Pueblo, read a paper on "Epilepsy, Its Causes and Treatment." Definitions as to what constitutes epilepsy vary considerably, and its pathology is uncertain; but the neuropathic tendency seems to be the one constant essential condition. The term idiopathic, applied to epilepsy does not mean that it is without cause, but that the cause has not been discovered. A sharp distinction is to be made between reflex and traumatic cases; the prognosis for the latter being more favorable. He believed that few chronic troubles are so much helped by treatment, but that the treatment must be carefully adjusted to the particular case. A considerable proportion of cases are related to the uric acid diathesis, which can best be controlled by regulation of the diet.

"A Case of Myxedema" was reported by DR. W. J. RORNBELL, of Denver. A man of middle age had typhoid fever four years previously, had since been losing strength and gaining weight, and presented a typical case of this affection. Under the use of thyroid extract he lost thirty pounds in weight and got quite well. The dose first given, 5 grains three times a day, had caused tachycardia and diarrhea, and had to be reduced to 3 grains. After his recovery the remedy

was continued in the dose of 1 grain three times a day, as the thyroid gland seemed to be entirely atrophied.

DR. E. R. AXTELL, of Denver, reported a case of "Toxic Paraplegia." The patient was a man of 23 years, who had begun to drink liquor at 8, and had frequent sprees before he was 12, had smoked cigarettes since he was 9, and had for three and a half years worked at painting. He had probably suffered from multiple neuritis and meningio-myelitis. "A Case of Pseudo-hypertrophic Muscular Paralysis" was reported and exhibited by DR. J. W. HIGGINS, of Denver. The patient was a boy of 15, of healthy Italian parentage. He had been noticed to stumble easily at 1 year, and at 5 years the enlargement of the calves was perceptible. The hypertrophy was marked in the lower extremities, but in the thorax and back, atrophy predominated.

THE DIAGNOSIS OF CHRONIC CEREBRAL ABSCESS.

DR. J. T. ESKRIDGE, of Denver, presented an elaborate paper on this subject. The differentiation of acute abscess of the brain may present great difficulties, but chronic abscess taxes the resources and skill of the most experienced clinician. Etiology may fail to aid because the manifest cause is only one of several causes that have to act together to produce the result. The same cause, too, may produce in different cases very different effects. A patient with otorrhea of sixteen years standing, and who had received a blow on the head, died of brain tumor. The autopsy in the case of a boy with otorrhea, psoas abscess and a head injury showed a small tumor. On the other hand, the autopsy in the case of a man of 70, suddenly seized with symptoms of apoplexy, with no cause for suppuration, showed chronic cerebral abscess.

The symptoms of chronic abscess are common to other forms of organic disease of the brain. Conclusions from accurate histories may lead astray, but usually will indicate the truth. The cause may have been forgotten but may be brought out by careful questioning. Headache is usually pronounced, especially in the terminal period. The typical temperature is normal or subnormal. Optic neuritis is a valuable sign when present, and it is more frequently present than absent. He concluded that the diagnosis of chronic cerebral abscess was often most difficult, and sometimes impossible; that resort to operation should not be limited to cases in which the diagnosis was certain; that the physician who never recommends an exploratory operation in a probable case of abscess cares more for his own reputation than for the good of his patient.

"Opium Poisoning" was the subject of a paper by DR. CARL JOHNSON, of Denver. It was based on fifty-five cases, of which eight were fatal. In all but two, the drug had been taken by the mouth. In thirty-five cases the stomach tube was required; the others were treated by emetics. As an emetic he preferred apomorphia, one-tenth of a grain given hypodermically, but it should never be resorted to after unconsciousness, as it was then useless, and tended especially to cause cardiac depression. As to stimulants, he regarded strychnia as the most valuable. Atropia was of little value. Potassium permanganate was of value to destroy the portion of the drug remaining in the stomach; but his experience with its hypodermic use to neutralize the poison in the circulation had been very unfavorable, the injections causing great rise of temperature and aggravation of the symptoms, beside local trouble if the patient recovered. In discussion, several physicians expressed confidence in the value of atropia.

CASTRATION THE REMEDY FOR CRIME.

DR. B. A. ARBOGAST, of Breckenridge, read a paper on this subject. The rational solution for the problem of crime was to be sought in the restoration to normal condition of those capable of such restoration, and the speedy extinction of those not capable of it. The physician is the proper one to suggest the remedy. For the rapist and other sexual criminals the appropriateness of castration would scarcely be questioned. It was the province of the Government to provide such treatment as was necessary to enable these defective individuals to become good citizens; and to effect the extermination of the criminal classes.

DR. E. STUYER, of Rawlins, Wyo., read a strong plea for "Asexualization for the Limitation of Disease and the Prevention and Punishment of Crime." Self-preservation is the first motive of action, and next to it comes the sexual instinct. The conditions of city life are such as favor the development of certain forms of vice and crime; and the great charitable institutions of the day assist, by preventing the extinction of the vicious and the criminal, that otherwise would naturally occur. It was time for the medical

profession to turn its attention to the prevention of venereal disease, the scourge of our civilization. There is a widespread tendency to do away with harsh punishments, that formerly had a tendency to check the propagation of the criminal classes. The frequency of lynching shows a prevalent lack of faith in the present penal provisions. There are three indications to be met: punishment for the criminal act, the restoration of the criminal to usefulness in society, and the prevention of future crime. Asexualization meets these indications better than any other remedy. The deterrent effect on others would be most powerful, and it would often convert the most dangerous criminal and disseminator of disease into a useful citizen.

THE RESTRICTION OF TUBERCULOSIS.

Upon this topic the society was addressed by Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich. He said that with the observance of certain rules, now fairly understood, the healthy and the tuberculous might mingle with impunity. The place in which one is most safe from infection is the properly kept surgical operating room; and so with the observance of the proper precautions the place where the tuberculous congregate may be kept free from danger as regards tubercular infection. But no climate is so salubrious but that local conditions can vitiate its value, and a place that may be good for the infected to live in, might become very bad for the healthy to visit. He believed that, primarily, tuberculosis was usually an unmixed infection, and as such was rarely fatal. Secondly it becomes a mixed infection, and tends toward a fatal termination.

To restrict tuberculosis, the sale of tuberculous milk and meat must be prevented. Cattle should be submitted to the tuberculin test, in which he had great confidence. Sputa must be efficiently taken care of and disinfected. To accomplish the object mere verbal instructions are not sufficient; the rules printed and circulated by boards of health, and the directions given by physicians do good, but they are not enough. Details and practical processes must be taught by personal instruction. He advocated the establishment of schools for the instruction of consumptives in the care of themselves and the disinfection of sputa. Such institutions should be State hospitals. They would ameliorate the condition of the patient, and prevent the spread of the disease. Such a plan would be expensive; but how great is the loss now sustained through the 150,000 annual deaths from this disease. We have a parallel for the undertaking in the eradication of leprosy from Europe by the segregation of the lepers. It would not be necessary that chronic cases of tuberculosis should remain permanently in such institutions. After they had learned to take proper care of themselves and their sputa they could live in their own families without danger.

Dr. E. R. AXTELL showed a case of "Chronic Internal Hydrocephalus with Spina Bifida." The child was a year old; hydrocephalus had been noticed at three weeks of age. There had been no convulsions. The connection between the fontanelle and the spinal tumor, and their reciprocal relaxations as regards pressure was very noticeable.

"The Germ Theory" was the theme of an elaborate adverse criticism by Dr. E. L. WOOD, of Pueblo. He pointed out that many theories generally held in the past have been found wholly false. The presence of the microbe in disease merely proves that the disease furnishes the conditions necessary for its growth. Of no disease known to man is it proved that it depends on a microbe.

THE EXTINCTION OF COMMUNICABLE DISEASES.

This was the general title of a series of brief papers and addresses. In some introductory remarks Dr. MCNN said, that experience with a century of vaccination, and recent experience with cholera in this country and in Europe seem to justify the discussion of this subject. Respecting the general bacteriologic status of the subject, Dr. CROUCH said: It must always be remembered that the germ is not the disease. In every case there is the question of the seed and the soil. It may be as necessary to strengthen the defense as to avoid the attack. We must still consider the possibility of specific diseases originating *de novo*, that is by the variation of non-pathogenic into pathogenic bacteria. For instance, the possibility that the tubercle bacillus may exist in a non-parasitic form.

Dr. HENRY SEWALL spoke on "Tuberculosis Contracted in Colorado." It is very difficult to say where any case of tuberculosis is contracted, but practically we may assume that cases beginning here were contracted here. In other health resorts, tuberculosis has become more common. The climate of immunity is a myth. The propagation of the dis-

ease among new races was directly in proportion to their contact with the race harboring the disease. In four years twenty-one cases of the disease contracted in Colorado had been observed. Of these fifteen had been pulmonary, and thirteen had died. In eleven the sputa had been examined, and in five autopsies had been made. Eighteen of the patients had been in the State from two to twenty-three years, fourteen for over five years. In the last two years 100 deaths had been reported in Denver from tuberculosis contracted within the State, about 12 per cent. of all such deaths in that period. He concluded that tuberculosis contracted in Colorado was not infrequent; and that when so contracted it was extremely dangerous.

"Is Diphtheria Doomed," was the topic assigned to Dr. F. E. WAXHAM, of Denver. He thought that while the weight of testimony was in favor of the use of antitoxin, the claim that by it diphtheria was doomed was not sustained. Smallpox has never been stamped out by vaccination, and the immunity afforded by antitoxin was only temporary. He believed it the best remedy we possess for diphtheria, but it had its limitations. It should not be used in the mild cases that were sure to recover without it. Among nineteen cases treated with it in Denver, in all of which the diagnosis was confirmed by bacteriologic examination, but three had died.

"On Scarlet Fever and the Public Schools," Dr. C. F. SHOLENBERGER, of Denver, said: An important factor in the spread of the disease is that light cases sometimes attend school throughout their course. Others are not diagnosed so that other children from the family continue to attend. When it is ascertained that a child with the disease has been in attendance, the school should be closed until thoroughly disinfected. Children known to have been exposed should be excluded. It should be a duty of scholars and school officers to report all cases to the board of health. It might aid to have some school officer a member *ex-officio* of the local health board. Boarding schools should also be under the supervision of the health authorities. The spread of such a disease is favored by the lack of accommodations for the outer clothing of the scholars, which is therefore piled promiscuously together; and through library books.

"Typhoid Fever and the Agencies that Contribute to It," were discussed by Dr. S. A. FISK, of Denver. It was chiefly spread through drinking water and milk. In a few cases nurses take it by contagion. It is very difficult to entirely control a water supply, and failing this we must resort to boiling. Freezing does not protect. Attention must be paid to each individual case, especially to disinfection of the stools. If the medical profession would take the trouble, the disease could be, if not eradicated, at least controlled.

"On Surgical Infective Diseases" Dr. LEONARD FREEMAN, of Denver, said: We hear too little of dangerous doctors; the doctrines of surgical cleanliness are still too little preached. The needs of surgical cleanliness are bringing the mass of surgical work to specially trained surgeons in well-equipped hospitals. As to infective venereal diseases, inspection has utterly failed to limit their spread. The most potent influence at our command for this purpose is education. False and dangerous modesty should be cast aside. Gonorrhea is more difficult to deal with than syphilis, because it is not so much feared, and it shows no tendency to lessened virulence.

THURSDAY, JUNE 20.

THE LOCOWEED (ASTRAGALUS MOLLISSIMUS).

A chemico-toxicologic study was reported by Dr. CARL REUBI, of Denver. The symptoms produced by it, especially in the sheep, closely resemble those of cerebro-spinal meningitis. But the temperature is depressed, or not elevated except by intercurrent pneumonia. The most striking post-mortem appearance was the extreme anemia of the brain. The active principle is difficult to isolate, and seems not to be a glycoside but an associated acid.

Dr. H. B. WHITNEY, of Denver, reported two cases of "Abscess of the Liver" and a third case of hepatic disease, not abscess but with hectic and other symptoms closely resembling that condition; with some general observations on the diagnosis of such conditions.

"Mal-assimilation Due to Chronic Gastro-duodenal Catarrh" was the subject of a paper by Dr. W. L. DORLAND, of Pueblo. He compared it to the conditions produced by chronic poisoning by lead and arsenic, and called attention to the importance of auto-infection, and the sterilization of the alimentary canal as an essential part of the treatment.

"Dilatation of the Stomach" was discussed by Dr. H. C. CROUCH, of Denver. The important fact is not so much

dilatation as stagnation. The clinical meaning of the term is, a condition in which the contents do not pass from the stomach at the proper time, as when it is not empty in the morning after an ordinary meal the night before. He believed that in the treatment of this condition washing out of the stomach was not so often necessary as the practice of some would indicate. For cases not relieved by medical treatment he urged recourse to surgical interference. Gastro-enterostomy was a comparatively simple and safe procedure, and gave brilliant results.

The Committee upon Sanitation and Preventive Medicine reported upon the need of prophylaxis against phthisis in Colorado. Of 812 cases terminating in death within the last two years in Denver, 549 were known to have originated outside of the State; in 163 the place of origin was not known, and in 100 it was Colorado.

Dr. H. W. McLAUTHLIN, of Denver, reported a case of Addison's disease lasting five years. The autopsy showed atrophy of the suprarenal bodies and tubercular disease of the lungs.

The American Neurological Society was invited to hold its annual meeting for 1897 in Denver.

"Vomiting of Pregnancy and its Treatment" was the subject of a paper by Dr. P. J. McHUGH, of Fort Collins. He regarded it as a reflex nervous disturbance, but had found that in the severe cases there had been some pre-existing stomach trouble to which treatment should be directed. He recommended resort to the use of the stomach tube for purposes of diagnosis, and if needed for treatment.

Dr. T. M. BURNS, of Denver, described his plan of "Abdominoscopy in Obstetrics." He pointed out that in vertex presentations, on account of the flexion of the head, the forehead was more prominent than the vertex, and was the part to be sought for.

"The Management of Retained Placenta," in the hands of Dr. G. H. STOVER, of Eaton, was: If after ten or fifteen minutes the Crèdè method did not bring it away, to insert the hand and break up the adhesions which, in his experience, were always present in such cases.

Dr. T. E. TAYLOR, of Denver, reported a "Case of Symphysiotomy." The woman was aged 33; four previous deliveries had been by craniotomy, and she had been in labor several hours, the membranes having ruptured ten hours before the operation. The conjugate diameter was two and five-eighths inches. The bones separated to two and one-half inches as the head passed. The child was healthy; the mother left the hospital on the ninth day and was about her work after three weeks; there remained no movement of the pubic bones, and her gait was normal.

"Disease of the Uterine Appendages." Dr. SOL. G. KAHN, of Leadville, said that inflammation of these organs was due to gonorrhea and septic trouble after abortion. Every case of metritis will extend to the tubes if neglected, but if metritis be properly treated we will have few cases of salpingitis. He urged the euetting of the uterus, and local treatment, including ichthyol tampons, and applications of aluminum acetate to the cervix.

Dr. T. A. STODDARD, of Pueblo, believed that disease of the appendages occurred through extension of uterine disease, first to the tubes and from them into the abdominal cavity. All cases of peritonitis were due to the escape of some irritant into the peritoneal cavity. It should be remembered that fourteen women die of peritonitis to one man. We should not permit a woman to carry around pus tubes, and call it conservative surgery. As to the talk of unsexing a woman, it should be remembered that the sexual life of woman is threefold, as woman, wife and mother; and that in two of these respects she was already unsexed when we come to consider the removal of diseased appendages.

Dr. W. A. JAYNE, of Denver, read a paper on the "Management of Pelvic Suppuration in Women." He pointed out that in many cases extirpation of the uterine adnexa had not given relief. Lately, removal of the uterus also had been tried, either by the abdominal or vaginal method, and this seems now to give better ultimate results; but it is still too soon to judge. That prompt removal is the only proper treatment for purulent inflammation is at variance with the accepted principles for the treatment of all other organs except the vermiform appendix; and it, being functionally useless and prone to degeneration, did not offer a parallel case. More careful study of these cases may show that a considerable part of them can be cured by evacuation of pus through natural channels, or artificially through the vagina, with or without the aid of celiotomy. He reported two cases in which treatment on this plan had secured recovery.

Dr. I. B. PERKINS, of Denver, reported a series of cases of "Hysterectomy for Fibroid Disease." In one case the growth was of five years' standing, the uterus measured thirteen inches, was as large as at full term, and weighed fifteen pounds.

Meeting of the American Public Health Association at Denver. Dr. HENRY SEWALL called attention to the meeting of this Association to be held at Denver October 1 to 4, and urged the special interest that Colorado had in the success of the meeting.

THE PRESIDENT'S ADDRESS.

In the Annual Address Dr. WORK said, that of the sixteen who met to organize the Society in 1871, but five remained upon its rolls. Since that time medicine had undergone a revolution. There had been division and subdivision until the danger now was from excessive specialism. The need of the day was the diagnostician; and there was danger of his being supplanted by the exploratory incision, and the post-mortem section. The work lying nearest to this Society was the scientific study of tuberculosis. Its opportunities for the scientific investigation of climatic influences were unequalled, and free facilities for bacteriologic diagnosis were offered to every physician in the State. He urged the establishment of national sanatoria for the treatment of consumption, and suggested the appointment of a committee to confer with the coming meeting of the American Public Health Association, and memorialize Congress upon the subject. His suggestion was adopted.

After the final reports of committees, the election of members and officers, and the installation of the newly elected President, Dr. I. B. PERKINS, of Denver, the Society adjourned.

The social features of the meeting included a *conversazione* the first evening, a theatrical entertainment the second, and a banquet to the visiting members by the profession of Denver the third evening, who contributed their share to the success of the meeting.

Proceedings of the Convention of Bacteriologists.

Academy of Medicine, New York, June 21 and 22, 1895.

The Bacteriological Convention called by the Water Committee of the American Public Health Association met in the Academy of Medicine, New York, at 10 A.M., June 21, 1895. Over forty bacteriologists, representing prominent colleges and boards of health, were present when the meeting was opened by Major Charles Smart, U. S. A., Chairman of the Committee, who briefly explained the object in view as being the full discussion of certain points, the settlement of which was needful to enable the Water Committee to perfect a scheme of laboratory methods for adoption in a coöperative investigation into the bacteriology of water supplies. Dr. Smart then invited Professor Welch of Johns Hopkins University to take the chair and proceed with the special work of the Convention.

It was evident from the program, Professor Welch said, that the subjects for consideration related almost exclusively to certain technical matters which must be settled before any coöperative investigation could be undertaken. He suggested a strict adherence in discussion to the questions submitted, and called upon Mr. Geo. W. Fuller, of the Lawrence Experiment Station, to contribute his views on the first question: What method shall be followed in neutralizing all media and what standard degrees of reaction shall be adopted? Mr. Fuller presented an able and interesting paper full of important results of original laboratory experiments. He commented on the fact that although bacteriologists generally acknowledge the importance of the reaction of their culture media, no special study has been given to the subject which remains now in practically the same condition as when first described by Koch fourteen years ago. He then cited numerous instances of the sensitiveness of pathogenic bacteria to the reaction of media and of alterations in pigmentation, phosphorescence and morphology due to change in the degree of alkalinity. He recommended phenolphthalein as an indicator with sodium hydroxide to effect neutralization; and for convenience and accuracy in expressing the acidity or alkalinity of a medium he approved of the chemio method of giving the number of cubic centimeters of a normal acid or alkali needful to effect neutralization per liter of the medium. He had ex-

perimented also with various other indicators and had found that the neutral point of meat infusions, etc., as established by litmus is many cubic centimeters on the acid side of the same point as established by phenolphthalein. Thus, so-called neutral solutions may in reality be very different, varying as much as 25 c.c. normal acid or alkali per liter in some instances. Mr. Fuller's experiments showed that the best culture results are obtained when the medium is 18 c.c. per liter on the acid side of the phenolphthalein neutral point. It will be observed that this solution is several cubic centimeters on the alkaline side of the litmus neutral point. His directions to secure a standard alkalinity of medium are to determine in a small quantity of the liquid the number of cubic centimeters of normal caustic soda to be added to the stock to make it neutral to phenolphthalein and having added this to it then add normal hydrochloric acid in the proportion of 18 c.c. per liter. The paper was discussed by Professor Welch and Drs. Kinyoun and Theobald Smith, the general tenor being in accord with the views expressed by Mr. Fuller as the result of his investigations.

Discussion on the second question was opened by Professor Sedgwick, of the Massachusetts State Board of Health: What effects on species differentiation are produced by the ordinary differences in composition of peptone, meat juice, gelatin, etc.? In the discussion that followed was embodied Mr. Fuller's presentation of the third question: What media shall be used for all species differentiation and how shall they uniformly be prepared? The relative advantages of meat infusion and beef extracts, agar and gelatin were considered. Distilled water was generally accepted as desirable in making the media. Dr. Abbott was in favor of meat extracts in place of infusions, because the extract is taken in large quantities of all sorts and kinds of meat and comes nearer to representing a mean than any single sample of meat; moreover it is very convenient. Dr. Kinyoun objected to extracts, particularly to Liebig's on account of its varying proportions of salt; he preferred veal infusion. Dr. Welch had never met with this difficulty and liked the extracts for routine work. Mr. Fuller and Drs. Moore, Cheesman and Johnston coincided with Dr. Kinyoun in his preference of meat to extracts; and Dr. Welch considered that the sense of the meeting was in favor of the infusions, for while instances of failure to grow in extracts had been brought forward, no one had instanced a failure in the meat infusions. Dr. Theobald Smith discussed the propriety of adding glucose and Dr. Welch the quality of peptones and the character of the gelatins. The jellies made from the latter varied much in acidity and the solidifying point was extremely variable. Dr. Sedgwick preferred hide gelatin because it was a better nutrient and clearer, although it liquefies at a lower temperature. Dr. Johnston, in reply to a question said it was impossible to get anything profitable from leeland moss. As to the relative value of gelatin and agar, the former gave as much in two days as the latter in four. There was some difficulty in getting the proper degree of alkalinity, on account of changes taking place after it was put in the sterilizer; but he explained how this could be overcome. Mr. Fuller and Dr. Sedgwick detailed their practice at Lawrence with agar and claimed better results than with gelatin. The question of sterilization was then considered by Drs. Abbott, Cheesman, Kinyoun, Welch, Mr. Fuller and others. The potato as a medium was objected to by Mr. Fuller as inconstant in its results. Drs. Abbott and Welch sustained the cause of the potato. The gas production is an important point and the presence or absence of discoloration. Milk was considered of limited value as a medium by Mr. Fuller, but many others believed that it would be a loss to give up its use; its coagulation and the development of acidity were valuable for differentiation. The use of sterilized asbestos wool as a filtering medium was eulogized by one speaker. The discussion ended by a consideration of the subject of preparing large quantities of medium at one time and of making these available for use when required.

The discussion of the second and third questions was unfinished when the morning session was ended by an adjournment until 3 p.m. It was resumed when the convention met again at the hour named.

Professor Jordan, of the University of Chicago, who was on the program to open discussion on the fourth question: What shall be the medium for and the conditions of the stock culture from which all media are seeded? was unavoidably absent; but Mr. Fuller explained his views. The keeping of stock cultures in an ice box also came in for consideration.

Professor Sedgwick opened discussion on the fifth question: What shall be the systematic detailed method to be

followed in observing the results of cultures and the manner of recording them? If we take the results of any good bacteriologist and see how he describes his species fully and carefully, with obvious attempt to be accurate in observation and full in report, we may learn how to do this. Dr. Cheesman thought it would be a good thing to have some kind of chart or a table on which the record could be made. As pertaining to this branch of the subject, the paper of Prof. E. B. Shuttleworth, of University of Trinity College, Toronto, on the nomenclature of colors for bacteria, was presented. This paper was an effort to get as near to precision as possible, in view of the different appreciation of color tints, shades and hues by different individuals. The various primary and common colors were tabulated with their modifications, the qualifying words, pale, light or medial and dark being used to denote gradations of the same hue.

Dr. Cheesman then submitted his paper on the sixth question: What method shall be adopted by which full benefit may be derived from morphologic characteristics? He reviewed the main groups of cocci, bacilli and spirilla as subdivided by morphologic characters, shape, structure, size, formation of spores, flagella and capsule. The greatest benefit may be derived from these characters only by having them fully developed and plainly visible. For their development it may suffice to carry each species through a single routine method of cultivation on a standard medium, or perhaps two, or even three, routine methods. Various methods of staining must be used. The adoption of a systematic uniform plan to be followed in all examinations will lead to better results than have been obtained in the past. The discussion on the subject was very animated and dealt with a standard medium for morphologic characters or many different media to exhaust all possibilities of development.

The seventh question: What tests shall be used for separating bacteria into clearly marked groups? was answered by Dr. Wyatt Johnston, of the Provincial Board of Health of Quebec. He referred briefly to twenty tests in common use and to various modifications of these. He concluded that there was a certain want of individuality about the water bacteria as described by their discoverers which prevented the average amount of intelligence which he had at his disposal from grasping the subject in a way that would make a fellow feel that he had mastered it; and this was the result of the complication of these tests of bacteriologic classification. He proposed a system of cataloguing and cross-indexing by which the labor of studying and looking into the affinities of species might be lessened. This was favorably regarded by the convention, and he was requested to submit a practical outline of his system. In connection with this subject, a paper by Prof. H. L. Russell, of the University of Wisconsin, was submitted. This paper was special in its character, and related to the peculiar method of branching in the genus *Cladotrix*, found in stagnant waters. The *C. dichotoma* and the *C. intricata* were described and figured. These, although filamentous in their growth, are essentially bacilli. The meeting then adjourned until 10 a.m. the following day.

The convention was called to order at 10 a.m., June 22, when Surgeon-General Sternberg's paper was read by Dr. Smart in the absence of its author. This was on the eighth question: What shall be the method followed in determining the relation of bacteria to temperature? General Sternberg discussed first the most favorable temperature for development; secondly, the extreme limits within which development occurs and lastly, the thermal death point. The first and second are to be determined by culture experiments made at gradually increasing fixed temperatures until the desired information is obtained. In ascertaining the thermal death point the temperature or the time of exposure should be fixed. We may ascertain how long an exposure is required at a given temperature or how high a temperature is required in a given time. He recommended an exposure of ten minutes to fixed temperatures, rising 2 degrees Cent. in each experiment until the death point was reached. This is determined by culture experiments showing the sterilization of the medium containing the bacteria operated on. The cultures should be incubated for seven days before the result is recorded. In applying heat to determine the death point the water bath was recommended, with the tube containing the bacteria and the thermometer on a glass stand at mid-depth of the water. The thermometer should be accurate and the temperature of the bath properly regulated. When not otherwise specified the death point should be understood to refer to the temperature which in ten minutes' time destroys the vitality of all the cells in a liquid medium. The spores of bacilli have a far greater resisting power to heat than the vegetative cells and the question of their

thermal death point must be determined separately. With spores which resist the boiling temperature it is best to state the time required for their destruction by a temperature of 100 degrees Cent. The thermal death point depends to some extent on the age of the culture. For bacteria which grow in our standard neutral flesh peptone solutions the use of a culture kept at 37 degrees Cent. for forty-eight hours was advised; and to secure uniform conditions 3 c.c. of the culture should be added to 5 c.c. of distilled water for the purposes of the experiment. In his own practice, capillary tubes containing a small quantity of culture, not diluted, were used; but he considered that for general use it would be best to recommend the test tubes of hard German glass which are always on hand in bacteriologic laboratories, specifying the diameter of the tube and the quantity of fluid, 5 c.c., which it should contain. This subject was discussed by many of the members, the views of Dr. Sternberg being generally accepted; but a strong tendency was manifested toward the acceptance of the capillary pipette instead of the test tube. The importance of immediately cooling the tube as soon as removed from the bath was also insisted upon. The recommendation was made to thrust it at once into the water so that the high temperature should cease to act upon it.

The ninth question: What special methods are of value in the isolation of pathogenic bacteria in water? was submitted for discussion by Professor Abbott of the University of Pennsylvania. As to special methods of development, he held that there has been no general work done, nothing that would be of use to the working bacteriologist. There are scattered observations relating to the typhoid bacillus and its isolation. The degree of reaction is important and the method of injection into animals. Mechanical separation, artificial filtration, fermentation and precipitation by coagulants were also discussed. While on this subject, Dr. Kinyoun described a standard dye method with fuchsin by which differentiation may be effected. Commenting on this, Professor Welch considered it one of the most encouraging things that we had at last an elected method for the isolation of the cholera spirillum; but on the other hand it is a source of regret that we have no similar mode of procedure for the typhoid bacillus. Dr. Abbott stated his results with this bacillus to have been most inconstant. The general feeling now, said Professor Welch, in regard to this matter is one of uncertainty as to whether any one has ever isolated the typhoid bacillus from drinking water. Professor Sedgwick referred to an epidemic of typhoid fever at Providence, R. I., where filters were sent to Professor Prudden. This brought the latter gentleman to his feet with a smiling remark to the effect that we can not know what is going to happen in science during the next ten years; and that had he known that this convention would meet here to-day he might not perhaps at that time have considered typhoid as emanating from the invisible growth on potatoes. Professor Welch referred to an impression existing, especially among boards of health, that bacteriologists are expected to report whether or not the typhoid bacillus is really present. Dr. Hewitt of Minnesota, referred to the positive diagnosis of typhoid bacilli that had been given to boards of health by bacteriologists and considered that the preceding remarks were somewhat discouraging. Dr. Sedgwick acknowledged that so far as pathogenic bacteria in water are concerned we are unable to make the positive diagnosis which Dr. Hewitt desired. It seemed to him, however, that if this were the only thing that boards of health in their history had to take back water on it would be well to discourse largely on it; but there are various things boards of health have had occasion to regret that they have done and he did not see that this was any greater than the others. He knew Dr. Hewitt had been misled by not keeping on tap in his office a good bacteriologist. Dr. Benjamin Lee of Pennsylvania, thought on the whole that it was a good thing that we are tending toward the solution of the broad problem of the various drinking waters rather than of one particular pathogenic organism; and this brought the convention back to its special work.

Professor Welch then presented his views on the tenth question: What shall be the mode of procedure in determining the pathogenesis of bacteria found in water? He spoke of the propagation of cholera, typhoid fever, dysentery, etc., by water. There is no satisfactory evidence of the spread of malaria by drinking water although there are those who believe in this infection. The pathogenic properties of water should be tested as a routine procedure. He preferred bouillon cultures of forty-eight hours, 1 c.c. injected by means of an ordinary hypodermic syringe into the peritoneal cavity of a mouse. The probability of a negative result

is great; and if the mouse does not succumb the chances are that a larger animal would not. All biologists should insist on a more careful pathologic study of lesions as they are often of the greatest interest. Bacteriologists are apt to consider an organism as pathogenic only when it kills; yet animals are frequently made very ill from certain species of bacteria and yet recover. Sharp distinction should be made between infection and intoxication. The discussion was general. At its conclusion Drs. Sedgwick and Welch referred to the need for care in the language used in reporting experiments on animals. The latter cited the expression of a writer: "I now see that these experiments were of no use and really appear to me absurd," which was caught up by the Humane Association and used for a violent attack on pathologists in a pamphlet recently issued.

The paper of Professor Adami of McGill University, treated the eleventh question: How is variability of species to be regarded? The difficulty of the subject of differentiation was clearly stated. Experimentally in the test tube it is a matter of comparative ease to so vary the properties of bacteria that were one to be given the modified forms, without any information as to the previous treatment undergone by them or their predecessors, it would be impossible by the ordinary methods employed for the differentiation of species, to arrive at any other conclusion than that we were dealing with a form of microbe totally distinct from the parent species, in fact, with a totally distinct species. If this be true of experimental modifications, how are we to become assured that many of the closely allied forms which we encounter in the bacteriologic study of water, air, soil and cases of disease are truly distinct species? How can we protect ourselves against a multiplication of described species, as unwise and depressing as it is scientifically false? We know from experiment that comparatively slight changes in environment acting over a long period impress modifications on bacteria quite as surely and strongly as do great alterations acting for a short time. We know that time after time in the study of the bacteria of water, as in those of disease, we encounter forms which while in general harmonizing, depart in some particulars from the classical description of well-recognized species. We are becoming hardened to the departure from type of some of the pathogenic species, so much so that the tendency among those dealing with the bacteriology of disease is to regard closely allied forms possessing pathogenic properties of like nature, not as separate species but as races and varieties of a common stock. This may not in itself be scientifically accurate for in most cases no attempt is made to demonstrate the relationship. Nevertheless, to take the opposite view and regard each form that departs in any particular from the text-book description as constituting a separate species is to drop into a bacteriologic Babel of confusion.

Professor Adami then referred to the varieties of domestic animals and plants and to their tendency, if permitted to return to a state of nature, either to die out or in the course of a few generations to regain largely or entirely the characters of the original stock. With bacteria the same is to a great extent true, and he suggested as a means of discrimination, the method of keeping doubtful forms under observation for some months upon standard media. If allied forms be grown on ordinary media which have not been prepared with a view to accentuate differences, the effects of the continuance of a common environment will eventually remove those characteristics which are temporary impressions due to previous modified environment, and in the course of a few weeks or months, forms that are varieties will revert to type. He recommended that each describer of a new species be expected to report its condition at the end of a year, and whether it has reverted to type or has continued to present characteristic differences.

Dr. J. J. MacKenzie of the Board of Health of Ontario opened discussion on the last question: What new methods can be suggested for the separation of bacteria into groups and for the identification of species? He referred to the advantages to be derived from the use of synthesized media. He pointed out the variability and the unknown chemie composition of the media now in use. Beef broth is an unknown quantity; and the composition of peptone is variable. Practically, the bulk of the material of the commercial peptones consists of albumoses of various kinds. Witte's peptone which Kühne found to be the most satisfactory is almost entirely made up of albumoses. Gelatin and agar also are variable, but as solidifying agents we can not do without them. Dr. MacKenzie then sketched the history of the effort to obtain synthesized media, giving the methods of preparing many of them and the results obtained from

them. He then detailed his own experiments in this line, particularly in plate cultures of water bacteria. He touched also on the advantage that might be taken of Beyerinck's respiration figures and of the formation of nitrites and hydrogen sulphid in the study of water bacteria. He concluded that in the study of all these physiologic chemie reactions of bacterial cultures the necessity of exact chemie composition is absolute, otherwise it is impossible to make comparisons. With a chemically pure medium, synthetically formed, we can speak with definiteness of the formation of nitrites, ammonia, hydrogen sulphid or any of the other products of bacterial life.

In connection with this, Dr. V. A. Moore, of the Bureau of Animal Industry, submitted a paper on the nature of the flagella and their value in the systematic classification of bacteria. The author dwelt first on the difficulty of obtaining constant and uniform results by any of the methods heretofore devised for demonstrating the filaments, and then on the impossibility of making a classification by the filaments agree with our present natural grouping. The *Monotricha*, for instance, or those having one flagellum at the pole of the bacillus, would include bacilli, spirilla and at least one micrococcus. Certain of his experiments have demonstrated that in the grouping of pathogenic organisms the flagella have little or no significance. Differences in the motile filaments of the same species of bacteria are quite as great as those found to exist in preparations of various species; thus the flagella of the hog cholera bacillus differ in different preparations, and often in different fields of the same preparation, quite as much as they differ from the flagella of the typhoid or colon bacilli. Until the nature of the flagella-producing substance is better understood, the only significance which can be given to these appendages in classifying bacteria is to determine their number on the individual organism, their length, general appearance and peculiarities, and include such data in the morphologic description of the bacilli.

In the course of the proceedings of the previous day it had been decided that no vote would be taken on any of the questions, but that the whole series would be referred to a committee of five, the chairman to be one of the members. After the discussion of the twelfth question, Dr. Prudden moved that the committee be increased in membership to eight. As the success of the convention will depend on the decisions of this committee, he considered that it would be better to have more members on it. This was agreed to, and the Chair appointed Drs. Abbott, Adami, Cheesman, Fuller, Sedgwick, Smart, Smith and, at the request of the convention, Welch, the committee to report to the Water Committee of the American Public Health Association, which will endeavor to secure the publication of the proceedings of the convention and of the future report of its committee by the Association.

After some discussion on the advisability of forming an Association of Bacteriologists to insure a recurrence of meetings like the present, Dr. Welch stated that he considered the meeting a success. The interest shown in it by the large attendance and the presence of so many members from a distance have been most encouraging and clearly point to the formation of some society in the future which will bring together the men of mind and ability and which will be the means of continuing this work. He offered a vote of thanks to Drs. Smart, Adami, Fuller and Johnston, who were responsible for the inception of the meeting. Dr. Prudden, on behalf of the convention, expressed indebtedness to the chairman for his skill and kindness in conducting the meeting. Dr. Smart, on behalf of the Water Committee of the American Public Health Association, rendered acknowledgments to the Academy of Medicine for the pleasant quarters afforded the convention, to Dr. Cheesman, of the College of Physicians and Surgeons, and Dr. Ferguson, of the New York Hospital, for having acted as a local committee of arrangements and made things easy for the management; to Dr. Welch for the able manner in which he had conducted the special work of the convention; and lastly, to the members for their earnestness and interest in the business of the meeting.

The convention adjourned *sine die*.

SELECTIONS.

Carcinoma of the Uterus.—(*Charité Annalen*) 557 cases were treated at the Charité from 1883 to 1893. The majority were from the fourth and fifth decades of life (30.5 and 39.3 per

cent.) while Winckel finds the larger number between the ages of 50 to 55 years (22.3 per cent); the statistics of the Charité divide the most in about equal proportion between the three periods of five years from 35 to 50, and also transfer them from the climacteric back into the period of maturity. As an explanation of this, it is noted that the cases are derived from the poorest classes of the population. Total extirpation in 89 cases 15.4 per cent., and 48 in women under 41 years, 54 were still menstruating, 21 in the beginning of the climacteric 10 in menopause which on the average began at 47.9 years. Of 528 cases furnishing trustworthy information 28 had never borne children; of the remaining 500, 106 (21.2 per cent.) had borne 1 child, 227 (45.4 per cent.) 2 to 5 children, 167 (33.4 per cent. 6 to 16 children; while among Winckel's 130 cases of carcinoma, only 10 per cent. had borne 1 child, 40.8 per cent. 2 to 5 children, and 49.2 per cent. 6 to 16 children. In 46 cases the disease started just after a delivery, or during pregnancy, and in 12 of these the disease was more or less directly the cause of abortion, while all took a rapid course, and 10 were inoperable.—*Centralblatt für Gynäkologie*, No. vi, Feb. 9, 1895.

A Case of Gunshot Wound by the New Swiss Ordnance.—Fr. Brunner (*Korrespondenz-blatt für schweizer Ärzte*, 1894, No. vii.) reports a case of gunshot wound by the new small caliber weapon, model of 1889; distance 20 m. The shot first penetrated and tore in pieces the cover fitting firmly over the barrel. It then pierced the front of the coat, vest and shirt, making a round hole through these pieces of clothing, as if by a punch, penetrated the body 3 cm. below the left clavicle in Mohrenheim's (infra clavicular) fossa, left the body below the spine of the scapula and produced three radiating rents in the clothing on the back. Wound of entrance circular as if struck with a punch of the diameter of the missile. Wound of exit circular with sharp edges, 10 mm. in diameter, surrounded with a livid, swollen area. Lung uninjured. The course grazing the tip of the coracoid process, passed close over the collection of nerves and vessels into the scapula, which was pierced $2\frac{1}{2}$ cm. below the spine. Wound healed kindly, although not aseptic. No subsequent hemorrhage. This case shows typically the result of small caliber shot. Although the projectile in boring through the gun-cover certainly lost considerable in energy, it was able to penetrate the body in a confined course without causing further harm by the way, without injuring nerves and large vessels though in close proximity and without splintering the scapula.—*Centralblatt für Chirurgie*, No. iii, Jan. 19, 1895.

Pathologico-anatomic Researches on the Method of Extension of Cancer of the Uterus.—(Seelig, Inaug. Diss., Strassburg, July, 1894). This work contains painstaking macroscopic and microscopic investigations. The conclusion of most practical importance is, that one must no longer be satisfied with supra-vaginal amputation, but he must always perform total extirpation if the disease has only started in the cervix, for even at that time the body of the uterus may be affected. The writer distinguishes carcinoma of the cervix and of the body; carcinoma of the cervix extends by the lymph channels, by preference those accompanying the blood vessels, and in those situated in the outer muscular layer and on the boundary of the peripheral and middle layers. There is a connection between the lymphatics of the cervix and the body, which lies within the wall of the organ and is represented by the lymph channels accompanying the large blood vessels of the middle and external muscular layer. These channels have a relatively large caliber. In the body of the uterus the lymphatics of the inner and of the larger part of the middle layer are very small, those of the outer of larger caliber. Carcinoma of the cervix does not remain limited to the lower portion of the uterus. It passes the internal os, not usually in the mucous membrane, but in the external muscular layer. Therefore it is hardly tenable strictly to retain the term, carcinoma of the cervix. 2. carcinoma of the body grows relatively slowly, and is marked by a centrifugal increase. Participation of the lymph vessels is first evident between the middle and outer

muscular layers. The cervix is affected only after a longer existence of the disease in the body. Its wall is destroyed from within out; the outer layer remains long intact. also the vaginal mucosa.—*Centralblatt für Gynäkologie*, No. vi, Feb. 9, 1895.

Pathology of Rickets.—(*Jahrbuch für Kinderheilkunde* Bd. xxxvii, Hft. 2). The writer assumes with Kassowitz that even the slightest elasticity or yielding of the bones of the skull or along the sutures is to be regarded as the surest and most undoubted sign of an active rachitis. His observations on 338 healthy children during the first two years of life show:

1. The average size of the anterior fontanelle during the first three months is 2.71 qcm. (42 sq. in.) and it decreases constantly in the succeeding months. The rate of diminution becomes much faster in the second year.

2. The largest anterior fontanelles, met with in children without rachitic changes in the skeleton during the first year, measured 3qcm. (465 sq. in.) This was rarely found. Quite probably such cases are to be looked upon as the starting point of rachitic affections. At least, fontanelles of this dimension are found far more frequently in connection with evidences of craniotabes the rickety rosary, etc., than under normal conditions.

3. The complete closure of the fontanelles rarely occurs before the tenth to the twelfth month, and usually in normal children in the course of the second year, though it was found in 20 per cent. in the thirteenth to fifteenth month and in 75 per cent. in the nineteenth to twenty-first. The variations in the size of the anterior fontanelles, in perfectly normal children of the same age, are in the opinion of the writer, merely natural differences in the growth of the skull. Fontanelle measurements in 786 rachitic children showed: 1, the anterior fontanelle was decidedly larger than in normal children (up to 14.8 qcm. 2.294 sq. in.); 2, it does not diminish constantly from birth, but increases gradually up to the ninth month, becomes smaller in the three succeeding months, yet does not reach its original size, and only after the beginning of the second year is a constant diminution to be observed. Yet even in the second and third years anterior fontanelles are found, measuring 25 qcm. (3.875 sq. in.); 3, the closure of the anterior fontanelle is delayed until well into the third year. All details may be obtained from the original.—*Centralblatt für Gynäkologie*, No. 6, Feb. 9, 1895.

NECROLOGY.

ALBERT C. GORGAS, M.D., Medical Director of the United States Navy, died of heart disease at his home in Germantown, a suburb of Philadelphia, June 29. He was a native of Philadelphia and was graduated from the Jefferson Medical College in March, 1856. He entered the United States service, August 30 of the same year, as Assistant Surgeon, being assigned to the sloop-of-war *Germantown*. He served on the East India Station, from 1857 to 1860, and was then transferred to the receiving ship *North Carolina*, at New York. In 1861 he was commissioned Surgeon and was attached to the *Andania* of the South Atlantic squadron until 1863. After serving a year at the Norfolk Naval Hospital, in 1864, he joined the *Junia* of the South Atlantic blockading fleet. He was present at the bombardment and taking of Fort Pulaski and the assault on Fort Fisher. In 1867, Dr. Gorgas sailed on the *Brooklyn* as Fleet Surgeon of the Brazil squadron. Shortly afterward, he was assigned to the Portsmouth Navy Yard. From 1870 to 1873, he was stationed on the *Wabash*, as Fleet Surgeon to the European squadron. He was on duty at the Naval Hospital, Annapolis from 1873 to 1877 and went to sea for the last cruise in 1879, as Fleet Surgeon of the South Atlantic squadron on the flag-ship *Hartford*. He was stationed at the Naval Academy in 1880;

at the Chelsea Naval Hospital, 1882 to 1885; President of the Examining Board, 1885 to 1889; Naval Hospital, Philadelphia, 1889 to 1893; National Museum of Hygiene, Washington, from 1893 until recently. He was commissioned Medical Inspector Oct. 6, 1873, and Medical Director March 4, 1884. He leaves a wife, a daughter and two sons, the latter being Miles Gorgas, who holds a prominent position in the United States Navy, and the Rev. Henry Gorgas, who is assistant rector at a New York Protestant Episcopal church.

JOSHUA GREEN WILBUR, M.D., of Brooklyn, died at his summer home in Montclair, N. J., on June 25. He was born in Massachusetts on Sept. 25, 1825, the son of Hervey B. and Anne Tappan Wilbur. Two of his brothers, as well as himself, followed the profession of medicine. His eldest brother the late Dr. Hervey Wilbur of Syracuse, was the first man to adopt a practical system of education for the feeble-minded children and for years had charge of the State asylum for those unfortunates. Another brother, Dr. Charles T. Wilbur, devoted years of study to the same affliction and is now superintendent of the Michigan State Asylum for the feeble-minded at Kalamazoo. He was graduated from the Harvard Medical College in 1862. Soon after the breaking out of the war he went to the front as a surgeon with a Massachusetts regiment. Throughout the struggle Dr. Wilbur attended to the wounded on the fields and in the Union hospitals. At the close of hostilities he settled in Brooklyn and engaged in general practice for about five years. Then he decided to make a specialty of life insurance examinations. For about twenty-five years he was engaged, chiefly in New York City, as the medical examiner for such companies as the Mutual Benefit, Washington Life, Berkshire Life, New England, Aetna, Mercantile Benefit and Penn Mutual Life Insurance companies and medical director of the New York Jewelers' league. He was reputed to have examined more applicants for life insurance policies than any other physician in America and, perhaps, in the world. The cause of his death was paralysis, from which he had been failing for about three months.

EDWARD SPALDING, M.D., of Nashua, N. H., who died June 24, in his eighty-first year, was better known as a capitalist and cotton-spinner than as a medical man. He was, however, a graduate of the Harvard Medical School in 1837. He was a graduate in arts at Dartmouth College and afterward for a time one of the board of trustees.

GEORGE TAYLOR ROBINSON, M.D., of Camden, N. J., died June 28. He was a graduate of the University of Pennsylvania in the class of 1882 and a member of the staff of the Cooper Hospital of Camden, and is reported to have given special attention to the application of the spectroscope to clinical medicine.

ALEXANDER I. ARONSON, M.D., of New York City, died suddenly June 25, from apoplexy. He was a native of Germany, and a graduate from the University of Jena in 1879. About a year later he settled in New York and soon became known as one of the most popular physicians of the East Side. He leaves a widow and three children. He was a member of the German Medical Society of that city.

GEORGE GARMANY LARCOMBE, M.D., died June 28, at Savannah, Ga., aged 34 years. He graduated from Princeton College in 1882, and from Bellevue Hospital Medical College three years later. He was ambulance surgeon at Bellevue Hospital in 1885 and on the surgical interne staff, Third Surgical Division, in 1887. He thence went to the University of Vienna, but in 1888 enrolled himself at the King's College School in London and in the same year took the degree of M.R.C.S.E. When he returned to this country he took up his residence at Savannah, engaging in general practice.

E. R. PALMER, M.D., of Louisville, July 6, aged 53.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JULY 13, 1895.

THE SURGERY OF PIERRE FRANCO.

The learned NICAISE, who through the press of FELIX ALCAN enriched modern surgical literature by translating the great surgery of GUY DE CHAULIAC, and the surgery of HENRI DE MONDEVILLE, has recently brought out the surgery of PIERRE FRANCO. Thanks to NICAISE, we can now view French surgery continuously from DE MONDEVILLE down to modern times. It is true DE MONDEVILLE and DE CHAULIAC were under the impress of THEODORIC and the Arabian school, but in many directions they were original, and without doubt these were the real founders of the French didactic school, and with the later labors of FRANCO and PARÉ its distinctive character was completed. That PARÉ distanced FRANCO in the race for recognition by immediate posterity was due quite as much to the political changes of the time, and accidental circumstances, as to any intellectual supremacy.

The intolerance of the period of FRANCO is well illustrated by the story told by NICAISE of BRISSOT, a young doctor of the Paris faculty who, in 1514, proposed to practice bleeding on the same side in which the pain was located, and cited GALEN as his authority. Although BRISSOT was sustained by the Paris School, his doctrine was struck by the anathema of the School of Salamanca, which decided that it would not permit a patient to be bled for a pleurisy on the side in which the pain existed. The practice was denounced as impious, and its adherents were branded as the "Lutherans of Medicine." CHARLES THE FIFTH issued a decree which defended the old-fashioned bleeders—that is to say, those who bled on the opposite side of the disease. "Nevertheless,"

says NICAISE, "GALEN triumphed, but in the end bleeding was practiced indifferently on one or the other side." FRANCO adopted the doctrine of BRISSOT and always counseled that the operation be performed on the side of the disease.

FRANCO used the incandescent knife in amputations, but like all those of his time ignored the dictum of DE MONDEVILLE that "suppuration of wounds was a pathological accident and not a necessary condition." FRANCO was born at Turriers in Provence about the year 1500 and died about the year 1561. His operations on hernia, and on stone in the bladder were his most distinctive ones.

THE DEATH OF HUXLEY.

THOMAS HENRY HUXLEY, the eminent English naturalist, died June 29, aged 70 years. He was in his twenty-first year when he took his M. B. degree at the University of London, after having studied three years at the Charing Cross Hospital Medical School; he took second honor in anatomy and physiology. In 1846 he joined the medical branch of the Royal Navy, serving first at the Haslar Hospital, and afterward as assistant surgeon on H. M. S., *Rattlesnake*, during its four years' voyage to the South Pacific. In 1853 he resigned from the Navy, to become the professor of natural history in the Royal School of Mines. From that point in his life, when not quite 30 years of age, his course as a scientific investigator and teacher, especially in the field of zoölogy, became fixed.

The papers that he wrote from the *Rattlesnake*, embodying the results of his studies, remained unpublished for some time, because the Admiralty refused to contribute anything toward the expense, and his pay as assistant surgeon was but seven-and-sixpence a day. So it was not until 1859 that the essays saw print. They were published then by the Royal Society.

After the first struggle, HUXLEY's rise to eminence was steady and rapid, until he became one of the foremost scientific men of the century. He had returned to England in 1850. In the following year he was made a Fellow of the Royal Society, and the next year he received one of the two medals that the society awards annually.

HUXLEY and TYNDALL, before they became famous, applied for the chairs of natural history and natural philosophy in an American university, where they hoped to work together, but other men, supposed to promise better work, were chosen.

As an estimate of the status of PROFESSOR HUXLEY in the scientific world, the following editorial from one of our daily cotemporaries may be set down as just and fair:

"By the death of PROFESSOR HUXLEY at Eastbourne England has lost one of her greatest scientific inquirers. HUXLEY's name will stand with those of TYN-

DALL, DARWIN and SPENCER at the head of English science of our generation. His views on the relation of science to religion and his attacks on revealed religion caused endless controversy, which has been oftentimes renewed during the publication of his collected works. But his true fame was based on his work as a scientist, pure and simple, and as such he will be honored in the annals of scientific research and literature."

"MEDICINE AND CRICKET."

A medical man in England has achieved fame by his mastery of the national game of cricket and the *London Daily Telegraph* recently started a shilling subscription to provide "a great national testimonial" to his success. Among the subscribers we find the following in a recent issue of the *British Medical Journal*:

Mr. Ernest Hart	100 shillings
Dr. Bridgewater	20 "
Dr. Isambard Owen	20 "
Dr. Dawson Williams	20 "
Mr. Francis Fowke	20 "
Mr. Burr	20 "
Sir T. Spencer Wells	20 "
Dr. R. Temple Wright	5 "
W. E. Soffe	5 "
Mr. H. Langley Brown	21 "
Dr. R. Shingleton Smith	21 "
"Nemo"	10 "
Compositors of the <i>British Med. Journal</i> , 14	"
Clerks at the <i>British Med. Jour.</i> office . .	10 "

Our valued contemporary, the *Medical News*, makes this GRACE testimonial fund the occasion for a timely and telling exposition of "Professional Indifference to Professional Enemies" in this country, and compares the subscriptions to the cricketer in England, with those received to pay the expenses and to publish the report of a trial—"the economic, social and professional importance of which is simply incalculable." "Besides the illustration cited," says our contemporary, "none could be more striking than the present professional disregard of the splendid work so modestly, bravely and effectively carried to a successful issue by DR. JAMES E. REEVES in his fight with the Amick Company. A large number of State and national societies have met since DR. REEVES' noteworthy victory, and not one of them by any public action has so much as alluded to it. As we write the advance sheets of the report of the trial are before us. We have read them with delight, and wish once again to arouse in the minds of the medical men of the United States a sense of their obligation to the good men engaged in this trial—the defendant, the attorney, the judge and the jury. It even yet seems marvelous, in our quack-ridden land, that such a result should have been brought about. Every physician should read the interesting story as related in the report, in the satirical letter of DR. REEVES, the charge of the judge, the arguments and declarations and, especially, in the specious logic of the plaintiffs' attorney, so redolent of popular error and demagogism. We regret

that we can not republish the entire pamphlet in the *Medical News*, but we regret far more the inertia of professional sentiment that is shown in the subscription of but fourteen men, amounting in all to the magnificent sum of \$141."

Following is the list of the fourteen subscribers, which we produce to contrast with the similar list above given:

Dr. George M. Gould	\$10.00
Dr. D. L. Page	1.00
Dr. N. P. Dandridge	10.00
Dr. P. S. Conner	10.00
Dr. F. Forchheimer	15.00
Dr. John A. Murphy	5.00
Dr. A. B. Richardson	5.00
Dr. J. F. Baldwin	5.00
Dr. J. H. Kellogg	5.00
Dr. A. Vander Veer	35.00
Messrs. William Wood & Co	25.00
Drs. Davis & Davis	5.00
Dr. John B. Hamilton	5.00
Dr. R. J. Trippe	5.00

The total thus subscribed for the REEVES fund is, as already stated, \$141; that for the English cricket-player is nearly \$10,000. The *JOURNAL* heartily indorses the sentiments of the *Medical News*, and urges every member of the AMERICAN MEDICAL ASSOCIATION to send his subscription of at least 50 cents to DR. REEVES for a copy of this report.

In relation to the Amick "Cure" it is interesting to note that MR. S. G. SEA, whose certificate of having been cured of consumption by this nostrum and who was at one time business manager, or advertising manager, or something which placed him in official relations with the Amick Company, recently died of consumption, from which he had suffered for several years. His was a case of fibroid phthisis, with the usual history of improvement and relapses running through five or six years, and several times during that period, before he fell in with this concern, he supposed himself cured of the disease. Indeed, at the time he began to take their treatment he asserted that he felt well, but the physical signs caused his physicians in Chicago to recommend him to change climate. A short time after this recommendation, his circular letter claiming to be cured began to be sent broadcast over the country.

MICRO-ORGANISMS IN THE HEALTHY NOSE.

Among the interesting facts we owe to bacteriology is the discovery that so-called healthy persons are the lodging places of myriads of bacteria, powdering their skins, dwelling in the cavities and orifices of the body, mouth, nose, throat, intestines, etc. Taking the nose, we should expect to find a large number of microorganisms in its cavities, both from its anatomic construction and its function. It is calculated that 500 litres of air, bearing on a low average 1,500 bacteria, are inspired every hour.¹ These microbes of the healthy nose have been investigated by HAJEK,

¹ *Lancet*, June 1, 1895.

LÖWENBERG, FRANKEL, VON BESSER, PAULSEN, ST. CLAIR, THOMSON and HEWLETT, among others.

A great diversity of opinions are arrived at by these observers; the first two, as also THOMSON and HEWLETT, found a scarcity of bacteria in the nose, while the others all found a greater or lesser number. Some found a number of pathogenic organisms such as the *erysipelas* coccus—one in every five healthy individuals) and FRANKEL'S coccus—one in every four cases. WEIBEL has cultivated a comma bacillus from the nose. WELCH² points out that capsulated bacilli are among the interesting features of nasal bacteriology. The *ozena* bacillus of ABEL closely resembles FRIEDLANDER'S bacillus, but it is not certain yet whether it is found in the healthy nose. PAULSEN made sixty-four cultures from the noses of twenty-seven healthy persons; eleven of these were sterile, the rest, fifty-three, furnished colonies; cocci were more frequent than bacilli; pathogenic bacteria were only observed in one normal case, and in this the *streptococcus pyogenes* was found.

A recent paper by THOMSON and HEWLETT³ seems to account for these diverse results. These authors examined thirteen healthy cases and examined the vestibule of the nose and the mucous membrane separately. From the former, twenty-seven cultures and thirty-four cover-glass preparations, and from the mucous membrane seventy-six cultures and thirty-four cover-glass preparations, were made. No attempt was made to differentiate the organisms; it was only sought to determine the presence or absence of bacteria. The authors arrive at the following conclusions: 1, the vestibule is lined with skin furnished with hairs and with sudoriferous and sebaceous glands, and is not part of the nose cavity proper—only leading to it; hence, in bacteriologic examinations of the nasal fossæ a distinction must be made between the vestibule and the mucous cavity proper; 2, contamination from the lining of the vestibule is difficult to avoid, even when this source of error is realized; 3, in the dust and crusts of mucus among the vibrissæ of healthy subjects microorganisms are never absent—as a rule they are abundant; 4, on the Schneiderian membrane the reverse is the case, since in over 80 per cent. of the cases no organisms whatever were found and the mucus was completely sterile; 5, the occurrence of pathogenic organisms on the Schneiderian membrane is quite exceptional.

While the number of individual cases in these researches is hardly large enough to be conclusive, still, if they are corroborated, it would seem that nearly all the microbes of inspired air are arrested either by the moist surface and the vibrissæ of the vestibule, or that, as has been already claimed by WURTZ and LERMOYEZ, the nasal mucus is germicidal.

THE PHYSIOLOGY OF SLEEP.

The suggestions from the later discoveries in the minute anatomy of the nervous system seem inexhaustible. Not only has the conception of the neuron modified all our ideas of nervous physiology and pathology, but we now have the protoplasmic neuroglia extensions also bearing a part in the newer theories of the mechanism of the nerve centers. Not long since, M. DUVAL offered a theory of sleep, according to which the nerve cells drew in their processes during slumber, as some flowers do their petals, basing himself in this, on the observation of certain lower organisms, in which he thought he had discovered amœboid movements of the nerve cells. His priority in this theory has been contested by LEPINE (of Lyons) but inasmuch as no one has yet seen these amœboid movements in the nerve cells of higher animals, it can only pass as an ingenious hypothesis.

At a recent meeting, however, of the Anthropological Society of Paris, M. AZANLAY called attention to some suggestions in this direction by RAMON Y CAJAL, one of the investigators to whom we owe the most in the striking discoveries in neural anatomy. He remarks that no matter how we kill an animal, whether by shock, strangulation, or anesthesia, we never find evidence of any amœboid movements of the prolongations of the nerve cells. His attention, however, was attracted by the phenomena presented by the neuroglia cells under the same conditions. These have numerous prolongations, some of them have very fine hairlike ones, and his theory is that these, endowed with amœboid movements, contract in the waking state, and extend themselves during sleep. In the former condition they permit the prolongations of the nerve cells proper, to come in contact with the end brushes of the neuron and to thus permit the conduction of the nervous influence. In the extended state, on the other hand, they isolate the nerve cells and thus interfere with conduction.

Around the capillaries and vessels we find a great number of these cells, and when they contract the vessels are enabled to dilate, the blood circulates freely and the nerve cells are excited to activity. In this way we can explain the effects of attention or concentration of the mind on a subject, as well as account for the phenomena of sleep.

As M. AZANLAY says, this theory, however much it may seem probable or take the fancy, is only as yet an undemonstrated hypothesis. The physiology of sleep is a very complicated subject, and any theory that has yet been advanced is open to many objections, some of them hard to meet. The same is true even to a still greater extent as regards the phenomena of attention and mental activity, and every attempt at explanation only opens up new questions that still remain for solution. This theory of RAMON

² Dennis' System of Surgery, I, 262.

³ Lancet, June 1, 1895.

Y CAJAL has the advantage of appearing an almost ultimate mechanical explanation, which would still remain to be given with any chemical or other theory, and it has also the prestige of having been offered by one who is, as yet, one of the most successful investigators and discoverers in the finer anatomy of the nervous system.

GLADSTONE'S VIEWS REGARDING MEDICINE.

The great ex-Premier of Great Britain has frequently expressed his high appreciation of medical men and their honorable walk in life, but he has seldom said anything more memorable than in the sentiments given below. The article from which we quote, purports to be a sketch of a great physician—the late SIR ANDREW CLARK—who was for nearly a quarter-century the family physician of the author. It is such a loving tribute as the worthy statesman is well capable of making, but it is something more and higher. It is a philosophical statement of the social rise and progress of medicine. The antiquity of the profession is admitted and it is placed farther back in the vistas of time than our own writers commonly aver, and the progressive exaltation of medicine among the avocations of life is both outlined as to the past and predicted for the future. Is it true—can it be true—that medicine is destined to outstrip in the social race those haughty competitors, law and theology? It may be, and if GLADSTONE'S philosophical insight is correct this will be its future position—the peer if not the superior of the other two.

The concluding paragraphs of MR. GLADSTONE'S sketch, which we quote from the *Youth's Companion*, June 27, are as follow:

"It was a common but it is probably now a vanishing practice, to speak of medicine, the law, and the church, meaning the sacred ministry, as the three learned professions. The three are probably of equal antiquity, but not of equal antiquity with anything like equal eminence. The primitive physician probably survives in the herbalist. He pursued his profession, as it were, underground, while the priest and the judge were originally to be found in the sovereign, or a little later perhaps in prominent and weighty members of society.

"Though there are isolated names of distinction associated with medicine, the doctor as such was the object of ridicule as well as, perhaps not less than, of confidence.

"It is needless to say that the state of things which made ridicule possible has passed away as completely as have the ecclesiastical conditions described in the opening verses of Hudibras, and the period

*"When pulpit, drum ecclesiastick
Was beat with fist, instead of a stick."*

"The physician has still this note separate from those of the lawyer and the clergyman. They are, at least in the country where I write, both of them largely endowed by the nation; whereas the physician or surgeon receives little public money, and that by the piece, or with a strict reference to work done; a circumstance which has not prevented a rise in their professional emoluments and in connection with all but the poorer classes of society, within the last hundred years or little more, greater, I apprehend, than has accrued in either of the other cases.

"It is not, however, emolument, but something higher and subtler by far, that I have now in view, namely, influence. The immense advance of knowledge and care in the training of medical men has of itself operated largely in opening to them the interior of families, and an access to personal confidences. But also time has been upon their side. When gold was first discovered, says HORACE,

*"males et nova febrium,
Terris incubuit cohors."*

"In this simple utterance there is a broad and comprehensive meaning. The increase of wealth signifies the multiplication of enjoyments without any corresponding advance in conscientious motive, or in prudential restraint.

"Other causes coöperate with those I have already named—such as the change in communication between man and man, from slow to rapid, and from rapid in many cases to instantaneous. All I have said seems to imply new sensitiveness and complex developments of the nervous system, answering to a condition in which we live so fast, and even while making life more and more luxurious, we abridge the first and most innocent of all luxuries, and deny nature her repose.

"The physician had always to use his eyes; and now he has to use them more largely, more sharply than ever. But in our day he has, and in the coming day yet more will he have, to use also his ears. He becomes, and he must become increasingly, the recipient of the confidences of the family and the individual. He has a kind of priesthood to exercise as he grows in acquaintance with the secrets of the heart.

"He must, whether he will or not, in the higher circles of his profession, find himself invested with a sacred guardianship of purity and integrity for the soul, as well as with purveyance of health for the body, as the connection and interaction of the two come to be more intricate. If he declines this guardianship, the alternative is that he will aid relaxation, and will abet corruption."

GEORGETOWN MEDICAL COLLEGE, WASHINGTON, D. C.

It is with pleasure we note that this college has had the courage to break away from the custom which has heretofore prevailed at the National Capital, of having night sessions. The Georgetown Medical College will hereafter be a day school, and there can be no question but the change will not only meet with the approbation of the clientage of the school, but the friends of higher medical education everywhere, who have always noticed with regret that the medical colleges in the capital of our country were simply night schools, for the most part dependent upon Department clerks, necessarily otherwise engaged during office hours. That many good men have been graduated at these schools everybody knows, but their success has been achieved in spite of the handicap.

CORRESPONDENCE.

Prophylaxis of Paludism.

NEW CASTLE, COLO., July 1, 1895.

To the Editor:—Under this caption, in the last number of the JOURNAL, is a quotation from Noel: Any prophylaxis with the oft applied agent, quinin, belongs rather to the field of practical medicine than hygiene. Those who adopt the old-time theory of malaria-swamp poison, or the more recent one of micrococci-malaria, until they have arrested the beneficent action of the sun rays that carry the waters of the ocean to the "dry and thirsty land," or destroyed the microscopic entities that abound in all paludal regions will probably find in medication with anti-periodics their chief prophylaxis.

Wherever evaporation is abundant there will be hot days and cool nights, with the enervating and chilling influences of dampness. During the chill of night there will be contraction of the capillaries of the periphera and consequent hyperemia, with engorgement and congestion of central or-

gans, followed, soon or late, by more or less pronounced chill, febrile reaction and diaphoresis, the physiologic and pathologic expressions of thermometric and hygrometric environment. A simple and rational prophylaxis will readily suggest itself to those who are not wedded to the old ruts, and who do not go "round Robin Hood's barn," to find causation. If, instead of wooing the cool and chilling air of night in the garb of fashion, or going to sleep in the damp clothes worn during the day, and half covered, those living in such localities would pay due regard to ordinary hygienic laws, and take a friction bath, damp or dry, as night approaches, put on dry warm clothing, and sleep between flannel blankets, they may laugh to scorn both the marsh poison and pathogenic germs of even the lagoons of Hindostan, or the swamps of Louisiana.

W. L. SCHENCK, M.D.

"Audi Terthum Partem."

SAN FRANCISCO, CAL., July 4, 1895.

To the Editor:—In the June 29 issue of the JOURNAL, on page 1021, under the head of "A Question of Translation," Dr. G. A. Aschman, of Wheeling, W. Va., takes the liberty to so construe the latter part of my communication of June 15, (appearing under the heading of "*Audi Alteram Partem*,") as to make it appear that I have been guilty of incorrectly translating the German term "*entgiften*" which is the opposite of the German term "*vergiften*"—to poison—and which has no equivalent in the English language—except "*disem-poisson*" perhaps.

The Doctor, after pretending to be familiar with the expressions of Binz—and after stating that I have no reason to take issue with Binz on his doctrine, sums up his article by stating that it is sometimes dangerous to make a translation when not perfectly familiar with the respective languages. In this I fully agree with the Doctor, and he will, no doubt, agree with me after reading this article, that it is still more dangerous to criticize that which one does not fully understand.

When I penned the words, "to poison the organism as it were," I knew full well that unless the readers thereof were familiar with the subject upon which Binz expressed himself, they would construe these words in a translatory sense, when, in fact they were penned in a definitory sense—as will be seen hereafter.

That slight incidents will furnish the key to great truths is fully illustrated in the present case—as the incidental error on my part in substituting "*Buda-Pesth*" for "*Weisbaden*," the place where Binz expressed himself, as quoted by me, goes to show that Dr. Aschman was not familiar with the expressions of Binz until I caused them to appear in print on June 15, as he would hardly have overlooked this error on my part, hence I am not surprised that the Doctor failed in comprehending the sense in which I penned the words, "to poison the organism as it were."

As "*sero-therapy*" is the outgrowth of just such expressions as those made by Binz at Weisbaden in 1883, and as the adoption or rejection of said therapeutic method in this country must depend upon a full understanding of the cardinal principles underlying it—I will take this opportunity to expose these principles more fully, for the benefit of those who are not familiar with the German language.

The subject upon which Binz expressed himself at Weisbaden was "Antagonism between Microbes and Toxins." He expressed himself in a bacteriologic sense—on the assumption that infectious diseases are due to specific microbes and their toxins, capable of antagonizing or chemically neutralizing one another in the blood—when he said: "Our future therapeutic efforts in infectious diseases must be toward '*den lebenden organismus zu entgiften*,' in contra-distinction to our past therapeutic efforts which have been toward '*den lebenden organismus zu entgiften*,' by eliminating the contagium at the bedside by such physiologic processes as emesis, catharsis, diaphoresis, diuresis," etc.

That a therapeutic method having for its object chemie neutralization of one toxin by another, or destruction of one microbe by another in the blood—phagocytosis as it were—differs radically from a therapeutic method having for its object physiologic elimination of the contagium, can hardly be gainsaid, hence I have good reason to be at issue with Binz, Dr. Aschman's opinion to the contrary notwithstanding. And inasmuch as I have shown that there exist no reliable scientific data that would justify us in assuming (see my papers, the "Status Presens of Antitoxic Blood

Serum," and the "Status Presens of Inherited Tuberculosis," read before the State Medical Society of California, April 16, 1895) that infectious diseases are caused by specific micro-organisms or their toxins, the majority of the American medical profession will no doubt agree with me that I made no "serious mistake" when I defined the "serum method," based upon the expressions of Binz and others, "to poison the organism as it were," especially so, when I have shown by reliable scientific data that the serum causes chemie decomposition of the blood and has increased the mortality from diphtheria in Berlin over 25 per cent.

Concluding, I will say, that while I would regard chemie neutralization of the etiologic factor concerning infectious diseases as the "ideal" therapeutic method in such diseases, still, until such results shall be demonstrated beyond a reasonable doubt, I, and I believe the majority of the profession in this country, will continue in the future, as they have done in the past, to eliminate the poison, "*ad via naturam*," physiologically as it were.

Respectfully submitted,

CHAS. G. KUHLMAN, M.D.

Dr. Robert L. Annan.

To the Editor:—In your issue of June 8, on page 909, under the caption, "An Example to be Followed" it is stated that "Dr. Andrew Auvan of Emmitsburg, Md., who was 90 years old on April 27, has contributed \$50 to the Rush Monument Fund."

In a communication written immediately on reading this paragraph, but which has evidently failed to reach you, I begged you to state that the worthy physician whose example I hoped would be followed was Dr. Andrew Annan, of Emmitsburg, Md., whose father, Dr. Robert Landales Annan, was a student of Dr. Rush, and whose certificate of qualification for the practice of medicine, bearing this great man's signature, is now in the possession of the latter's grandson, Dr. Robert L. Annan, of Emmitsburg.

In asking you to make this correction, I beg also to remind the members of the Association that at its last meeting it was made their individual duty "to collect funds for the Rush Monument from their fellow-practitioners and transfer the amounts to the Treasurer of the Committee on Rush Monument at as early a day as possible"—and I hope that every delegate and member present at that meeting will promptly follow the example which our esteemed and venerable colleague, Dr. Annan, has set, by transmitting the funds he may collect to George H. Rohé, M.D., Secretary, Catonsville, Md.

Very respectfully,

ALBERT L. GHON, M.D.,
Chairman Rush Monument Committee.

Woman's Medical College of Pennsylvania.

PHILADELPHIA, PA., July 6, 1895.

To the Editor:—In a recent issue, you reprint the greater part of an editorial appearing in the *Medical Press and Circular*, concerning the status of American diplomates and, while noting some errors, fail to point out that the "Female Medical College" to which allusion is made in the editorial, is a non-existent institution and has been so for over twenty-five years. The unfavorable light in which the college is placed, may be easily transferred by some persons to the only institution existing in Philadelphia for the instruction of women in medicine, namely, the Woman's Medical College of Pennsylvania. This institution is a member of the Association of American Medical Colleges, has been represented at all its recent meetings and conforms to its requirements. I presume it is hardly necessary to state that the college is in good standing in the medical profession of the United States.

Yours,

HENRY LEFFMANN.

Illinois State Board of Health.

To the Editor:—Enclosed please find copy of a set of resolutions unanimously adopted by the Illinois State Board of Health, at its recent meeting held in Chicago June 25, 1895. Will you kindly give the same publication in the next issue of your JOURNAL? and greatly oblige,

J. W. SCOTT, M.D., Sec'y.

WHEREAS, The Faculty of the Northwestern University

Woman's Medical College adopted a set of resolutions, criticising the Illinois State Board of Health for having issued to three non-graduate students of said College, the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had opportunity to make any defense; and

WHEREAS, The said College has not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon an average rating of less than 80 per cent. on all branches, and the questions and examination papers, and a tabulated record of all examinations are preserved, and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical College, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration or explanation of the charges as the facts may warrant; and further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed) B. M. GRIFFITH, M.D.,
SARAH HACKETT STEVENSON, M.D.

It was J. Marion Sims.

PHILADELPHIA, July 7, 1895.

To the Editor:—In an article by Dr. R. H. Dalton, published in the JOURNAL, Dec. 23, 1893, I find Dr. Marion Sims called Francis Marion Sims, "named after General Francis Marion of the Revolution." Now in the "Physicians and Surgeons of the United States," page 48, you will find the name is J. Marion Sims, and as the data for this sketch came to me from Dr. Sims and was revised by him, it undoubtedly is correct. This may be a trifle, but for the sake of future history it is better to make the correction.

Yours truly, W. B. ATKINSON, M.D.

PUBLIC HEALTH.

The Proposed Reorganization of the Health Department of Chicago.

The following is self-explanatory:

86 FIFTH AVENUE, CHICAGO, June 26, 1895.

Hon. Geo. B. Swift, Mayor, Chicago.

Dear Sir:—It has been apparent for some time to those familiar with the workings of the Health Department of Chicago, that it needed reorganization. The ordinances on which it is based do not show any harmonious plan but, on the contrary, they are the result of the changes which have taken place in the growth of this city from a village to a metropolis. The time, therefore, seems ripe for the establishment of a Health Department which may not only serve for the purposes of the city of to-day, but one capable of indefinite expansion, according to the future growth and needs of the city, with an increase of subordinate officers from time to time. I have therefore prepared and drafted an ordinance which, in my judgment, meets the necessities of the case,

and as it does not increase the general expenditure voted for the Health Department, I sincerely hope you may see your way clear to transmit it to the Council for early passage.

This plan involves future codification of all the laws and ordinances bearing upon the public health and the allotment and definition of the duties of all classes of public employes as related thereto. It provides also for the adoption of such regulations as concern the division of the city into sanitary districts, to be increased from time to time as the growth of the city requires; in other words, it is an elastic plan which will not require changes in the immediate future. I have omitted the compensation to be attached to each office and submit in another inclosure a proposed schedule of the same for the information of the Finance Committee. In the preparation of this schedule, I have been assisted by the Assistant Commissioner, Dr. Frank W. Reilly, who has had access to the records showing amounts at present paid by the department.

I will now take the bill up by sections for the purpose of explanation. Sections 1, 2 and 3 are, in my opinion, necessary to secure the perfect working of the officers and employes of the department. Indeed, it will be found impossible to secure the appointment of proper persons unless the tenure of office be made more secure than has been the case under previous ordinances. Moreover, it is such as to bring the department in line with the civil service laws of the State and of the United States. I had charge of a Bureau of the Treasury Department when the present civil service law was enacted, and I am entirely familiar with its operations. Some passages in this ordinance will be recognized as quoted directly from that law.

Sections 4, 5, 6 and 7, are self-explanatory, and relate to the different classes of officers, and especially to the qualifications and appointments of the Sanitary Director and Assistant Sanitary Director.

Section 8, relating to the City Physician, after giving the qualifications, makes specific mention of his duties. There is some conflict in the present ordinances as to his exact relations with the Health Department, and this section makes it entirely clear.

Section 9, relating to the Commissioner, sets forth his duties, and, as I understand it, is well calculated to carry out your views in regard to placing the business portion of the Health Department under the direction of a skilled business man, and as will be seen, there are duties of this nature quite sufficient to occupy the time of a man of this character.

Section 10, providing for a Sanitary Captain, is self-explanatory. It must be obvious that some one must be had to account for the property owned by the Department, to have charge of the same, and to superintend and to direct the outdoor work. I have nowhere seen in the ordinances or regulations of the Department any provision looking to an accounting for the property, as is provided for in this section, which is not only calculated to protect the interests of the city, but to prevent misuse or misapplication of any property or appliance belonging to the Department.

Sections 11 and 12 relate to the appointment of a City Chemist and a Medical Inspector, which are self-explanatory, except that definite qualifications are, for the first time, provided for. The system of examination of medical inspectors, as preliminary to appointment, as proposed in this ordinance, should by all means be adopted at the earliest possible moment, as the appointment of persons through motives of friendship or political association fails to secure that standard of professional qualifications that a great city should always be able to command.

The Sanitary Corps, provided for by Section 14, simply defines the status of the existing affairs, with this exception, that it does not provide that physicians shall be employed as fumigators, who are practically skilled laborers, as there is no need to pay such high prices for work of this character. It appears on investigation that the designations laid down by present ordinances do not by any means define the work actually accomplished by the persons being designated as fumigators, who are employed in the Vaccination Department and elsewhere, and it seems that no particular regard has been paid to ordinances in the matter of nature of employment of persons as designated by the ordinances. These irregularities, perhaps impracticable to be avoided under existing conditions or circumstances, will be done away with if the new ordinance shall be passed.

Section 16 provides for the employment of an interpreter, an office not at present borne on any roll, but which is extremely necessary for the issuance of circulars in the different languages which are necessary in order to reach a polyglot population such as exists in Chicago, and his ser-

vices will be required whenever personal investigations are undertaken in certain districts, not only by the Sanitary Director or by the Medical Inspectors.

The enactment of this ordinance will necessarily require the re-appointment of all officers and employes mentioned in the act, except the City Physician and Commissioner of Health.

Respectfully submitted,

JOHN B. HAMILTON.

AN ORDINANCE TO REORGANIZE THE DEPARTMENT OF HEALTH.

Be it ordained by the City Council of the City of Chicago: There is hereby established in the municipal government of the city of Chicago an executive department to be known as the Department of Health.

Appointments—General Provision.

§ 1.—No person shall be appointed to any office or position in the said Department, until proper inquiry shall be made by examination, or otherwise, into the ability and fitness of such person to perform the duty that may be required of him, should he be appointed.

Removals—General Provision.

§ 2.—No officer or employe of this Department shall be removed except for cause and no person shall be appointed, promoted or removed for any political reason. Any officer or employe may be removed for crime, malfeasance, habitual neglect of duty, willful misconduct, insubordination, disobedience of orders, incompetence, or insanity, and for no other cause.

Officers and Employes shall not accept Gifts or Bribes.

§ 3.—Any officer, inspector or member of the Sanitary or Ambulance Corps who shall accept any gift of money or other valuable thing for reporting or not reporting the existence of any nuisance or case of contagious or infectious disease, shall upon proof thereof be dismissed by the Sanitary Director and shall in addition be subject to such other penalty as the ordinance may prescribe.

Enumeration of Officers and Employes.

§ 4.—The Department of Health shall hereafter consist of the following officers and employes to-wit: a Sanitary Director; an Assistant Sanitary Director; the City Physician; the Commissioner; a Sanitary Captain; the City Chemist; Medical Inspectors; the Sanitary Corps; Clerks and Interpreter.

Sanitary Director—General Qualifications.

§ 5.—The Sanitary Director shall be a physician of not less than ten years' practice and shall be skilled in sanitary science. He shall be appointed by the Mayor, by and with the advice and consent of the Council. He shall hold his office until his successor shall have been appointed and qualified.

Duties of Sanitary Director.

§ 6.—The Sanitary Director shall supervise all matters connected with the sanitary interests of the city, and shall perform such specific duties as may be defined in this ordinance, or designated in former ordinances to be performed by the Commissioner of Health except such duties as are prescribed for said Commissioner in this ordinance, and he shall have authority over all officers and employes in said Department. And when at any time it shall become necessary to establish lake or land quarantine, he shall have command of such quarantine. He shall according to circumstances and season, issue such circulars of popular instruction as shall lead to the preservation of the public health.

Assistant Sanitary Director—Qualifications.

§ 7.—The Assistant Sanitary Director shall be a physician of not less than ten years' practice, and shall be skilled in sanitary science. He shall upon recommendation of the Sanitary Director, be appointed by the Mayor, by and with the advice and consent of the Council, and shall hold the office until his successor shall have been qualified and confirmed.

Duties.

He shall perform such duties as may be assigned him by the Sanitary Director. In case of the sickness, disability or prolonged absence of the Sanitary Director, he shall by direction of the Mayor, act in the stead and perform the duties of the Sanitary Director.

City Physician—Qualifications.

§ 8.—The City Physician shall be a physician of not less than ten years' practice in the State of Illinois, of which not less than five shall have been in the City of Chicago. He shall be appointed by the Mayor, by and with the advice and consent of the Council.

Duties.

He shall supervise the administration of the hospitals established by the city, including hospitals for contagious diseases, excepting quarantine hospitals. He shall prepare regulations for the government of police surgeons, ambulance physicians, resident physicians and superintendents of the city hospitals, in the performance of their duties and shall have immediate supervision of the city ambulance service, when established. He shall attend or cause an assistant to attend the sick in the city workhouse, calaboose, watchhouse, police stations or houses of correction, and shall attend such meetings as may be held by the Department of Health, and in case of epidemic, he shall render such assistance and coöperation, and perform such duties in connection therewith as the Sanitary Director may require.

Commissioner.

§ 9.—The Commissioner of the Health Department shall be skilled in business affairs and shall be appointed by the Mayor, by and with the advice and consent of the Council.

Duties.

He shall have supervision over all clerks of the Department except as hereinafter provided; and shall have charge of all accounts. He shall keep an accurate record of all receipts and expenditures and shall be responsible for all fees received. He shall keep the records of births, marriages and deaths, and issue burial permits under regulations to be made by the Sanitary Director. He shall disburse all monies, pay all officers and employes, make all purchases of supplies, and execute all contracts, but he shall make no purchase of sanitary or special appliances without the approval of the Sanitary Director.

Sanitary Captain.

§ 10.—The Sanitary Captain shall be a person accustomed to superintendence of workmen, and qualified to keep records. He shall be appointed by the Mayor on the recommendation of the Commissioner, and shall have the rank and pay of a Captain of Police.

Duties.

He shall be the custodian, and have charge of the storehouse of the Department with all property belonging thereto, including horses, wagons, carts, ambulances, fumigating apparatus and sanitary appliances of every kind belonging to the Department, and shall make a semi-annual return thereof to the Commissioner. The return shall show from whom the property was purchased or received, to whom issued, and the present condition thereof. No property of any kind shall be issued to any person except upon requisition duly approved by the Sanitary Director, Assistant Sanitary Director, City Physician, Commissioner or Chemist. He shall have charge of the Sanitary Corps and under the Department regulations, supervise their work.

Chemist—Qualifications.

§ 11.—The Chemist shall be a graduate in medicine, skilled in chemistry, pharmacy and bacteriology. He shall be appointed by the Mayor on the recommendation of the Sanitary Director.

Duties.

His duties shall be to have charge of the laboratory, and to conduct such chemic and bacteriologic investigations as he may from time to time be instructed to make by the Sanitary Director, to make test investigations of food products, milk, water, ice, beverages and drugs, and to make report thereof to the Sanitary Director.

Medical Inspectors.

§ 12. The Medical Inspectors shall be appointed by the Mayor on the recommendation of the Sanitary Director, but no person will be appointed Medical Inspector until after such examination as shall satisfy the Sanitary Director that the applicant is fully informed in the principles of sanitary science.

Qualifications.

Physicians holding the collegiate degree of Doctor in State Medicine, or its equivalent, will not be required to pass such examination.

Chief Inspector.

One of the said Medical Inspectors shall be specially skilled in the diagnosis of the exanthematous and contagious diseases, and shall be designated as Chief Medical Inspector.

§ 13. Medical inspectors, except the Chief Medical Inspector, will perform such service as may be required of them from time to time, and they shall be paid according to the service actually performed, on a schedule of pay to be prepared by the Sanitary Director and approved by the Mayor.

Sanitary Corps.

§ 14. The Sanitary Corps will consist of three divisions viz., first, those employed in the division of the City Physician as litter bearers, ambulance drivers and hospital attendants; second, milk, meat, food and other inspectors employed in the chemist's division; third, plumbing inspectors, fumigators, and persons employed in the work of placarding infected premises, and disinfection of the same, acting under the Sanitary Captain.

Uniform to be Worn.

§ 15. All members of the Sanitary Corps shall wear the uniform of their grade, and shall receive such monthly compensation as the Mayor may by order promulgate, as equitable for the services respectively performed by each class.

Clerks and Interpreter.

§ 16. There shall be employed in the Department of Health—clerks who shall be appointed after due examination into their fitness for such position, and they shall be assigned to such duty as the Commissioner may designate, *provided*, that the Sanitary Director is hereby authorized to employ one person as stenographer and clerk to serve under his immediate direction, and one person as interpreter and translator. No person shall be employed as translator who can not read correctly and converse in five modern languages to be designated by the Sanitary Director.

Repeal Provisions.

§ 17. So much of all previous ordinances as conflict with or in any way impair the operation of this ordinance are hereby repealed, and all provisions of law and ordinances relating to the Department of Health, the Commissioner of Health, the City Physician, the inspection of food, milk, ice and drugs, and miscellaneous ordinances relating to health, in Chapter xxvii, and numbered consecutively from section 1907 to section 2059 inclusive, of the revised laws and ordinances in force April 2, 1890, and the laws and ordinances from April 2, 1890, to July 10, 1894, being Chapter xxvii, numbered consecutively from section 5053 to section 5137 inclusive, shall, so far as they may be applicable, remain of full force and effect.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Antwerp: June 1 to 8, 1 case, 1 death.
Batoum: June 4 to 18, 8 cases, 4 deaths.
Buda-Pesth: June 3 to 17, 1 case, 2 deaths.
Cairo: May 20 to 27, 6 deaths.
Calcutta: May 18 to 25, 56 deaths.
Dublin: June 16 to 23, 4 deaths.
Edinburgh: June 16 to 23, 2 deaths.
Havana: June 20 to 27, 3 deaths.
Liverpool: June 15 to 22, 1 death.
Leith: June 16 to 23, 3 deaths.
London: June 8 to 15, 19 cases, 1 death.
Manchester: June 8 to 15, 2 cases.
Montevideo: May 10 to June 1, 3 cases.
Odessa: June 8 to 15, 1 case, 3 deaths.
Paris: June 1 to 8, 1 death.
Rio de Janeiro: May 25 to June 8, 18 deaths.
Rotterdam: June 15 to 22, 4 cases.
St. Petersburg: June 8 to 15, 6 cases, 2 deaths.
Triste: June 8 to 15, 1 case.

SMALLPOX—UNITED STATES.

Ohio: Cincinnati, June 28 to July 5, 1 case.
New Jersey: Hoboken, June 22 to 29, 1 case (varioid.)
Tennessee: Memphis, June 30 to July 6, 2 cases.
Missouri: St. Louis, June 22 to 29, 3 cases.

CHOLERA.

Calcutta: May 18 to 25, 47 deaths.
Hio: June 8 to 15, 13 cases, 7 deaths.

YELLOW FEVER.

Cienfuegos: June 23 to 30, 1 death.
Havana: June 20 to 27, 10 cases, 5 deaths.
Rio de Janeiro: May 25 to June 8, 30 deaths.
Santos: May 24, to 30, 33 cases, 18 deaths.
Vera Cruz: June 20 to 27, 5 deaths.

The following letters have been received from Dr. R. Cleary, Sanitary Inspector Marine-Hospital Service at Rio de Janeiro, Brazil:

CONSULATE-GENERAL OF THE UNITED STATES OF AMERICA.

RIO DE JANEIRO, June 4, 1895.

Sir:—I have the honor to transmit report for week ended June 1, 1895.

There were 8 deaths from *accessio pernicioso*, a decrease of 6; 9 from yellow fever, a decrease of 14; 6 from smallpox, an increase of 2; 6 from enteric fever, the same as in the foregoing week; 2 from beriberi, none in the former week; 2 from measles and one from whooping cough, the same as in the previous week; 1 from influenza; 2 from choleric diarrhoea, an increase of 1, and none from other choleraic diseases.

The total number of deaths from all causes was 279, a decrease of 64 from the foregoing week.

I am happy to say that the above shows a decided improvement in the sanitary condition of the town and port.

Cholera.—I hear nothing more of this disease, though occasionally a death from some choleraic form of disease is reported, which I do not think means much.

Yellow Fever.—The few sporadic cases of this disease are steadily declining in number, so that there is nothing here now more than usual for the time of year.

RIO DE JANEIRO, June 11, 1895.

Sir:—I have the honor to inclose report for week ended June 8, 1895.

There were 9 deaths from *accessio pernicioso*, an increase of 1 over the foregoing week; 21 from yellow fever, an increase of 12; 12 from smallpox, an increase of 6; 4 from beriberi, an increase of 2; 3 from enteric fever, a decrease of 3; 2 from measles and one from whooping cough, the same as in the foregoing week; 1 from choleric diarrhoea, a decrease of 1; 1 from diphtheria and 1 from leprosy. From all causes there were 350 deaths, an increase of 71 over the previous week.

The increase in the number of deaths is great, and I do not know what to attribute it to, unless to the damp weather.

Yellow Fever.—The number of deaths from this cause more than doubled in this week, but it is not unusual at this time of the year to have rises and falls in the number of deaths until the end of June, when the disease becomes almost extinct, as a rule, but it is never entirely so in this town. There is no fear of an epidemic at this time of the year.

Cholera.—No more cases of this disease have appeared, either in the interior or in the town. The one case of choleric diarrhoea reported may or may not have been cholera. I doubt it.

Smallpox.—There is always an increase in the so-called winter season, which is now beginning, and the total of 12 deaths from this cause is not excessive, as they occurred at scattered points, and the disease does not appear to be extending epidemically.

Leprosy.—It is well known that there are many lepers in the interior of the State of San Paulo, and this case may have come from that part of the country.

Measles and Diphtheria.—As for these diseases they are not epidemic here, and have not been since I knew the place, but sporadic cases do appear, usually brought from outside.

MISCELLANY.

Dr. Ernest Laplace, LL.D.—At the last annual Commencement of Georgetown University, Washington, D.C., the degree of LL.D. was conferred on Dr. Ernest Laplace, Professor of Surgery in the Medico-Chirurgical College of Philadelphia.

Dr. Bransford Lewis, of St. Louis, having resigned his position with the Missouri Medical College, has been elected Professor of Genito-Urinary Surgery at the College of Physicians and Surgeons; and Genito-Urinary Surgeon to the Baptist Hospital.

A Corporation with a Soul.—The Metropolitan Telephone Company of New York has published the following humane regulation, adopted Dec. 31, 1894: "Any person may be granted free service at any public pay station of this company for the purpose of securing an ambulance or medical assistance necessitated by some accident in the immediate vicinity of such station. A statement of the circumstances, signed by the pay station agent will be accepted as a basis for remitting the charge. Pay station agents should secure, if possible, the signature of the person using the instrument for such purpose." It would be well if all other companies would make their service "as free as air," as an assistance to the emergency or ambulance work of our cities.

Correct Addresses Wanted.—Will some one please give the correct addresses of the following: Dr. George Baine, Washington, D. C.; Dr. Geo. Bensen, Philadelphia, Pa.; Dr. B. J. Byrne, Baltimore, Md.; Dr. W. Balgroun, Baltimore, Md.; Dr. W. J. Craigen, Baltimore, Md.; Dr. W. F. Hines, Baltimore, Md.; Dr. G. M. Kober, Baltimore, Md.; Dr. S. W. Lotto, Philadelphia, Pa.; Dr. F. Meyer, Baltimore, Md.; Dr. W. L. Nosbeen, St. Louis, Mo.; Dr. J. R. Thomas, Baltimore, Md. These names were added to the mailing list as new members of the Association, but their JOURNALS have been returned by the postmaster, requesting better directions for the delivery of same. All JOURNALS, especially those sent to the larger cities, would reach their destination more promptly if the street and number were added, and we respectfully request members to furnish us with these in cases where they are omitted.

"Tuckahoe," or the American Truffle.—The scientific writer for the New York *Independent* has collated the following facts regarding the so-called "Indian bread," or "Indian loaf." "Attention is being called in some of our scientific serials to certain species of cryptogamic plants, which grow wholly beneath the surface, and which might perhaps be popularly called underground puffballs. Like all the puffball family they are nutritious, and if they could be produced in large numbers would be valuable commercial articles of human food. The best known American species is found southward, and is known as 'Indian bread' from its nutritious properties, and by the Indians called 'tuckahoe.' The average size is about that of one's fist, but often much larger. They are believed to be somewhat abundant, if one only knew how to locate them; but it is only now and then that specimens can be seen outside of museums. In the Old World the best known of this class is the truffle. But a difficulty was found in locating them until a race of dogs were trained to indicate by scent where the truffle lay buried, when the truffle-gatherer would dig up the little delicacy. These dogs are the chief stock in trade of the collectors, and they rarely part with the animals. The truffles seem to grow the most naturally under oak trees, or in oak forests. For all the large number annually collected the product does not diminish, though, so far as known, the collectors take no special care to extend the growth by artificial methods. There have been statements of the truffle being found in America, but it has not been clearly shown. It is thought that the tuckahoe may be more abundant than it seems to be, or would be made more abundant if the roots it best loved to feed on could be definitely ascertained, and such trees in the region where the fungus is known to grow could be in some measure protected. When assured of an abundant annual product, there might be no difficulty in training 'tuckahoe dogs' as well as 'truffle dogs' to aid in harvesting the crop."

Emergency Rations for the Army.—The Subsistence Department of the Army has received reports from two of the boards convened to determine the best form of an emergency ration. A board consisting of three line officers, one medical and one subsistence officer, was convened in each of the military departments to consider and experiment on this subject. According to the *Army and Navy Journal*, the Commissary General of Subsistence declines to give out the reports of the boards for publication at the present time. It is his desire to have the findings on this important question remain secret until all the organizations have submitted their views. It is said that the two reports received show great research and make many valuable recommendations. What will be done in the matter will be to take from each report any recommendation it may contain which General Morgan may consider worthy of adoption. It is understood that the New York board is receiving a large number of samples of condensed foods from manufacturers and others interested in their adoption in the service. Returns from other boards indicate similar activity on the part of dealers. It is expected that all the reports will be received before September next and that then the matter will be decided. The Adjutant-General has received a long report on the subject of the emergency ration from Capt. J. H. Dorst, 4th Cavalry, military attaché to our Legation at Vienna. He has forwarded samples of the Austrian war rations, viz., cans containing a beef stew; tablets of concentrated soups;

one of parched flour, another of peas. Other articles sent are meat and other sausages, with a mixture of vegetables intended for making soup; also compressed tablets of roasted and ground coffee prepared with the proper percentage of sugar. The war rations are of several classes: the full ration, the supplemental "nachshub" ration, the reserve ration for the period during and immediately following mobilization, the reserve ration for field operations, and a railroad ration. All war rations are issued in kind and the full ration is always issued when practicable. The nations of Europe are apparently a long way ahead of us in this matter, but the present activity of our Subsistence Department will demonstrate the faults of our ration as a war ration and enable us to adopt improved methods of subsistence for the future.

A Great Work on Hippocrates.—The London *Lancet* notes with gratification that both French and German scholars are at work upon a Hippocratic revival. Dr. Michel Sourlangas, for the French, has given a study of the ideas of Hippocrates regarding infection and the antiseptic treatment. The author gives the following among the conclusions reached by him in his monograph: first, that Hippocrates made medicine a science, and that on this ground he merits the title rather of Legislator than of Father of the Healing Art; second, that most of the infectious diseases were known to him—the rôle he attributes in their production to the air and the water constituting in fact a scientific study in etiology; and third, that he availed himself in treatment of substances whose virtues as microbicides are undeniable.

But of the great German work the *Lancet* writes as follows: "But more important than these incidental excursions into the fascinating field of ancient medicine is the new German translation of the entire Hippocratic collection by Dr. Robert Fuchs, of which the first volume is now before us. In this the reader will readily discern that Dr. Fuchs is a more learned scholar than his predecessors, and that he has also the advantage of belonging to a sounder, more scientific medical school. The language in which he re-clothes the Greek author is that of modern medicine, and the interpretation he gives is such as was possible only to one who has profited by the vast accessions to our knowledge of antiquity by the archaeologist, the epigraphist, and the special investigator of antique life and culture. His familiarity with such monographs as the well-known 'Die Botanik Homers' and such monumental treatises as that of Berendes on the 'History of Pharmacy' will illustrate our meaning. The undoubted advantage he possesses over Littré, Adams and Ermerins is also manifest in the notes, which from their richness in expository matter contribute to make this book an encyclopedia of Greek medicine. The first volume comprises the introductory writings of Hippocrates, then the general treatises, then that on dietetics, and, finally, the general pathology and the prognostics. The second volume will include the special pathology and therapeutics, and will be ready next summer. The third, completing the work, will appear in September or October, and will deal with therapeutics (second part), surgery, ophthalmic medicine, gynecology, treatment of infancy, and the Hippocratic correspondence. The entire publication will indicate the high-water mark attained by European research and scholarship in the 'mare magnum' of Greek medicine, and our only regret in calling attention to it is that, since Francis Adams published his translation some fifty years ago for the Sydenham Society, British learning has done so little for a subject in which it has in past centuries shown its ability to excel."

Diagnosis Tags for Use on the Battle-field.—During the past year much attention has been given by Army surgeons to the perfection of a diagnosis tag for field service. Drs. Harvard, Woodhull, Hoff, Worthington and Forwood have each presented models. The tag, model of 1895, issued from the Surgeon-General's office is of tough cloth paper and bears more resemblance to the Forwood tag than to the others. It is five inches long by two and three-quarter inches wide, with a bright red border, three-sixteenths inch deep, on one side, and a dark blue border of the same depth on the other, each of which can readily be torn off along a line of perforations. The tags are put up in booklets of twenty-five with a few additional slips of white paper on which the word "urgent" in large blue capitals is printed. Each tag is provided with a slender copper wire by which it may be attached to the clothing. On the inside of the

covers are printed "Directions" and "Remarks" as follows: "Directions: 1, the diagnosis tag is to be attached as soon as practicable to every sick or wounded man on the battle-field. The diagnosis must, as a rule, be entered by a medical officer. 2, the red border is left on and the blue torn off when from shock, severe injury or other cause the soldier is at the time unable to endure transportation. 3, the blue border is left on and the red torn off when the soldier requires transportation and can be moved. 4, both borders are torn off when the soldier's disability is slight or such that he can walk to the dressing station or hospital. 5, under 'diagnosis' the medical officer will give a brief and intelligible description of the seat and character of the injuries or the nature of the disease and sign it. 6, under 'Treatment' is to be recorded what is given, especially anodynes and stimulants, and what is done from time to time by medical officers or attendants, and, when proper, it may be indicated what further is needed and the urgency of the case. If necessary for brevity the following characters may be used to save time and space: X, temporary dressing applied; =, permanent dressing applied; O, operation needed (amp., liga., etc.); OO, operation urgently needed; X within O, operation done and temporary dressing applied; = within O, operation done and permanent dressing applied; XO, temporary dressing applied and operation needed; XOO, temporary dressing applied and operation urgently needed. Remarks: The urgency tag is to be used in addition to the usual diagnosis tag as a conspicuous mark to call attention to some case requiring immediate assistance. The date is important and should never be omitted. When narcotics or stimulants are administered the quantity given and the time should always be stated. If practicable the name, rank, company and regiment of the sick or wounded man should be entered upon the diagnosis tag." The diagnosis tag is an elaboration in time of peace for war service which will probably be thrown aside when the war time comes, except in special cases. A wounded man who is able to walk to hospital and to tell the surgeons there all about himself will not wait in the arena of danger for a medical officer to write all this information on a tag for him; and in the cases of men who are badly wounded and unable to give an account of themselves the Hospital Corps men who carry them to the hospitals may be intrusted with the needful instructions. If the tag should come into use in the field as at present intended, it seems an unnecessary loss of time for the medical officer to enter the name, company, rank and regiment of each wounded man; in fact, if the man is unconscious, difficulty may be found in obtaining this information. To permit of the identification of wounded soldiers at the hospital each man in time of war, as recommended by Dr. Forwood, and as is customary in the French Army, should have his name and command engraved on a small medal, which should be worn around his neck under his clothes. There would then be no need to enter this information on the tag.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended June 22 is as follows: number of deaths (still-births not included): white, 35; colored, 35; total, 70. Death rate per 1,000 per annum, white, 9.91; colored, 20.92; total, 13.45. Death rate per 1,000 per annum for corresponding week last year, 33.93. Still-births: white, 5; colored, 3; total, 8.

DR. S. C. BUSEY.—Dr. Busey, the President of the Medical Society of the District, has entirely recovered from his severe injury and left on the 29th ult., for Narragansett Pier. The profession can well congratulate themselves on the recovery of one who has done so much to advance medical science. The local physicians look forward with pleasure to his return to the "charge" of the Medical Society in the autumn.

MEDICAL SOCIETY OF THE DISTRICT.—The regular meeting of the society was held on 1st inst. Only business matters were discussed, and on motion it was decided to hold the next regular meeting on Wednesday October 2. The regular monthly essayists for the year 1895-1896 were announced by the Committee on Essays.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The new fire escapes have been completed, the lower basement repainted and the steam elevator replaced by an electric one. The annual report with an official history of the insti-

tution since its foundation, will be ready for distribution in a few days. The term of service of Dr. James H. Church, the resident physician expired June 30, and Dr. Peter M. Smith the first assistant, was promoted to the position of resident physician. Dr. E. D. Shortlidge was promoted to be first assistant, Dr. Francis M. Furlong having passed first in the competitive examinations was appointed second assistant resident physician. Dr. Church will practice medicine in Washington City and carries with him the best wishes and confidence of each member of the hospital board.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department. U. S. Army, from June 27, 1895, to July 5, 1895.

First Lieut. CHAMPE C. McCULLOCH, Asst. Surgeon, is granted leave of absence for one month, to take effect about July 1.

Major BLAIR D. TAYLOR, Surgeon, is granted leave of absence for one month, to take effect between July 1 and 10, with permission to apply for an extension of ten days.

First Lieut. FREDERICK P. REYNOLDS, Asst. Surgeon, now at Ft. Sam Houston, will proceed to Ft. Bliss, Texas, not later than July 1, and report for temporary duty during the absence on leave of Major BLAIR D. TAYLOR, Surgeon.

Capt. CHARLES M. GANDY, Asst. Surgeon, is granted leave of absence for two months, to take effect upon his relief from duty at Ft. Yellowstone, Wyo.

Lieut.-Col. DAVID L. HUNTINGTON, Deputy Surgeon-General, is granted leave of absence for one month, to take effect upon his relief from duty in the Dept. of the Colorado.

Capt. CHARLES B. EWING, Asst. Surgeon, is granted leave of absence for two months.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended June 30, 1895.

Surgeon GEORGE PURVIANCE, to proceed to Delaware Breakwater Quarantine as inspector, June 19, 1895.

Surgeon JOHN GODFREY, detailed as chairman of board for physical examination of candidates, revenue cutter service, June 17, 1895.

Surgeon FAIRFAX IRWIN, detailed as chairman of board to consider necropsy reports, June 15, 1895.

Surgeon H. R. CARTEA, granted leave of absence for fifteen days, June 24, 1895.

P. A. Surgeon C. E. BANKS, detailed as member of board to consider necropsy reports, June 15, 1895. Detailed as member of board for physical examination of candidates, revenue cutter service, June 19, 1895. Detailed as chairman of board for physical examination of officers, revenue cutter service, June 27, 1895.

P. A. Surgeon J. J. KINYOUN, detailed as member of board to consider necropsy reports, June 15, 1895.

P. A. Surgeon G. B. YOUNG, granted leave of absence for thirty days, June 19, 1895.

P. A. Surgeon B. W. BROWN, detailed as recorder of board for physical examination of officers, revenue cutter service, June 27, 1895.

P. A. Surgeon M. J. ROSENAU, detailed as recorder of board to consider necropsy reports, June 19, 1895.

Asst. Surgeon J. A. NYDEGGER, granted leave of absence for five days, June 19, 1895.

Asst. Surgeon W. J. S. STEWART, detailed as recorder of board for physical examination of candidates, revenue cutter service, June 19, 1895.

Asst. Surgeon RUPERT BLFE, detailed as recorder of board for physical examination of candidates, revenue cutter service, June 17, 1895.

Asst. Surgeon EMIL PROCHAZKA, granted leave of absence for twenty-six days, June 27, 1895.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.

Bellwood, W. S., Orion, Ill.; Baker, E. D., Stone Church, N. Y.; Bigelow, C. P., Grand Rapids, Mich.; Bryan, J. H., Washington, D. C.; Bell, F. M., Kelso, Washington; Bettman, B., Chicago, Ill.

Connell, J. M., Chicago, Ill.; Chambers, J. H. & Co., St. Louis, Mo.; Cone, Andrew, New York, N. Y.; Chicago Policlinic, Chicago, Ill.; Clark & Sons, M. C., Albany, N. Y.; Cain, J. S., Nashville, Tenn.

Doyle, Gregory, Syracuse, N. Y.; Duffield, S. P., Detroit, Mich.; Daggett Table Co., Buffalo, N. Y.; Deaver, John B., Philadelphia.

Eliot, Johnson, Washington, D. C.

Fassett, C. W., St. Louis, Mo.; Ferguson, E. D., Troy, N. Y.; French, Pinckney, St. Louis, Mo.

Gaff, O., Chicago, Ill.; Gairlie, E. H., Philadelphia, Pa.; Griffith, L. M., Bristol, Eng.; Gibson, Wm., Alexandria, Va.

Hawley, D. C., Burlington, Vt.; Hummel, A. L., Philadelphia, Pa.; Hollingsworth & Mather, St. Louis, Mo.; Haldenstein, J., New York.

Kohl, Julius, Belleville, Ill.

Lee, Elmer, Chicago, Ill.; Leach, R. B., Paris, Tex.; Lehn & Fink, New York, N. Y.

McCoy, Wm. A., Madison, Ind.; Mogk, W. A., Ann Arbor, Mich.; Magruder, G. L., Washington, D. C.; Marcy, H. O., Boston, Mass.; Mayo, W. J., Rochester, Minn.; McLaughlin, H. W., Denver, Colo.; Mills, J. T., Jersey, Ohio; Milbourne Advertising Agency, Baltimore, Md.

Northwestern University Medical College, Chicago, Ill.; Nicholson, W. A., Franklin, Pa.; National Vaccine Establishment, Washington, D. C.

Phospho-Albumen Co., Chicago, Ill.

Rogers, F. T., Providence, R. I.; Rudy, Martin, Philadelphia, Pa.; Rowley, W. S., Chicago, Ill.; Rhoads, Thos. L., Philadelphia, Pa.; Russel, J. W., Longtown, Mo.; Reeves, J. E., Chattanooga.

Sayre, R. H., New York, N. Y.; Smith, Q. Cincinnati, Austin, Texas; Shurtleff, David, Boston, Mass.; Street, David, Baltimore, Md.; Seibert, W. H., Steelton, Pa.; Smart, Chas., Washington, D. C.; Sudduth, W. X., Minneapolis, Minn.; Stechert, G. E., New York, N. Y.; Sanders, Enno M. W. Co., St. Louis, Mo.; Storer, Horatio R., Newport, R. I.

Tiffany, F. B., Kansas City, Mo.

Wagoner, Joseph, Ravenna, Ohio; Wilson, D. C., Ironton, Ohio; Woodbury, Frank, Glen Summit, Pa.; Wyman, Hal. C., Detroit, Mich.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, JULY 20, 1895.

No. 3.

ORIGINAL ARTICLES.

RELATION OF MATTER AND MIND IN HYPNOTISM.

Read before the Indiana State Medical Society, June 6, 1895.

BY JAMES F. HIBBERD, M.D., LL.D.
RICHMOND, IND.

All will concede that the present popular consideration given to hypnosis renders it incumbent on the physician who would creditably fulfill his mission that he be posted with knowledge of its phenomena and nature.

In presenting my views on hypnosis, there is no pretense that I am a scientist detailing my original experimental investigations, but rather a philosopher scanning the field of psychic culture, analyzing the products of the labors of experimentalists in mental science, and deducing conclusions by associating and comparing such products with the results of progress in the broader field of physics.

My contention is that the somatic mind is the product of the functioning of the encephalon, the motor of which is vital energy, an isomeric phase of and directly descended from, the oscillatory motion of atomic matter through molecules, protoplasm and tissue metabolism, and I hold that hypnosis, spiritism, Christian science, hysteria, etc., are cognate forms of correlative neuroses, the subjects of which are not up to the fullest development in mental force and balance, the shortage being due to a congenital imperfection in the encephalon or a defective working of the intellectual apparatus.

To fully present the points illustrative of my contention and rehearse the facts and arguments that to my mind demonstrate their verity would require a volume, while my privilege of recital here is limited to twenty minutes reading. I must therefore content myself with a verbal triangulation of the field outlined, and submit for your consideration such of its more prominent features as in my estimation are most likely to interest you.

In a study of hypnosis our first obligation to ourselves is to acknowledge the reality of its existence, and our duty to our *clients* demands that we be able to point out to them its nature and significance. A weighty fact that should be kept constantly before us is that only a small fraction of the civilized people of the world are susceptible of hypnotization, and not one of this small fraction can be hypnotized without his consent.

The most facile steps in producing a state of hypnosis are for one or more susceptible persons to take an easy sitting position on the invitation of some one in whom each has confidence, known as a hypnotist, who instructs them to fix their gaze and attention on some distinct thing, generally a bit of bright metal, held in front of, and a little above, the

eyes and close enough to require a slightly convergent vision to see it clearly, and maintain this position until a sense of drowsiness creeps over them to which they yield and fall asleep, or into a state simulating sleep wherein they are oblivious to everything except the suggestions of the hypnotist. This hypnotist is no particular person but may be any one who by agreeable appearance and bearing wins the confidence of the subjects, nor is there a special virtue in this bit of bright metal; anything, bright or otherwise, which can hold the attention of the subject without exciting his curiosity or other inquisitive sense will answer the purpose. The subject who thus becomes hypnotized I will call a hypnotic.

Suggestion by the hypnotist may be successfully made by touch, by motion, or by words, but not by will power of the hypnotist, except through some act recognizable by one or more of the hypnotic's normal senses. By these means the hypnotic can be made to believe that the tincture of wormwood is a delicious syrup, that the odor of assafetida is the attar of roses; that the notes of a mandolin are the howl of a wild beast; that potatoes are lumps of gold; that contact with ice will scorch his fingers, and so on through the most irrational vagaries. But this line of suggestion has its limits; it must be kept within the bounds of the natural endowments of the hypnotic and the influence of his education, as also the impression of his immediate environment.

These limiting impressions are known as auto-suggestions and are of the highest importance in understanding the possibilities of hypnosis. Mr. Hudson, an attorney, an investigator and writer of hypnosis, in an article (*New York Medical Journal* Jan. 26, 1895,) on the "Relations of Hypnosis to Medical Jurisprudence," and Dr. Cocke in his recent book on "Hypnotism: How it is done; its Uses and Dangers," Boston, 1894," have treated of auto-suggestion quite fully, from which I epitomize as follows: a hypnotic who is a moral man strongly averse to injuring a fellow mortal has a pasteboard dagger placed in his hand when under the deepest influence of the hypnotizer, who directs him to stab the person nearest him in the breast, which he does instantly and without hesitation; then the hypnotist places a real dagger in the hand of the hypnotic with the same instructions, but the hypnotic hesitates and if the hypnotist insists, the hypnotic comes out of the hypnotic state in great agitation. This is due to the hypnotist's instructions to the hypnotic to commit a crime which in the hypnotic's normal state nothing could induce him to do. Notwithstanding his hypnotic state his conscience readily distinguishes between a pasteboard dagger which could do no harm and a steel dagger which would destroy life.

Again, a hypnotist has a virtuous woman for a subject and when he has her under full control makes improper advances to her which she will promptly

resist, and if he presses his purpose will come instantly to the normal exercise of her mind with a shock, probably followed quickly by a hysterical explosion. Any one who submits to be hypnotized can determine before the séance begins, that if certain things are commanded of him while under the influence of the operator he will not obey, and if the certain things are attempted he refuses and can not be forced.

The environment also has a guiding control in the extent to which the hypnotic can be carried. If the séance be a public exhibition and several subjects are presented, there will be a wide difference in the limits within which they can severally be manipulated. In public presentations most of those who offer themselves as subjects do so with the conviction that they are to contribute to the entertainment, and those of them who place no restraint on their actions before the public, obey the hypnotist in every suggestion, however ludicrous it may be; others will refuse to follow suggestions that infringe on their dignity, while still others will decline further advance if the lead crosses the line of their sense of moral rectitude.

The lesson of this phase of hypnosis is that if the hypnotics in any séance should, at the suggestion of the hypnotist commit murder, prove licentious or make buffoons of themselves, neither hypnotism nor the hypnotist would be the essential cause of the misdeed, but at most would only be amenable to the charge of affording the offender an opportunity, and prompting him, to advertise his real character. In his heart he was a murderer, a lecher or a buffoon before he was a hypnotic.

If this sketch of hypnotism be true, it neutralizes the apprehension many excellent people have entertained, that the public was liable at any moment to be confronted with a hideous felony, brought about by a depraved hypnotist suggesting the crime to an otherwise innocent and conscientious hypnotic.

A fortnight since, I read in a Richmond newspaper a statement to the effect that in an Indiana city a man had recently been convicted of murder and sentenced to the penitentiary for thirteen years, mainly on the testimony of a woman who subsequently confessed that her testimony was false and that she had committed the murder herself. This woman was now in a hospital near to death from consumption, and on May 19 the judge went to the hospital with a hypnotist and authorized him to hypnotize the woman that she might tell which was true, her testimony or her confession. Under hypnosis she declared her testimony true and her confession false, the latter being made under duress.

If the mental condition of this moribund hypnotic was such as set forth in this essay, as the ordinary condition of hypnotics, she would declare touching the truth or falsity of her previous statements just as the hypnotist now suggested or as she had determined for herself before entering the hypnotic state. If seriously made, such use of hypnosis would be misprision of criminal jurisprudence, and a travesty of forensic medicine.

Charcot, "Dictionary of Psychological Medicine," states that a typical case of hypnosis traverses three well-marked stages of development, to-wit: catalepsy, lethargy and somnambulism. Catalepsy is the first step and is secured by withdrawing the bright object at which the subject has been gazing, the moment he loses consciousness. On such withdrawal

the subject with fixed unwinking eyes continues to gaze at the spot from which the object was removed and, if not disturbed, will remain in that exact position until the contractile energy of his involved muscles is exhausted, when his body will adjust itself obedient to the law of gravity.

In this state, the subject is as plastic clay in the hands of the potter; his arm can be raised to any position and will remain there; his head may be placed awry and will continue thus; his whole body may be molded to any form, esthetic or fantastic, consistent with his anatomy.

The lethargic state may be induced by the hypnotist simply closing the staring eyes of the subject, or he may be allowed to continue his gaze at the bright object and his eyelids will soon droop, then close, his lethargy will be complete and profound and he may so remain, if undisturbed perhaps twenty-four hours, with no other apparent objective evidence of vital activity than is manifested in his respiratory and circulatory apparatus.

The lethargic condition is converted into the somnambulistic state by certain manipulations, especially by the operator rubbing the vertex of the subject with the tips of his fingers or the palm of his hand. The effect of this vertex friction is a well-established clinical fact for which no rational explanation has been afforded.

While the foregoing stages are clearly enough marked in typical seizures, in fresh subjects, the manifestations are mixed and irregular in many fresh cases, and in those who have been frequently hypnotized, the distinction is not observable.

Charcot maintains there is a clear relationship between the hysterical diathesis and hypnosis, and the close observer, after sufficient experience, will not hesitate to accept his conclusions. Conceding the relationship between hypnotism and hysteria, as taught by Charcot, it is as far as we can go, for the phenomena characterizing the two have little in harmony and their sequels are widely divergent—hysteria simulating by times almost every idiopathic pathologic condition, frequently ending in permanent invalidism or structural changes of a hopeless character, while hypnosis but repeats its original distorted features with less and less prompting and its only common mischievous sequel is a perverted intellect.

To obtain a rational concept of hypnosis we must keep distinctly before us that the mind is the product of a multiple organ of most complex organization and complicated physiology. So emphatically is this true that to analyze the structure of this organ and comprehend clearly the fruit of its functioning in the adult human by a study of it in such human, is beyond the powers of the acutest observation and the profoundest comparison.

A year ago it was my privilege to read a paper before this society, devoted to a consideration of the origin and development of man's mental powers, wherein I advanced the proposition that since the time of Aristotle, students of mind had substantially confined their investigations to its structure and manifestations in the adult human, in general terms regarding it as a dual thing composed of a natural and a supernatural moiety, with the result of great diversity of conclusions without satisfaction in any of them. Without questioning the dual character of our minds, I further stated that all its opera-

tions, open to our observation, were due to the vital energy as exhibited by or through our nervous organizations, and that the study of mentality involved only the investigation of the nervous apparatus, the fruit of which is known as the somatic mind, and to comprehend this we must abandon the scholastic method of research and, instead, adopt the modern method of scientific interrogation of nature which discards primary inquiry into the complicated and involved nervous system of adult man, descends through the less and less intricate organizations of the long catalogue of inferior animals, and finally reaches the amoeba, held to be the simplest living thing presenting the essential characteristics of the animal kingdom. The amoeba is a single cell of undifferentiated protoplasm. It has no muscular system, yet moves; it has no organs of special sense, yet selects its food and seizes it; it has no digestive system, yet consumes food and is nourished; it has no organs of generation, yet propagates its kind and continues its species; it has no nerves, yet all vital activities are accomplished with precision and in the utmost harmony. Here, then, the scientist meets his opportunity to begin the study of the nervous system of man, for this simple one-celled animal is the first link in the extended chain of animal existence, whose final link is the wonderfully complicated human organization. And the succession of living things, from amoeba to man, is but an unbroken continuance of added cells and differentiated function, man being apparently the acme of the Creator's intent, but not a uniform product of creative power, for excepting the distinctive points that fix man's place in the classified animal kingdom, the differences of both body and mind among the peoples of the earth, due chiefly to environments or other mundane influences, are so patent that it may be fairly claimed that the contrast between the highest and lowest humans is not less than the difference between the lowest human and the highest simian.

Without further attention to man's organization as a whole, let us give brief consideration to his nervous system—not to its anatomy but its physiology. For the present lesson we recognize three grades of nervous energy, functionally distinct in their typical endowments, yet so intimately blended and interdependent as to require constant recurrence to the type of each to avoid confusion in their conjoined service. The first grade has its genesis in the centers that preside over the automatic activities of the body which include digestion, assimilation and the whole diversified metabolism of the organization, and are but little influenced by the other grades and that little by indirection. The second grade has its seat in that part of the encephalon centrally situated that, in the last few years, has been experimentally demonstrated to be constituted of motor centers. To a considerable extent these centers have been shown to have original motor jurisdiction when excited by either external or internal stimulants. The third grade emanates from the anterior and posterior regions of the cerebrum and includes the perceptive, the intellectual, the emotional and the will powers of the mind, and in its entirety dominates all the voluntary activities of the body, which it does through its command of the other grades of the nervous system. This is the grade that gives rise to the phenomena of hypnosis, and the seeming mystery of these phenomena will disappear if we realize

that the mind is not a unit, but is made up of sundry greater departments, sub-departments and minor divisions which may all act in unison, but also under some circumstances one or more of the divisions may function within certain limits quite independently of others and it is here that hypnosis has its genesis.

The actual condition of the mind in hypnosis is the suspension of the will power, except as to the suggestions of the hypnotist which are obeyed implicitly, until obedience involves a violation of the moral sense of the hypnotic as it exists in his normal mental state. This dominant power of the moral sense is a fact of the highest significance, being the witness to a phase of insentient mental operations included by psychists under the terms, unconscious cerebration, mental automatism and reflex action of the brain, that have exceedingly important relations with the entire range of human thought and action.

There is no rationale for the phenomena of hypnosis any more than there is for chemic affinity, gravity or other motorial factor in nature. The fact we need to clearly comprehend and persistently retain is that the full catalogue of vital activities recited, are such, obedient to cosmic law, under which the Creator fashioned the earth and governs all things therein.

Recurring to the amoeba, I may recall the fact that it was elaborated protoplasm in which the first vital cell was organized, and that in man there is no elemental matter not found in the world around him, and that of seventy or more elements of the earth only about fifteen enter into the substance composing the human frame. It is the manner of the combination of these fifteen that distinguishes man, and indeed all living things, from other products of the energy of the omniscient and omnipotent Creator. So far as we can now discern, this progress is due solely to the continuous operation of a universal law impressed on elemental matter in the beginning, and as I see it, the status of civilized man and the degree of his enlightenment are measured by the fullness of his recognition of this fundamental law.

It has seemed to me that we shall find the key to all we shall ever know of vital activity, including the expanded intricacies of nervous functioning, by devoting successful study to the dynamics of physics. The striking difference between the variegated movements of advanced animal life and the limited rigid movement of inorganic matter is found in this; in the movements of animal organisms there is witnessed the operation of volition, *i. e.*, the organism, in certain directions, may do things or leave them undone as it elects; even the amoeba, the prototype of all the animal kingdom in this behalf, floating in its supporting medium, may simply float as a globular speck of protoplasm or it may project a pseudopod, seize a bit of food and convert it into its own tissue; whereas if atoms of oxygen and hydrogen come into contact under appropriate environment they must unite in definite proportions and form water, and from this destiny there is no escape and no modification, and no atomic matter has other line of action.

Physicists teach us there is but one energy in nature. In our present lesson, reviewing matter in motion, we first meet with this force in the chemic affinity of atoms, and follow it through molecules in increasing number and complexity until they form protoplasm, and in protoplasm still further, until a

cell is organized which presents the characteristics of animal life.

If this review of the progress of matter from the conjugation of atoms to the organization of a living cell has been thorough and true, we will have realized but one energy. The force of chemic affinity in atoms is the same as vital activity in the amoeba—nothing added, nothing lost.

It has already been shown that the primal animal cell presented potentially every tangible attribute of man, and that in traversing the wide range of mental force from amoeba to man, even by the most enlightened, no new element nor new energy was discovered—simply more cells and higher differentiation of function.

It is the consideration of these patent facts and the logic of affiliated events that enables us rationally to investigate the somatic human mind in its diversified compartments as manifested to us by the countless centers of the brain, and leads us without a peradventure to the conviction that by exciting one set of centers and inhibiting other centers, we may induce hypnosis, and by a parity of reasoning it is easy to convince ourselves that by the same token we have the *open sesame* to the understanding of the whole physiology of the encephalon, and its pathology as well.

TUMORS OF THE MAMMARY GLAND.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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There is no surgical subject the literature of which is less satisfactory, than that of mammary tumors. This is not due to a lack of writers, but rather to their contradictory positions.

In the first place the nomenclature of the subject could not well be in a worse condition. The American, English, German and French schools each has a classification peculiar to itself. The general reader finds himself hopelessly at sea, in endeavoring to reconcile the teachings of standard authors.

The only true classification—one based upon accurate pathology—has not been followed. Growths considered by some as benign, are by others treated as malignant. This confusion, noticeable as it is with malignant neoplasms, is much greater with benign affections. Take, for instance, the most common of benign tumors, and we find it described under the same name by only two recognized authors. It has at least a dozen names. The fibroma of Gross, Labbe and Coyne is the adenoma of Broca, the adenofibroma of Billroth, the fibro-adenoma of Cornil and Ranvier, the mammary glandular tumor of Paget, the chronic mammary tumor of Cooper, the pancreatic sarcoma of Abernethy and the lobular imperfect hypertrophy of Birkett. Many of the English writers also call this growth "adenocoele." Could confusion be greater?

Further, villous papillomata which are innocent and never repullulate when properly removed, are by some authors described as tubular or duct cancers. They are admittedly somewhat similar pathologically, yet withal very different, in a most vital feature. The duct is a perfect capsule to the papilloma, beyond which it never extends. The cancer defies the barrier and proliferates beyond its confines.

Therefore one must be somewhat arbitrary and follow the author whose position seems to him best chosen.

Operators are in a large measure responsible for this confusion. The gross or macroscopic appearance of a tumor after removal is of great value, and is at times scarcely secondary in importance to a careful microscopic examination. I have seen many distinguished operators who never touched a tumor after its excision, but felt that their duty was performed when an assistant was told to take a part of it to a microscopist. The latter, however experienced, may get a very incorrect idea of the growth from an isolated portion of it removed at random. The most careful microscopist will often properly refuse an opinion when asked for one under such circumstances. He is entitled to the entire growth, with a full clinical history of the case. The presence or absence of a capsule, secondary degenerations, cystic transformations, whether it was central or peripheral, growing from the upper or lower surface, adherent or not to the surrounding tissues, are all facts rightly his, before a growth is prepared for the microscope. Should one do this in all cases, I am sure he will have less cause to dissent from the final verdict of the microscope, which must be our court of last resort.

According to a recent and excellent authority, Mr. Raymond Johnson, of London, the general opinion that breast tumors originally benign are prone to degenerate into malignancy, is incorrect, and can not be proven. In a series of lectures delivered at the Royal College of Surgeons, of England, in June, 1894, Mr. Johnson devotes considerable time to combating this well-nigh universally accepted view. He asserts that adenoma, which is by most authors supposed to be exceedingly liable to cancerous change, never does so, and says that no one has ever reported a case where an encapsulated tumor as the adenoma, has been seen bursting through its capsule and infiltrating the surrounding tissues. Until he has seen such specimens and examined them macroscopically and microscopically, he can not believe they are of common occurrence, if indeed they exist at all.

ETIOLOGY.

Notwithstanding their frequency, it is surprising how little is known of the causes of mammary neoplasms. S. W. Gross showed very clearly by a most patient and careful analysis of a large number of cases, that many opinions more or less well fixed in the minds of professional men were absolutely untenable. The social condition—hitherto supposed to play such an important rôle in the etiology of breast tumors—is absolutely without influence. Single and married, sterile and fruitful women are equally liable. Trauma plays the same rôle in the production of innocent and malignant growths—11.94 per cent. of the former, 11.70 per cent. of the latter. Disordered menstruation, hysteria, etc., cut no figure whatever. Heredity perhaps has an influence, but it is slight. Gross concludes that heredity can not be shown in non-carcinomatous growths, while it exists in one case out of every nine carcinomas. Eczema and psoriasis of the nipple and areola—usually spoken of as "Paget's disease"—were thought by Gross and others to cause both innocent and malignant growths. Recent investigations by Raymond Johnson, W. Roger Williams and others on villous

or duct cancer, are in line with the teaching of Thin who some years ago stated it as his belief that the so-called Paget's disease instead of being the cause of tumors was simply the result of tubular growths, the discharges from which caused the irritation and angry condition of the areola. This position, I am satisfied, is undeniably correct in the vast majority of instances.

Puerperal mastitis seems to leave lumps in the breast, which are followed by innocent neoplasms in less than 2 per cent. of all cases, while malignant tumors follow such conditions in rather more than 8 per cent. In many instances, however, the neoplasm does not follow for five, ten, twenty or even thirty years—about fifteen on an average. We may, therefore, with propriety doubt that such influence is great.

RACE.

I have not seen it stated in any work on mammary tumors that race exerts any influence. That it does, so far as malignant disease is concerned, I have no doubt. The negro is relatively immune from cancer. In twenty years' experience passed in the South, where the negro population is as 1 to 5, I have encountered malignant disease in the breast of the full-blooded African but once. During ten years of this time I have been constantly on the staff of the Louisville City Hospital, and in charge of the surgical clinic of my college, where our patients are largely negroes. Prof. J. M. Holloway, of Louisville a surgeon of forty years' experience, doing for twenty years a very large business, tells me that after a careful examination of his case-book, he has seen 170 breast cancers, and only 2 were in negroes.

At a recent meeting of a Louisville society I asked the Fellows present to speak upon this subject. Two members, each of whom have been in practice over thirty years, had never encountered malignant disease in the breast of the negro. All agreed that it was rare.

Young, also Livingstone, in his book of travels, and Walshe in his famous work on cancer as geographically distributed, emphasize the relative immunity of the African from malignant disease in general. Billings has recently made the same observation. Therefore, we should not be surprised at the difference we find in the relative frequency of breast tumors in the two races. I believe, however, that the same disproportion will not be found to exist in other regions of the body.

In the white woman, cancer of the breast and the uterus is on a parity, for, according to Herbert Snow, "of 467 cases of cancer at the London Cancer Hospital in one year, 115 suffered from malignant disease of the breast and exactly the same number from that of the uterus." Each organ represents about 25 per cent. of all cancers in women. So that one-half the cases of cancer in females affect the breast and uterus. Other regions of the body furnish the same number of cancers in the male and female; therefore the disease is twice as common in the latter.

Diagnosis.—The superficial situation of the mammary glands, the frequency with which they are affected with neoplasms of a destructive nature, would presuppose a more exact knowledge of their diagnosis than we can truthfully lay claim to. That mistakes in diagnosis are common, more so than with tumors of any other region of the body, few, I think,

will deny. There are, however, trustworthy data, in so far as they go.

The age of the patient is a valuable guide. In general, young subjects have benign growths and sarcoma, whereas middle and advanced life are most obnoxious to cancer. Malignant growths are by far more common than benign, the proportion being rather more than 10 to 1. During the rudimentary state of the gland, benign growths (usually fibroma) may be encountered. Gross in an analysis of 777 cases taken largely from reports of German surgeons, did not find sarcoma under the fourteenth year. I have seen journal reports of cases in children under 10; one in an infant. The average age of patients with benign growths is rather under 30. They constitute less than 10 per cent. of mammary tumors (9.5).

Sarcomas occur from the beginning of menstruation to the seventh decade of life, the average age being 35 years. They constitute less than 9 per cent. of breast neoplasms.

Cancer has been seen at 21, by Henry, though it is rare under 30. The average age for carcinoma has been placed by Gross at 48. It has been seen after 90.

Villous or duct cancers, according to Roger Williams occur at an average at 53½ years. Cancer claims about 82 per cent. of all mammary neoplasms. Undoubtedly the most valuable guide in diagnosis, is the presence or absence of enlarged lymphatic glands.

For convenience of comparison, we may group sarcomas with benign growths, as the former are little if any more liable to cause enlargement of the neighboring lymphatic glands. Non-carcinomatous tumors cause enlargement of the axillary glands in less than 3 per cent. of all cases. The supra-clavicular glands are never enlarged. The enlargement of the axillary glands is largely due to irritation, and not the result of infection. They are soft and not adherent to the peri-glandular tissues. Carcinoma, *per contra*, practically always causes enlargement of the neighboring lymphatic glands, first the axillary, then the supra-clavicular.

It may be noted here that villous cancer caused enlargement of the axillary lymphatic glands in only five out of eighteen cases seen by Roger Williams, due, according to Labbe and Coyne, to a barrier of fibrous tissue between the cancer and the nearest glands.

In 65 per cent. of all cases the axillary glands are enlarged when patients first apply for relief—an important fact to remember when operative measures are undertaken. The glands are hard, manifest a tendency to coalesce, and soon become adherent to adjoining structures.

Of the remaining differential diagnostic points, the location of the tumor and whether it be mobile or not are the most important. Benign affections as a rule are movable, the malignant soon become fixed. Benign growths are usually located in the upper and inner portion of the gland, while malignant disease is more liable to affect the upper and outer quadrant and to be situated behind the areola. The latter circumstance explains the frequency of retraction of the nipple in cancer. Gross found it in 52 per cent. of his cases, a larger proportion than other observers have seen.

Non-carcinomatous tumors cause a displacement of the nipple in less than 6 per cent. of all cases. In the early stage of breast tumors when any diffi-

culty of diagnosis might be expected, such symptoms as pain, enlarged veins, discharge from the nipple, history of trauma and heredity are practically valueless.

To conclude, age, location of the tumor, its mobility, and the condition of the axillary glands are our surest guides. Doubt as to whether or not a growth is solid or cystic will be settled by aspiration. True cysts are rare, making less than 2 per cent. of all cases. Cystoid degeneration of solid growths is common, particularly so in non-carcinomatous tumors. Cystic degeneration of the acinous varieties of cancer rarely occurs, though it is more frequent in the tubular or villous growths.

An aseptic incision into the tumor for diagnostic purposes is proper, and is advised by Bull of New York, Keen of Philadelphia, and others.

Treatment.—Little need be said concerning the treatment of benign tumors, solid and cystic, as all are practically agreed. They should be removed along with their capsule, and in such a way as to leave the nipple when it is practicable. When a tendency to rapid growth is shown, and the patient is past 40, it is far safer to excise the entire gland, for it should always be remembered that mistakes in diagnosis are common, and in patients of this age the chances are 13 to 1 in favor of malignant disease.

How shall we treat malignant disease, and is it curable? Reports from many distinguished sources during the past year especially, leave little room for doubt that one of the brightest chapters in the history of operative treatment for malignant disease is now being written. The day for pessimism has passed. American operators have so far secured the best results, with the Germans a close second. The English, with whom the complete or radical operation as practiced to-day originated have, strange to say, fallen behind. This is, no doubt, due to the fact that some of their best authorities as Butlin, Treves, Sutton and others have thrown all their influence against radical measures. The writings of these gentlemen have evidently to a great extent fashioned professional sentiment throughout Great Britain.

In 1867 Moore, of London, first advocated the complete operation as it is understood at the present time. He advised thorough extirpation of the entire mamma, removal of the pectoral fascia in all instances, supplemented by cleaning out the axilla. His teaching passed unheeded for a time, but was soon taken up by Banks in England, many of the Germans and Austrians, notably Volkmann, Billroth, Langenbeck, Knüster and others. S. W. Gross, of Philadelphia, was quick to see the possibilities of the radical operation, and was its first champion in this country. I was an interne in Jefferson Hospital during the time he was writing his "Monograph on Breast Tumors," and assisted him in many of the complete operations reported in this work. No one who ever heard him lecture, or saw him operate upon breast cancer, can forget his intense earnestness born of deep conviction, at a time when all of his colleagues—his great father included—to draw it mildly, looked upon him as a misguided optimist. In the lecture room, wards of the hospital, and his own private office, I have heard him say a hundred times that no surgeon however experienced, could rightly affirm that the axillary lymphatic glands were not enlarged, until the axilla was opened and inspected from base to apex. This is now accepted of all men. All honor to this brainy, aggressive, prescient surgeon!

Excellent as were Gross' results—12 to 15 per cent. of cures—they have been improved upon by subsequent workers in this line, aided by more modern methods. The present occupant of his chair at Jefferson, Prof. W. W. Keen, is doing work equal to the best. Weir and Dennis, of New York, each report a series of cases, 125 and 33 respectively, the former getting in round numbers 20 per cent., the latter 25 per cent. of cures. By far the most valuable, instructive and encouraging report up to date is that of Bull, of New York, published in the *Medical Record* of August, 1894. No one has followed up cases so methodically as he has done. Only 3 out of 118 cases operated upon between 1880 and 1894 remain unaccounted for; 115 were followed to their death or to Jan. 1, 1894, when their condition is fully set forth. Excluding cases operated upon since 1891, as a three year limit has been generally agreed upon before a cure can be reasonably claimed, there are left seventy-five cases submitted to the complete operation as defined by Moore. Of this number four died from the operation, two from erysipelas, one from sepsis and one from pneumonia; fifty succumbed to recurrences or metastases; two are living with recurrence; four died of intercurrent affections after having passed the limit, and the remaining sixteen are in perfect health. Counting the four dying of intercurrent disease after passing the limit, there are twenty cures or 26.6 per cent., the best showing yet made by any surgeon. Deducting five cases which should not have been included and Bull has nearly 29 per cent. of cures. Of the sixteen still living it may be said that there has been an average of six years since operation—twice the usual limit.

It is also of great interest to note that 40 per cent. of Bull's cured cases had cancerous involvement of the axillary lymph glands, as demonstrated by microscopic examination. Therefore, a complete operation is able to cure, even after lymphatic involvement has occurred.

This series further shows that where no lymphatic glands are involved, 54 per cent. are permanently cured. This sounds strangely enough, I know, to those who remember that such men as Sands of New York, and Agnew of Philadelphia, each said at the close of an illustrious career in surgery that he had seen no successful case of operation for breast cancer.

Results are getting better, year by year, month by month, almost day by day. The trend is in the direction of a still more complete operation, and the value of it is shown by a brilliant series of fifty cases recently reported by Halsted of Johns Hopkins Hospital. In every case he removes the larger portion of both pectoralis major and minor muscles. He also removes the axillary and supra-clavicular glands in all cases. This seems necessary in a certain per cent. of cases to get beyond the invisible zone.

Volkmann's observation, that infiltration of the muscles sometimes occurs, has been verified by Heidenhain after the most careful investigation. For a time, fortunately, the pectoral fascia arrests the march of cancer.

Willy Meyer, of New York, has proposed an operation even more radical than Halsted's, as he removes all of the great and lesser pectoral muscles from origin to insertion. Both Halsted and Meyer assert that such radical measures add nothing to the dan-

ger of the operation and, further, do not leave the patient with an arm materially less useful. Halsted has reported seventy-six such operations without a death, and with only 6 per cent. of local recurrences. It is too soon to estimate his percentage of cures.

If statistics prove one thing, it is that partial operations should no longer be practiced. They do little good and are almost as dangerous as the complete method—where the axilla is invaded and all glands and fat removed—vessels and nerves only being left behind. The space of Mohrenheim—between the upper border of the tendon of the small pectoral muscle and clavicle—is to be systematically inspected and cleared in every case. If the two pectoral muscles are not removed, the space between them must be carefully examined for outlying gland tissue and fat.

What is the mortality of such operations? Taking the reports of six American operators recently given to us and we find that in 630 operations for cancer there have been 6 deaths. In nearly all of these cases the complete operation was practiced. W. W. Keen reports 200 cases with 1 death. Bull 118 with 4 deaths and Dennis 71 with a single death. Weir, Halsted and Powers have reported series of 125, 76 and 50 respectively, without a death. Curtis gives the average mortality of the leading German surgeons as 6 per cent. though many operations done before modern methods were practiced are included.

The English (Butlin, Treves, Williams and others) place the mortality as high as 10 per cent. This can only be reconciled with the rather less than 1 per cent. of six American surgeons, on the score of many operations being included which were done at a time when breast excision was properly ranked as a dangerous measure. Erysipelas, sepsis, secondary hemorrhage, etc., claimed their victims by hundreds. The matchless Billroth years ago admitted a death rate in his own practice of 23 per cent.

We can only contemplate such figures now with feelings akin to horror—as an aseptic operation in skillful hands is to-day practically devoid of danger. We conclude with the following summary:

1. Mammary cancer, submitted to operation before infection of the axillary glands, should promise 50 per cent of cures.

2. Although the axillary glands seem not to be involved, the axilla should be opened in every case and thoroughly cleared of glands and fat.

3. Infected axillary glands are of bad prognostic import, but a radical operation which removes them and at the same time the supra-clavicular glands may cure 11 per cent. of such cases.

4. The complete operation should be practiced in every case of malignant disease.

5. The mortality following the complete method is doubtless somewhat greater than it is in partial operations. The difference in results, however, is so conspicuous when the question of "cure" is considered, that the radical operation is the only one to be countenanced.

6. Statistics gathered many years ago are as valueless as those made use of in estimating the mortality after amputation of the extremities.

7. The mortality will probably be not more than 2 or 3 per cent. with the average operator. We have shown it to be less than 1 per cent. in over 600 cases operated upon by six American surgeons.

EXTIRPATION AND COLOTOMY IN CASES OF CANCER OF THE RECTUM.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY LEWIS H. ADLER JR., M.D.

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Colotomy and extirpation are two recognized procedures for the relief of malignant disease of the rectum. Both operations offer to the patient a chance of prolonging life; and, in addition, extirpation holds out the possibility of effecting a radical cure, in selected cases.

The choice between these two methods is a question of uncertainty only in a relatively small group of cases, and extirpation is not to be considered in the majority of instances, for the reason that the disease is usually an incurable malady, and by virtue of its concealed position within the rectum its presence is not revealed or even suspected until the growth has existed for some time. Furthermore, it is rare for cancer of the rectum in its incipency, to manifest itself by any symptom pointing to a lesion within the bowel. This is a familiar observation to all surgeons.

It frequently happens that a patient comes to us complaining of some slight diarrhea or other mild rectal trouble, and an examination unexpectedly reveals the fact that cancer is present to such an extent that it is obvious the neoplasm has existed for a considerable period. Consequently, its complete removal is often rendered impossible. Again, the patient's vitality is such that so grave an operation and one requiring the length of time for its performance, as an excision, is contra-indicated.

In arguing thus, I would not convey an impression that I am opposed to extirpation for malignant disease of the rectum in suitable cases; on the contrary, I firmly believe it to be a perfectly justifiable operation when the growth is circumscribed and confined to the lower five or six inches of the bowel; provided, however, that the tumor does not involve all the coats of the intestine, that it has not attacked the viscera which are intimately associated with the anterior wall of the rectum, that it has not invaded the pelvic glands, or, by metastasis any of the other organs of the body, and finally, that its growth be not rapid or have a tendency to spread widely. From these considerations, it naturally follows that the number of patients who can be benefited by excision of the disease is comparatively small.

Colotomy, on the other hand, is indicated in a large number of instances, where it is quite impracticable to attempt an excision. The advantages of the operation lie partly in the relief it affords to symptoms and partly as a means of retarding the growth of the neoplasm.

To indicate the relief afforded such patients by a colotomy, I can not do better than quote the opinion of Kelsey on this subject as, expressed in the fourth edition of his work: "Diseases of the Rectum and Anus."¹

This authority is not only a strong advocate of the operation, but is also in a position to judge of its merits by reason of his large experience. He thus states his views: "As to the benefits arising from the

¹ Pp. 409 and 410.

operation, too much can scarcely be said. That it prolongs life by the relief of pain, the preventing of obstruction, and retarding the growth of cancerous disease is beyond question. That it substitutes in many cases a painless death for one of great agony is indisputable. The idea that it is as well to let a patient die as to subject him to a colotomy has no supporters among surgeons who have had any experience with these cases. Indeed, I think that the practitioner who to-day sat by and allowed a patient to die of obstruction because of any sentiment against this procedure would hardly be held blameless. I can only say that, after trying every other means of treatment and being obliged to admit the fruitlessness of them all, I have come, with most others, to admit the great benefits of colotomy, and *have never performed it in any case in which either the patient or myself has afterward regretted it.*" (Italics mine.)

In another article,² Kelsey mentions even more minutely the advantages of this operation, as follows: "Colotomy, especially inguinal colotomy, relieves pain; does away with the constant tenesmus and discharges from the rectum, which by their exhausting effects are the immediate cause of death; delays the development of the disease by preventing the straining and congestion of defecation; prevents absolutely the complication of intestinal obstruction, which is another cause of death; enables the patient to sleep, eat and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. Instead of passing his days and nights upon the commode, wearing out his life in the effort to free the bowel from its irritation, he has one or perhaps two solid fecal evacuations from the groin in twenty-four hours."

In conclusion, I would like to allude to one more topic, to-wit: the choice of sites of opening the colon. I mention this subject with the sole purpose of eliciting the present views of the members of this society. My own belief is that the inguinal region is to be preferred in the majority of cases. Its advantages over the lumbar operation are, to my mind:

1. The smaller incision and lesser depth of the wound requisite to reach the colon, and the minimum amount of disturbance of the structures overlying the seat of operation;
2. The greater facility offered for the exploration of the abdomen, when such a procedure is required;
3. The better position for safe anesthesia, during the operation;
4. The comparative ease with which the colon may be identified in this position, and the little difficulty experienced in fixing the bowel to the skin without undue tension on the stitches;
5. The greater readiness with which a good spur may be formed;
6. The convenience to the patient of the site, for purposes of cleanliness and for the adjustment of pads; and
7. The recent statistics seem to indicate that it is the less dangerous operation.

1610 Arch Street.

Influenza and Life Insurance.—At a meeting of one of the large English insurance companies it was shown that more than six hundred thousand dollars had been paid out for deaths due to influenza. The report of the Secretary showed that this disease has cost the insurance companies more in the last two years than in the previous forty-three years.

² New York Medical Journal for November, 1892.

IS TOTAL EXTIRPATION OF THE RECTUM EVER JUSTIFIABLE?

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In giving the above title to my paper the fact is indicated, at least, that such a procedure is advised, and I may add, is strongly recommended by many. With true deference to all such, I shall raise the question as to its justification, and will try to adduce sufficient reasons for putting the question in the attitude of being mooted. It can not be gainsaid that some, if not many surgical operations, are done with but little to recommend them. In this age of progress in surgery, I opine that some of us are led astray into doing operations as much to test the efficacy, methods, etc., of others, and to put ourselves in line, as to accomplish that which should be the surgeon's chief aim, viz., to relieve the patient. It can not be denied either that there is what might be properly called a *rage* in surgical work, and it behooves us as surgeons to occasionally take a breathing spell, and look backward over the field, if not over the dead. I am quite willing to admit that conservatism in surgery may oftentimes mean early and complete operations, but it must be admitted that he is the best surgeon who has studied well his subject from all standpoints and is ready for any emergency.

To operate or not to operate, is often the question, and much responsibility rests on the decision. If the eager, ambitious, aspiring young surgeon could have in his time of need, the advice of his cooler-headed elder brother, who has met with many a danger, what a blessing! We are much given in this country to copying after our European brethren, even to their vagaries, in both medicine and surgery. New instruments, new operations, new books, new everything, is the cry with us, and we don't stop to think whether they are any improvement over the old or not. Oftentimes, too, the *original* operation is far preferable to the so-called modification of the same. With these remarks as a preface, I desire to call your attention to the question propounded in the title of my paper, Is total extirpation of the rectum ever justifiable? Very naturally you will say, Why, I thought that question had been settled, and that most authors recommended such an operation under certain conditions. You might add in truth that Mr. Kraské had designed his operation especially for this purpose. To both propositions I answer, quite true. But in the same breath I would beg to ask, Is the operation justifiable? An operation might be designed which would demonstrate the fact conclusively that the liver could be easily and dextrously removed. There are two propositions that I would submit for argument in reasoning against the advisability of the total extirpation of the rectum for any cause:

1. Is the patient ever cured of the trouble operated for, by said operation?
2. Is the patient ever materially benefited or relieved by the operation?

I beg to take the negative to both propositions.

1. I take it for granted, that the only cause for which it could be said that total extirpation of the rectum should be practiced is malignancy. I use the term here as synonymous with cancer. We note,

then, the characteristic features of malignancy as: the disposition to grow, to ulcerate, to infiltrate and to propagate. It is an aphorism well known in surgery, in cases of cancer, "to operate early if you desire success." All teachers too, know how assiduously they teach the student to do a *thorough* operation, and "cut wide of the mark," whenever dealing with this character of tumor." For instance, when removing malignant growths of the breast, how important it is, we say, to remove the glands in the axilla also. Again, how insidiously does a malignant tumor invade the system, and establish a cachexia. How difficult to tell the dividing line between a local condition and a general infection. Add to this the suspicion always that the tumor has likely propagated.

These questions are difficult of solution, even when the growth is situated in or upon the external parts. How much more difficult when located in an obscure part of the anatomy as is the rectum. Cancers found here are so stealthy in their growth and invasion of tissue that oftentimes the whole rectum is blocked by the mass, when only symptoms of constipation and some reflex pain are complained of. The tissues surrounding this portion of the gut are soft and easy of invasion; the blood circulation is great and the lymphatics are freely distributed. The contiguous parts are vital ones; the bladder, the peritoneum, the prostate gland, the vagina, in the female, are all easy of invasion. By the time that a growth in the rectum has assumed sufficient proportions to be diagnosed as cancer, many of these parts are already invaded by the process of infiltration. To dissect and draw down the rectum in the normal state may be comparatively an easy matter, but to completely dissect out a rectum that is so pathologically changed, as in a cancerous growth, is nearly a physical impossibility. Beside the difficulty of accomplishing its free dissection, it is one of the bloodiest operations that I have ever attempted. Admit that it can be successfully done, I would ask what amount of good accrues to the patient? Infiltration is clearly proved by the amount of adhesion that is witnessed. Can we, now, "cut wide of the mark?" I believe that every surgeon present will concur in the opinion that to make the operation complete, all glands in the inguinal region should be removed. But what about the infiltrated tissue left in and around the rectum? It does not require very much dissection to draw down the natural gut. Sever its connection at the anus, and it can be pulled down. But it requires a long, tedious, and free dissection to remove the cancerous rectum. What, I again say, shall we do with the injunction to "cut wide of the mark?" It can not be done without invading with the knife the vital parts mentioned, nay not then. Then of what use is the operation? A bloody procedure, rectum gone, and infiltrated tissue left. Would any sensible surgeon dissect out a cancer in the breast and cover the wound with infiltrated flaps? Why, then, should a surgeon dissect out a cancer of the rectum and leave infiltrated tissue? How can he prevent it, or how is he to know that infiltration into the adjacent tissues has not taken place?

It is nearly self-evident from the clinical history of all these cases and from the pathologic changes, that such condition does exist. A cancer of the rectum in its incipency is very difficult to detect, and is rarely seen by the surgeon in this stage. If it invades the anal orifice first, this rule does not hold

good, but no surgeon is likely to remove the entire rectum for a growth at the anus. It must be admitted that it is in the incipient stage of cancer that an operation would be most justifiable. And yet for a nodule along the course of the rectum, any surgeon would hesitate about removing the whole rectum. Then if it is not justifiable to totally extirpate the rectum for a circumscribed or incipient condition of cancer, is it justifiable to remove the same after adhesions, infiltration and a cachexia has been established. When, I would ask, is total extirpation of the rectum justifiable?

All malignant growths affecting the anus first should be removed, if seen at the proper time. If a growth of this kind is situated in the immovable portion of the rectum, and has not extended higher than this, or has not invaded vital structures, the surgeon can remove it, observing the injunction to "cut wide of the mark." But this is a very different thing from removing the entire rectum and that, too, when no promise can be given. I have written this paper after a fair trial of all methods proposed for the total extirpation of the rectum. But as I have usually seen these patients go on from bad to worse, I must confess that some remorse of conscience has overtaken me when the question stared me in the face, why I did so formidable an operation, when in truth there was no good surgical reason for doing it. This is an unfortunate class of patients, the most unfortunate of all, and they do indeed catch at straws. They need our fullest sympathy, and nothing less than a firm conviction that we can either cure, or materially benefit them, should lead the surgeon to do so radical an operation as the total extirpation of the rectum. Can we promise either? I think not.

THE CAPACITY OF MEDICINE.

The Doctorate Address to the Graduating Class of the College of Physicians and Surgeons, Chicago, April 2, 1895.

BY WM. ALLEN PUSEY, A.M., M.D.

PROFESSOR OF DERMATOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO.

The man is fortunate who has a high conception of his life work. In this respect, at least as regards the humanitarian aims of his profession, the doctor is usually fortunate. I believe it is the rule that the doctor has a conscious pride in the high purposes of his profession; I believe it can be said, without exaggeration and without straining the truth, that the doctor usually approaches his work with a realizing sense of his duties and of his heavy responsibilities. Often—oftener I believe than most men—he is animated by lofty ideals and sustained in a career of heavy responsibilities and, perhaps, unrewarded endeavors by the approval of his own conscience for doing, as well as in him lies, the work that comes to his hands. I believe, too, it can be said with truth, that he does not usually have to depend upon the approval of his own conscience for his sole reward. For the world at large is usually ready to applaud him for his good work and to praise him for his charity and his humanity. In fact, excepting here and there a soured pessimist or a fanatical anti-vivisectionist, who would cast upon us all the anathemas of the damned because we sometimes kill dogs and guinea pigs in order to save babies—excepting these, I say, I believe the world in general gives us credit for high purposes and for untiring efforts in behalf

of mankind. Indeed, one sometimes fears that they emphasize the goodness of our intentions and our charity and benevolence, because they feel that in these they have the safest grounds upon which to praise us; just as at times one calls a man a good man, when little else can be said in his favor. For it is undeniable that medicine has to stand a good deal of patronizing and condescension, particularly from people who imagine themselves progressive and from those workers in other departments of science, who, knowing only their own fields, imagine that they possess all there is of scientific merit. Every once in a while some innocent seeker after truth wants to know, "If medicine is a science?" We are reminded of the advancement of other arts and sciences in this century, and are asked in a hopeless sort of way if medicine has anything to offer commensurate with these. We are not allowed to forget that medical opinions have changed from time to time; that the doctrines of one period have given way to different doctrines of another; and that even now doctors disagree; just as if these things were the unique characteristics of the medical profession. And the intimations are not uncommon that medicine, while perhaps advanced in theoretical knowledge, is behind in practical realization; that, to paraphrase Montaigne, it has always known its Galen, but does not yet know its patients; that it has always been full of fruitless promises, but has given to the world little of useful results or of stable truths of practical value.

This mild and perhaps well-meaning skepticism is widespread, and finds expression in various forms. It is not enough to say in reply that the most cursory consideration demonstrates the falsity of such statements; or that scientific medicine is too strong to be affected by the impressions of the half-educated or the judgments of the inexpert. The man, who is in touch with his surroundings, can not be insensitive to such influences, and I question if the doctor is fortunate in his complacency who has not at some time asked himself how much justice there is in these imputations. Indeed, the doctor who starts out with enthusiasm for his profession and with high conceptions of its usefulness will probably, for his own satisfaction, do well to ask himself the questions to which such aspersions give rise. And to ask ourselves these questions now: What, really, is the position of medicine? Can medicine pretend to stand on an equal footing with the other physical sciences? Is it worthy of a place beside chemistry, or physics, or mechanics, as a science, or beside electrical, or mechanical, or civil engineering, or manufacturing chemistry as a technical profession? Or, to put it practically, can medicine show any solid contributions to useful knowledge in the last hundred years comparable to the much vaunted contributions of steam power, of electricity, or of mechanical invention? Has medicine shown in the past, or does it show now, an ability to meet its obligations and to fulfill the demands upon it equal to that of the other arts and sciences? And now on the verge of this twentieth century, can medicine pretend to prospects of usefulness and development as promising as those of any other of the physical sciences?

These questions suggest themselves with more or less distinctness to all of us at times, and it may not, therefore, be unprofitable to consider for a few minutes the position and the capacity of medicine as shown

in its course in the century now drawing to a close.

The nineteenth century, in respect to the progress of the physical sciences and the development of useful knowledge and inventions, is a period marvelous to contemplate. When one reviews in his mind what had been done in these departments of knowledge before 1800, and what has been done since, he finds it difficult to characterize the period without apparently indulging in the grossest hyperbole and exaggeration. The wildest imagination of a hundred years ago could not have faintly conceived the progress which this century would witness. This century has, in fact, reaped the harvest of the Renaissance. Perhaps it would put it more accurately to say that this century represents the entrance of the physical sciences into their period of adult vigor. All that had gone before, since the revival of learning—and practically nothing before the revival of learning is of any consequence in the physical sciences—represented the period of preparation.

At the end of the last century the times were ripe for advancement. Awe of tradition, even respect for the established order of things had vanished. Revolution was in the air. The spirit of unrest and of independence, of rebellion against privileged classes and arbitrary authority that had begun with Luther in religion and Galileo in science, that had driven the Puritan pilgrims to America, and had produced a Cromwell in England, had finally resulted in an American rebellion, and the establishment of a government by the people; and had reached its climax in the awful upheaval of riot and license of the French Revolution. The established order of things had lost its sanctity. Men were ready to prove all things, but to take nothing on faith or on tradition. And that is the true spirit of science. And, moreover, science and art suited the spirit of the times, in that they represented an aristocracy of intellect in contra-distinction to an aristocracy of birth. The times were, in fact, as ripe for a revolution in knowledge as they were for the civil and social revolutions that were occurring.

And yet one at that time, looking for indications of the future, would have found little positive material on which to foretell the advancement of this century. Of the pure physical sciences, astronomy was the only one that had reached a condition of anything like completeness. Of the broad generalizations that are at the same time the glory and the very foundation of physical science none, except Newton's law of gravitation had been worked out. Laplace was just indicating the fascinating but uncertain hypothesis of the nebular origin of the solar system. Dalton had not yet enunciated the atomic theory, upon which modern chemistry has been built. Schwann had not yet demonstrated the cellular structure of vegetable and animal tissues, which is the very basis of modern biology. And more than half the century was to pass before Darwin promulgated the doctrine of natural selection, which has given to the world a new conception of the order of development of living things. Perhaps the most important generalization of physical science, Joule's law of the conservation of energy, which permeates every conception of modern science, was to wait for its enunciation until after the middle of this century. Newton's corpuscular theory of light and the conception of heat as due to a vague "caloric" still prevailed. These facts in their bare statement convey no im-

pression of their momentous importance. Unverifiable hypotheses, as some of them are, they are nevertheless the very foundation of modern science; and the times when they did not exist are times in science that you and I can only realize by a strong effort of the imagination.

And if pure physical science, as we know it to-day, was thus undeveloped the mechanical arts and the practical applications of science to the uses of civilization, which are the peculiar characteristics of our times, were even more so. Watt had but recently made the steam engine into a practical servant of man and its usefulness was not yet established. The first steam-boat had not been built; and as for railroads, the memories of men now living take them back to the time when Stephenson's "Rocket" demonstrated the practicability of a steam locomotive. The spinning-jenny, the automatic power-loom, the cotton-gin of Eli Whitney—these three fundamental inventions, which have rendered possible the vast textile industries of modern times—had just been invented; and that other boon of laboring women, the sewing machine, was not to come for fifty years. The electric telegraph had hardly been thought of, and its invention was away in the future; and as for the possibilities of submarine telegraphy, of electric lighting, of photography, or of transmitting the human voice by electricity, who could have dreamed them a hundred years ago?

A hundred years ago men were, in fact, as regards mechanical inventions, much in the same place that they had held from the earliest civilization. They cleaned their cotton and carded their wool; they spun and wove and sewed; they harvested and threshed their grain; they lighted their houses; they sent messages, and traveled by land and sea, in practically the same ways that men had done a thousand or two thousand years before. The list in fact could be indefinitely continued. All the inventions of mechanics; all the applications of physical science to the uses of man, that have made the forces of nature man's servants, that have made intelligence dominant over force, that have welded the civilized world into a sentient whole, with community of interests and community of knowledge; all these, with few exceptions, are the inventions of this century. Could anything be more marvelous than this progress? If medicine had not kept pace with the other departments of physical science in this century would it be a reproach, considering the infinitely delicate and confusing problems which biology and pathology and medicine proper have to solve? But has that happened? Has medicine been outstripped by the other sciences in the nineteenth century? Can medicine, in fact, stand in a free and open comparison of this sort, or must it enter such a contest with excuses and apologies, and with such humility as befits the poor relation of a prosperous family? It requires, perhaps, a reckless degree of temerity to attempt such a question, but let us, as best we can, consider it for a little while.

At the end of the last century, medicine was able to give a good account of itself. The pressing necessity of getting relief from pain and disease had started medicine on a career of usefulness before most of the physical sciences were born. It could point to a history of investigation and of development along the best lines of knowledge of its times, as old as the revival of learning. Beginning with

pioneers in scientific research like Vesalius and Ambrose Paré and Harvey and Sydenham it had come down through a line of great observers to such masters as Petit and Bichat and the Hunters and Percival Pott and Jenner. Through the labors of a long list of such men, medicine could fairly claim—in actual achievement and in positive knowledge—a position among the physical sciences as good as any. Gross anatomy, after infinite work, had been brought to a state of practical completeness. Surgery, at its beginning an appendage of anatomy, had attained a degree of skill in which it could claim to meet the reasonable expectations of its times. Operative surgery was highly developed. The great operations have come later, but the ordinary surgical procedures—amputations, the treatment of fractures, the ligation of arteries, and like surgical operations were carried out with intelligence and technical skill. And better than that, men like John Hunter and Pott and Desault and John Bell, were studying the pathologic processes at the bottom of surgical conditions, and were developing a practice of surgery founded upon principles—were indicating the way to a rational practice of surgery, in which surgical procedures would be carried out in the light of a correct understanding of underlying pathologic conditions. In medicine proper the phenomena of disease had been accurately observed and recorded; systemization and classification on a clinical basis had been well done; and diseases had been studied carefully and philosophically for two centuries. Most of the diseases which we recognize now as clinical entities had been differentiated and well described; and the best lines of their management in the light of existing knowledge had been carefully considered. Pathology had been founded by Morgagni, and physiology had made a correct start under Haller in the middle of the eighteenth century.

But the enumeration can not be carried much further. The science of medicine as we know it now, built upon accurate data obtained with instruments and by methods of scientific precision, did not exist. Without any adequate conception of the functions of the various organs; without knowledge of the microscopic anatomy of diseased tissues; without accurate instruments for the investigation of the various elements of disease, medicine, as we know it now, could not exist. What, for instance, could be known of the composition of body-secretions when Priestly had only just discovered oxygen, and fifty years before Liebig and Wöhler had indicated the possibilities of organic chemistry. There was no adequate knowledge of the functions of any of the organs. Schwann had not yet indicated the ultimate cellular structure of animal tissues. Charles Bell had not demonstrated the difference between motor and sensory nerves. Marshall Hall had not discovered the reflex functions of the cord. And Claude Bernard, who was to discover the vasomotor system of nerves, and demonstrate their enormous importance in the nutrition of the tissues, was not yet born. Bichat had just indicated the possibilities of pathologic and normal histology. His superlative genius had carried the subject probably as far as the appliances at his command would allow—for the microscope when Bichat died in 1802 was little better than a toy—but in spite of such geniuses as Bichat and Morgagni before him, a real science of pathology, a thorough-going investigation into the pathologic

factors of any disease, did not exist, could not exist in the very nature of things. As for exact methods of studying disease, there were none. Physical diagnosis had not been discovered. Auenbrugger had discovered percussion as a means of diagnosis fifty years before, but no attention had been paid to it. Laennec had not yet given to the world the method of auscultation or the stethoscope; and as for the other instruments of precision in physical diagnosis, the ophthalmoscope, the laryngoscope, even the duck-bill speculum, and all the minor instruments of diagnosis were as yet unheard of. On the practical side, obstetrics was still in the hands of midwives; and to any one who knows the horrors of ignorant midwifery, could there be a more beneficent example of progress than obstetrics to-day presents? Surgery, in spite of what it had done, was still merely operative; it could only cut off what it could not cure. It was hopelessly handicapped; it could not annul pain during operations, and it could not prevent the ravages of septic infection after operations. In therapeutics all was of necessity dark. The lancet, the purge, and the blister were the main reliances. Excepting opium, all the list of invaluable remedies that soothe the body and relieve pain; all the alkaloids that make exact medication possible are the products of this century. Morphin and chloroform and ether, chloral and the bromides and, of course, all the synthetic anodynes, quinin and the iodids, and salicylic acid, aconite and ergot, corrosive sublimate and carbolic acid are all the products of a later time.

That was the condition of medicine at the end of the last century. It needs no prolonged comment to point out the contrast between medicine then and medicine to-day. In the century that has passed medicine has put itself in such a position that it can attack any question of disease that confronts it with intelligence and with a clear appreciation of the problems that must be solved. All of the fundamental subjects, upon which the existence of rational medicine depends, have been worked out to a condition of nearly satisfactory completeness. The work in none of them is ended, for science is never done, but it can be said, in full view of the facts, that only minor details are to be worked out in the fundamental branches of medicine. Physiology has established with certainty and precision the functions of the body. We have definite and almost complete knowledge of the conditions of the tissues in health and in disease. The processes of pathologic anatomy that underlie diseases have been so thoroughly worked out that only rare and extraordinary conditions remain to be investigated. Physiology, biology, normal and pathologic histology are in a state of practical completeness. The minor problems that they have yet to solve merely indicate the high state of knowledge which these subjects have reached.

Clinical medicine is in a position of definite knowledge. The natural history of disease has been worked out with an accuracy that could not have been foretold. Symptomatology, it may be said without exaggeration, and the differentiation of diseases and groups of diseases have been so sharply and clearly marked out that little more can be expected. But medicine has gone further than this. As is the case in any kind of research the consideration of one set of problems has suggested others; and medicine has solved, and is solving, problems of the most momentous importance to mankind that were beyond the

scope of the imagination a hundred years ago. Medicine is obtaining an insight—and not a speculative insight, but a positive insight based on sensible fact—into the intimate causes of disease that no man could have foreseen even fifty years ago. Medicine has gotten to the point where it can say of many important diseases—and the list is rapidly increasing—“This is the cause of the disease; without it the disease can not exist.” And it can not only affirm that these are the essential causes, but it can take these essential causes and separate them and study them apart from the diseases which they produce; can accurately work out their life-histories; can carry them through generation after generation of pure cultures; and can then complete the demonstration of their essential causal relationship by reproducing the diseases from their pure principles. What a contrast to the times when men were seeking a universal explanation of disease in plethora, or in congestion, or in any other of the indefinite conceptions with which they juggled in the eighteenth century! And medicine is doing even more than this; it is not only demonstrating these positive causes of disease, but it is separating from them the principles which are the source of their pernicious activity. It is studying these elementary causal principles and already, with positive assurance, is indicating the methods by which their effects can be overcome. There is no science that can show more brilliant investigations than these.

These investigations—in themselves purely scientific—have already borne results of almost inconceivably great practical value. The demonstration by Lister that the formation of pus is caused by the presence of microorganisms and that it can be prevented with mathematical certainty by their exclusion—this demonstration, which resulted in the founding by him of antiseptic surgery, has probably done more for suffering humanity in twenty years than all the uncertain charities of twenty centuries. It has made curative surgery practicable; it has shorn child-bed of its greatest danger; it has banished erysipelas and hospital gangrene from surgical wards; it has relieved the wounds of the battle-field of the dangers and tortures of septic infection—that specter of surgery that probably killed more men in our Civil War than all the bullets of that unhappy time. And Lister's application of bacteriology is but one example of what has been done. Cholera and yellow fever visit us no longer. With proper precautions no man need have typhoid fever—and a hundred years ago typhoid fever had not been described. Lockjaw is under our control; and hydrophobia is robbed of its victims. Proceeding along lines not bacteriologic, medicine has overcome myxedema; it can practically call back to health the obtunded victim of that miserable disease. It can even bring the sporadic cretin to a condition of passing intelligence; and certainly there is no object that would seem to be further beyond the possibility of medical skill than the hideous, drooling, idiotic dwarf, who is the victim of congenital myxedema. And we are not confined to these spectacular instances for illustration of what medicine can do. Medicine can claim to-day to take hold of disease with an accurate knowledge of its natural history and of the underlying conditions that produce it; and on a basis of such knowledge, if it can not do the impossible and prevent what has already occurred, it can claim to manage disease with a clear appreciation

of the conditions to be met and of the contingencies to be provided for. Can any science do more? Could any more be expected?

Medicine, indeed, has reached a position of positive achievement, in which it can court comparison with any of the arts or sciences. And it now stands in a position of promises almost realized that offer to suffering humanity benefits almost beyond comprehension. Huxley in 1887, writing upon the advance of science during the Victorian era, in speaking of medicine, said in words that sound now almost prophetic: "One century since, smallpox was almost as great a scourge (as the plague). Science, though working empirically and almost in the dark, has reduced that evil to relative insignificance. At the present time, science working in the light of clear knowledge, has attacked splenic fever and has beaten it; it is attacking hydrophobia with no mean promise of success; sooner or later it will deal in the same way with diphtheria, typhoid and scarlet fever." The spirit of Huxley's prophecy is being fulfilled as regards many diseases. As regards diphtheria, it looks now as though the prophecy was already fulfilled. There is a good deal of reason to believe now that diphtheria has been conquered. And to the man who has seen the ravages of diphtheria, what greater evidence could there be of the advancement and capacity of medicine than the fact that medicine is to-day in a position in which it can seriously hope to produce a specific for that dreadful disease.

Can there be any question of the capacity of a science that has such achievements as these to offer? Has any other department of knowledge done better? Can electricity even, with its marvelous history show results any more startling? It would seem indeed that the branch of knowledge that has produced modern physiology and biology and pathology, that has discovered the essential causes of tuberculosis and leprosy and cholera, that has given to the world such men as Helmholtz and Virchow and Koch and Joseph Lister and Joseph Leidy—it would seem that that branch of knowledge would need no defense against the charge of being unscientific. It would seem, too, that that same science, that began the century with a discovery that has practically banished smallpox from civilized communities, and is ending the century with discoveries that promise to give us control of some of the worst scourges that afflict mankind; that has given the world immunity from pain under surgical operations, and has produced antiseptic and conservative surgery; that has banished from us scurvy and cholera and yellow fever; and that, on a basis of accurate physiology and pathology, furnishes a rational treatment of disease—it would seem that such a science would no more need a defense against the charge of being impracticable and barren of useful results.

Indeed, I believe we may be pardoned for thinking that medicine is not the poor relation of any scientific family.

103 State Street.

The Chicago Department of Health issued, in June, a circular on the care of infants and young children in hot weather, which can be had in quantity by physicians, at that office. It gives directions regarding food and cleanliness that in many instances will be of value and assistance to the physician and is intended for distribution to the laity.—*Chicago Medical Recorder*, July, 1895.

REPORTS ON TYPHOID FEVER CONTINUED.

NO. VIII.

Read before the Ohio State Medical Society, Columbus, Ohio,
May 17, 1895.

BY JOHN ELIOT WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

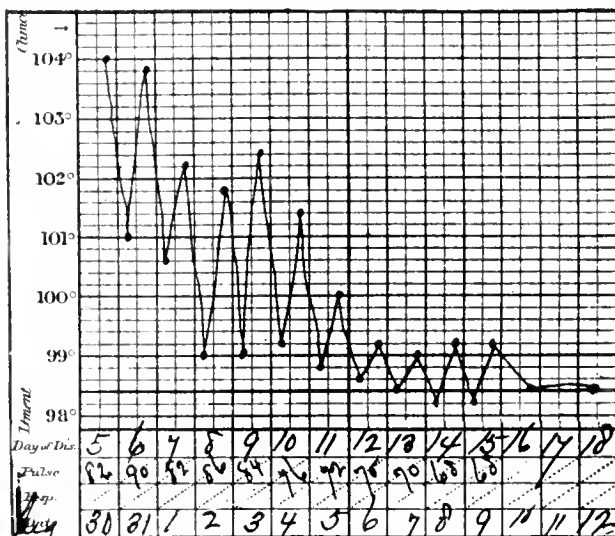
(Continued from page 59.)

Dr. E. J. March, of Canton, Ohio, sends me the following letter with the charts, which are marked, "Dr. March's Cases, Harry W., and Sadie J."

"CANTON, OHIO, April 26, 1895.

"Dr. J. E. Woodbridge,

"Dear Doctor:—An apology is due for my long delay in giving you the reports of some of the cases of typhoid fever which I have treated with the medicine you furnished so kindly. I have simply postponed it from time to time, till this P.M., I saw a report of your cases in P. D. & Co.'s 'Therapeutic Notes.' Inclosed find detailed treatment and temperature charts of two cases. The first of them, Mr. W., was to my mind a typical case. The second Miss J., a trained nurse, came from a family all of whom had typical and severe attacks, at which place she contracted the disease. She came back to Canton and asked me to give her the 'Woodbridge treatment,' as she had nursed my first case, and was much taken with the results obtained in it. By-the-way, she



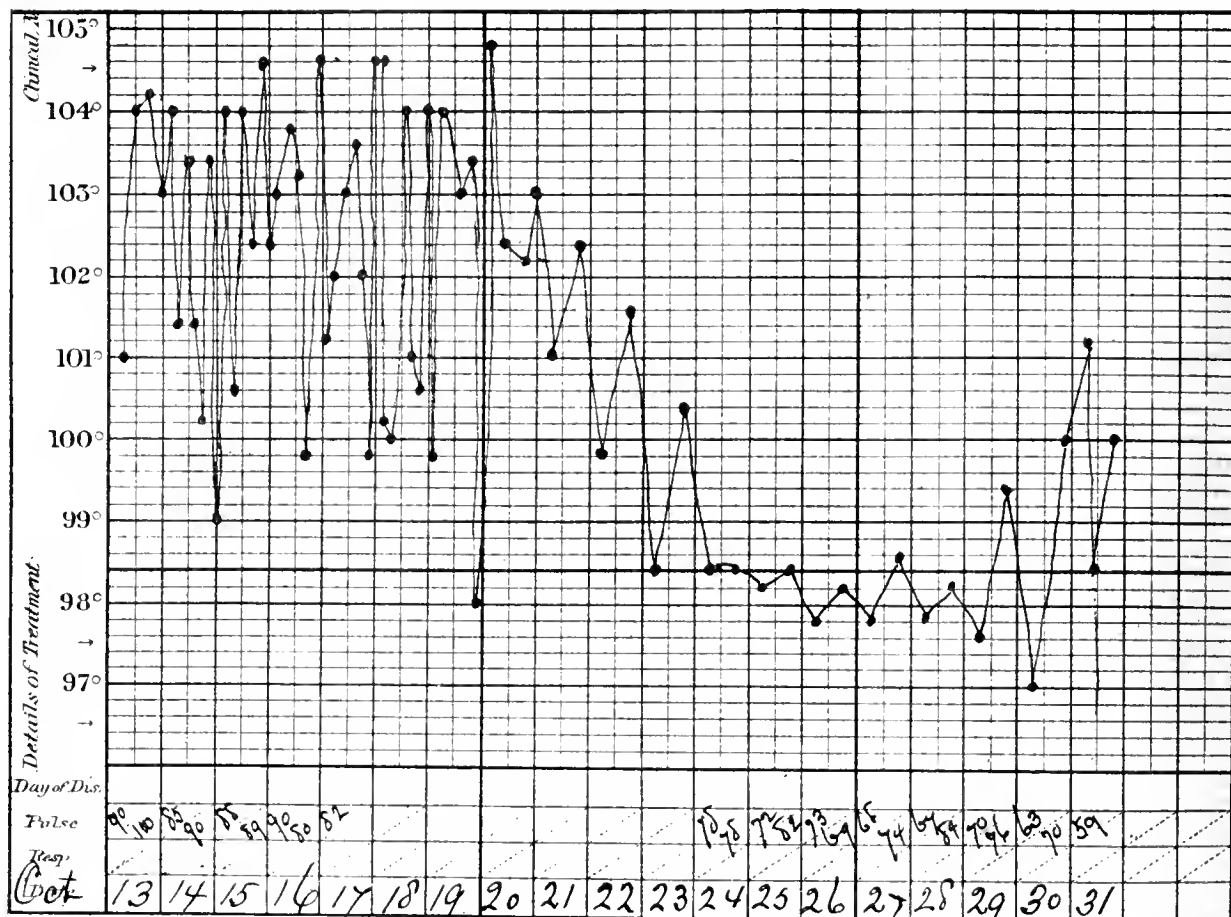
Dr. E. J. March's case, Harry W.; age 25 years; native of United States; occupation, tourist. Diet, milk. Treatment, "Woodbridge's." Result, cured.

had had large experience in the New York hospitals in nursing typhoid. You will see the results as per charts inclosed. I had two other cases as well marked and typical as these two; but both being in non-professional nurses' hands no notes or charts were kept, but they were convalescent in ten days' time. The one, a woman about 30 years old, had come from the bedside of her brother who died of the disease; and she started in with a severe attack. I am sorry I did not keep such a record as I could, myself, so as to add water to your wheel. I have a friend here who has tried the plan of treatment, somewhat modified, and says that the objection he has to it is that whereas he formerly made from \$20 to \$40 out of each case of typhoid, this cuts his bills down to less than \$10 in each case. Doctor, I feel sure that you are on the right track, and if we should have a run of fever in our hospital wards this fall, I will furnish you with some more charts and results. Thanking you again for your courtesy,

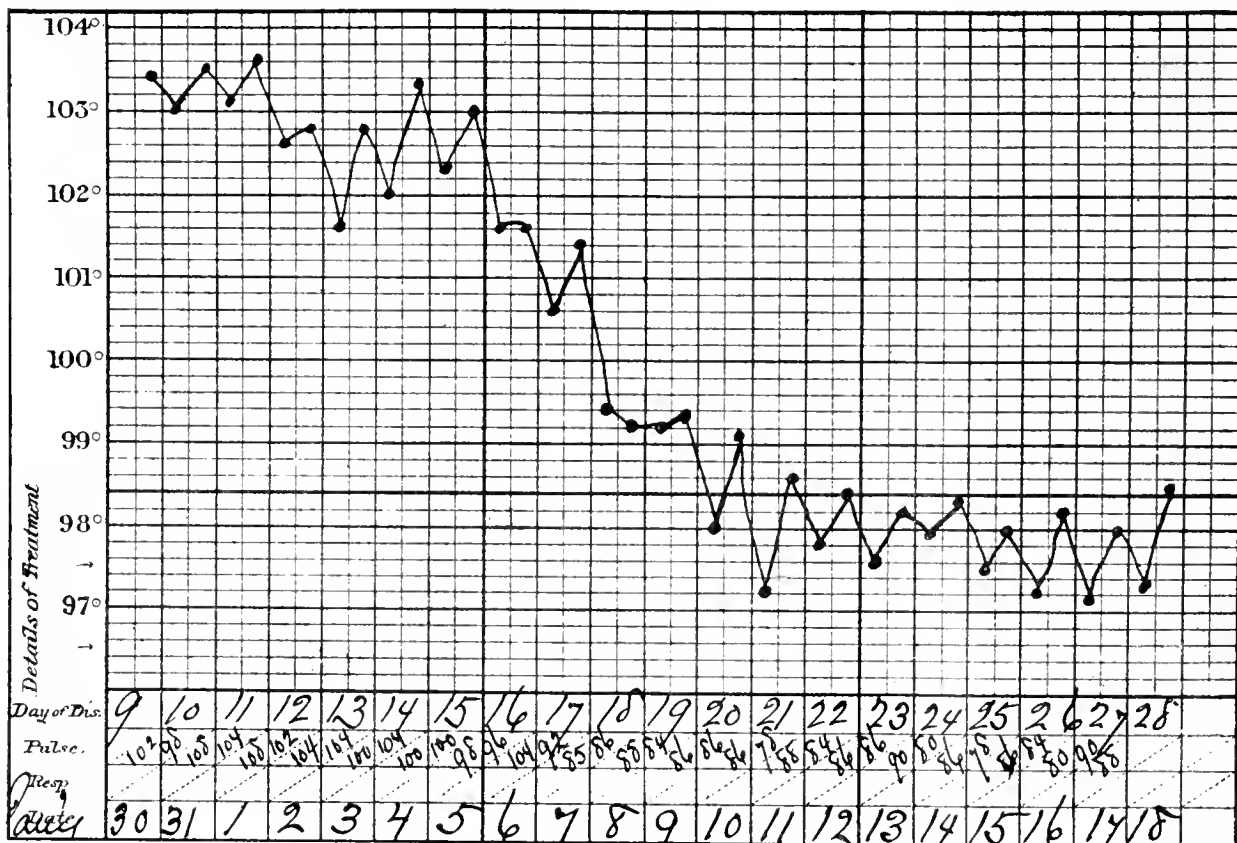
"Yours very truly,

E. J. MARCH."

I will now present from my own practice a few cases which ran a course similar to that of Dr. Cunningham's Case No. 3, with the exception of the unfortunate accident of the intussusception. These cases represent not only most careful and positive diagnoses from the clinician's standpoint, generally verified by one or more physicians; but every pre-



Dr. E. J. March's case. Sadie J.; age 24 years; occupation, trained nurse; residence, Canton, Ohio; date of admission, October 13, 1894. Diet, liquid. Result, cured.

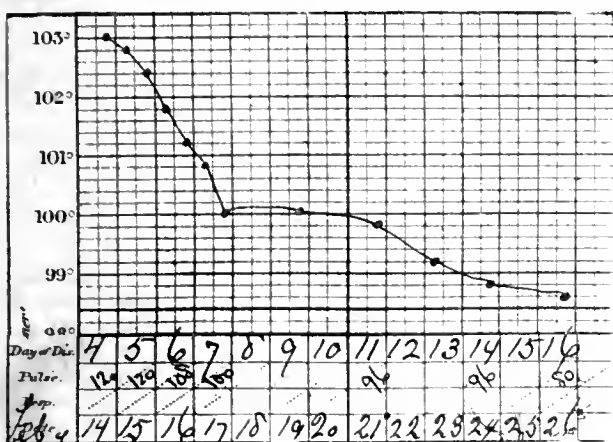


Case 101.—Miss Ellen H.; age 20 years; date of admission Jan. 30, 1895.

caution has been taken to reduce the errors of diagnosis to a minimum by calling to my aid every known means of excluding mistakes. The diazo-reaction described by Ehrlich, and the microscope were appealed to, and in a large number of cases where malarial fever was suspected or had been diagnosticated, careful search was made for Laveran's hematozoa.

Case 106.—Mrs. McC., aged 70 years. Was a feeble woman and one of five typical cases in one house. When I first saw her on February 7 her temperature was 105 degrees, pulse 140. Although she was reported to have been sick only five days she was delirious; her bowels were very tender; there was considerable tympanitic distension; rose-spots were abundant; her tongue was thickly coated, dry and brown. Her temperature, as you will see, had dropped to 99 degrees; her pulse 96 on February 13, after which her temperature was not taken; in a few days she was able to be about, and at the end of a week more she was able to be out of doors.

Case 101.—Lenore S., aged 27 years (daughter of Case 106), residing in the same house with her mother. When I first saw her on January 14, she had a temperature of 103 degrees; pulse 120, and all other symptoms of typhoid fever as characteristic as were those of her mother. A few days later, January 17, her temperature was 100, pulse 100, and the general condition was so much improved that I have no record until January 21, when the temperature had been reduced to 99.8 and the pulse to 96. I saw her the last time on the 26th, and she was out in a week.



Case 101. Lenore S.; 27 years; date of admission Jan. 14, 1895.

Case 108.—Carolyn S., aged 2 years (daughter of Case 101). She was far from well on February 7, when I was called to see her grandmother, and on February 9 had a temperature of 105.2 degrees. She was discharged cured on the 16th after nine days of treatment.

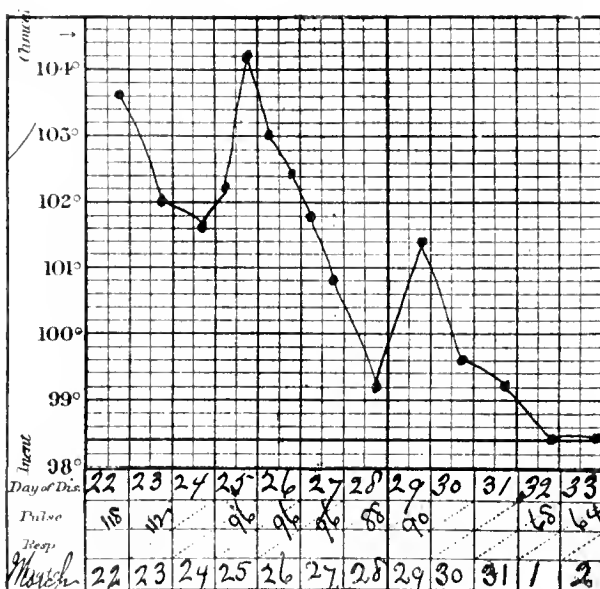
Cases 107 and 109.—Katie McC., and Jerry McC., aged respectively 5 years and 23 years (granddaughter and son of Case 106). These cases both showed decidedly characteristic symptoms of the disease, but recovered so rapidly that no records were kept.

Case 115.—John O'L., aged 28 years. This young man was taken sick on March 1 and was treated by an irregular practitioner who called two other physicians in consultation after the patient had been ill twenty-two days, during which time (according to the statements of the family) a diagnosis was made of la grippe, malaria, pneumonia and, finally, of pneumonia with typhoid malaria. On March 22, an unfavorable prognosis was given and I was sent for. I found a typical case of typhoid fever, complicated with pneumonia. His temperature was 103 degrees, pulse 118, and dierotic; condition of nervous system very bad; he was sleepless and delirious; abdomen was covered with rose-spots; tympanitic distension enormous; bowels very tender; tongue very dry, brown and cracked; he was spitting blood and had three intestinal hemorrhages. On March 25 his temperature was 104.7. However, his condition improved rapidly indeed, he was sleeping naturally, without hypnotics, on the second night, when he was no longer delirious. Within three days his abdomen flattened out; the tympanites disappeared; his appetite returned and he declared that he was gaining strength on a milk diet. On April 1 and the following day,

the temperature being normal, he was discharged, cured. Dr. Cunningham, who is much interested in the abortive treatment of typhoid fever, saw the ease with me, for the purpose of watching the effect of the treatment. He pronounced it wonderful.

Case 120. Mary O'L., (sister of Case 115, John O'L.). I was called to see this case on April 24, and was given the following history: she had nursed her brother through a very severe attack of the fever a month before. During the latter part of his illness she had severe headache and general malaise. About two weeks before I saw her, her headache increased; her back and limbs ached; she became dull and apathetic, and as her mother expressed it: "Could hardly drag one foot after the other; she who was the most active and energetic of all the kith and kin." At this time she took the residue of the medicine I had left for another sister, whom I supposed was taking typhoid fever (from which the sister recovered at once) after which she felt quite well for several days. Six days before my first visit, the headache returned; the back and limbs began to ache; and all the characteristic symptoms of typhoid fever presented themselves; her pulse was 120; her temperature was 104.9; her tongue heavily coated; spleen enlarged; bowels very tender and tympanitic.

I left her in the care of Dr. Cunningham, on the ninth day of treatment, when I started to attend the



Case 115. John O'L.; age 28 years; date of admission March 22, 1895. Taken sick March 1, 1895; confined to bed March 4, 1895; spitting blood; tongue dry, margins red, etc.; tympanites; hemorrhages March 23, 24 and 25. Catheterized March 28.

meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore. During my absence she had a very severe intestinal hemorrhage, but made a good recovery. While Dr. Cunningham was making his daily visits, a sister was taken sick with the fever and proper treatment was instituted early, so the temperature never rose above 103.5 degrees, and on the seventh day, when she was doing very well, her husband came home drunk and brought an irregular practitioner who very promptly decided that she had no fever. It was very fortunate for his reputation that he was called in after Dr. Cunningham had aborted the disease.

Case 116.—E. S., aged 40 years (husband of Case 84). This patient resides about four miles from my office and he drove that distance to see me, about 1 o'clock each day. He consulted me first on April 1, when I found his temperature 100 degrees, and pulse 112. Although feeling at times miserable, he was able to be out each day, as I advised; and on the 15th his temperature was 99.4 degrees, pulse 80, and his recovery was excellent.

Case 117.—Mrs. Michael J., aged 32 years. (This was the

fourth case of typhoid fever in the same house at once; the other three cases will be reported in the paper which I read in the Section on Pediatrics, at the meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore.)

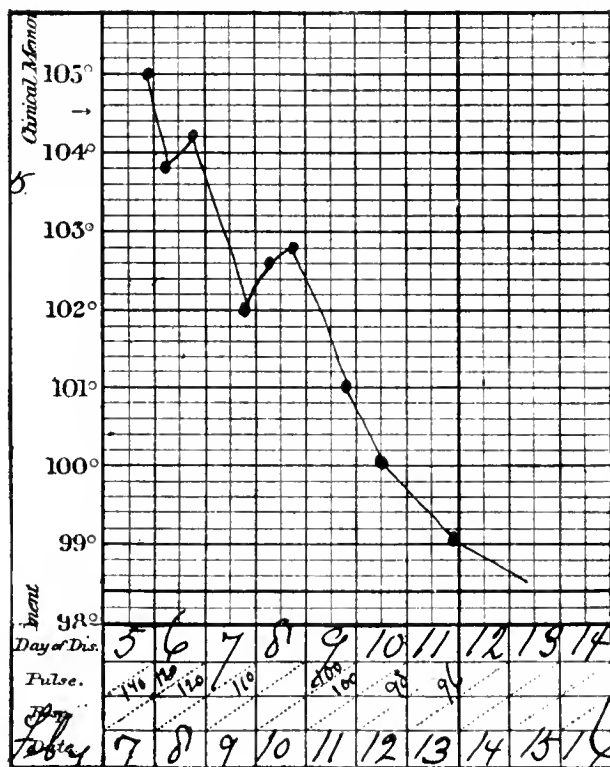
(A small son, Case 78, John J., and a little niece, Case 105, Annie W., had had the disease some time before). The symptoms were not well defined and an absolutely positive diagnosis was not possible, but as all the family used water from a well which was supposed to be the source from which several other cases had originated, she was treated as a case of typhoid fever, and assured that if the diagnosis were correct she would not be confined to her bed or be long sick or too sick to nurse her three children, who had the disease, as I had been able to treat her from the very beginning of her indisposition.

Case 110—Frank S. This was a true ambulatory case and although the symptoms seemed to indicate that the patient was growing worse, his temperature being 103 degrees on the sixth day of the treatment, he felt fairly well after the first two or three days.

Case 118.—John S. This case showed premonitory symptoms of typhoid fever for more than a week before the patient consulted me. He drove to my office for a few days,

me to see him, saying that he was unable to control him. On several occasions he had stolen out of bed and secured bread and other articles of solid food, and once he was said to have eaten a pound of candy. I ordered him to be handcuffed to the bed, where he still remains but is nearly well.

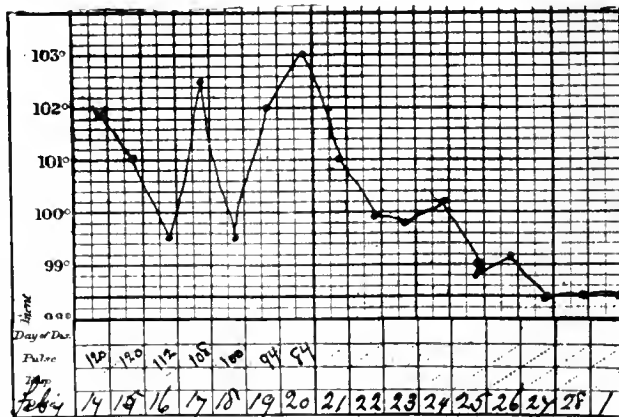
Case 104.—Miss Ellen H., aged 20 years. Residing in a neighboring town, she had been sick ten days under the care of the family physician who, being one of those gentlemen who do not believe in the possibility of aborting typhoid fever, very naturally blundered in his diagnosis and treated her for la grippe, until about four days before I was called. At this time he corrected his diagnosis to typhoid fever, which caused no little excitement, as the other most prominent physician was and is an enthusiastic advocate of the "Woodbridge method." (He says, publicly, that no patient should die of typhoid fever.) Thus the friends of scientific medicine and the friends of "old fogysm" became partisans, and for days the young lady's mother, in her anxiety to save her daughter from death or needless suffering, was swayed from side to side. It would be hard to tell which party would have won had not the condition of the patient become alarming, for although the doctor was keeping the temperature down with acetanilid and sponge-baths, and was sustaining the heart with strychnin and digitalis, her mother could see that all was not right, and she at last telephoned to me to come down and meet the attending physician in consultation. I found both physician and friends exceedingly anxious about a "failing heart," a threatening danger which I assured them would disappear as soon as a little of the poison was neutralized. I discon-



Case 106. Mrs. McC.; age 70 years; date of admission Feb. 7, 1895.

with all the marked characteristics of the disease plainly to be seen, but finally had to go to bed for a week or more. The temperature ranged from 100 to 102.8 degrees for eight days, and he was discharged cured on the twelfth day.

Case 117.—George J., aged 14 years. He came to my office on April 14, and called daily for four or five days, when his afternoon temperature was only 101 degrees; but his other symptoms were sufficiently characteristic to justify a diagnosis of typhoid fever. I soon discovered that he was not doing well and warned him of the danger of neglecting to follow implicitly my instructions; after which he improved for few days, but again grew worse. Sending for his father, I found that he had been left to take his medicine or not, as he chose; and choosing the latter, he had been casting the expensive medicine which I gave him into the cuspidor. I refused to have anything more to do with him, unless he were properly nursed, when his mother gave up her situation and gave him her care; but more than two weeks had now passed, and instead of being well as he should have been, his symptoms were all aggravated; his pulse 136; temperature 103.4; the tympanitic distension of the abdomen was enormous and his bowels were very tender and painful. Leaving him under the care of Dr. Cunningham, I went to Baltimore, and returning on May 13, the Doctor requested



Case 110.—Frank S.; date of admission Feb. 14, 1895.

continued all heart tonics and stimulants, and all medicine, in fact, except the three prescriptions which I have advised in former papers; and before I made my visit the following afternoon, all the ill-omened heart symptoms had disappeared and the pulse had resumed a healthy tone. In two or three days all of the nervous symptoms, all of the tympanites, all of the abdominal tenderness were gone, never to reappear, and she was very comfortably sick; although, as you will see, the temperature did not touch normal until the eleventh day.

In conclusion, I wish to say that an apology is due the large number of physicians who have reported cases of typhoid fever treated and aborted by the "Woodbridge method" which I have been unable to reproduce here or in previous papers for want of time—an unintentional and unavoidable discourtesy, since the twenty minutes allowed me in the medical societies, or the space in the JOURNAL would have been wholly inadequate to admit of the briefest possible mention of all of the valuable and valued reports in my possession. But every case reported is an object lesson to those who doubt the possibility of aborting typhoid fever, and will aid in hastening the day when death or long or severe illness will be unknown. Hence the medical profession is to be congratulated that it has in its ranks proficient men, able enough to learn the truth and brave enough to teach it.

TOXICITY AS AN ETIOLOGY OF NERVOUS DISEASES.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Of all branches of medicine, that represented by diseases of the nervous system has perhaps been least influenced by the science of bacteriology. In a minor way it has felt the effect of microbic theories, but until now, so far as my knowledge extends, no attempt has been made to explain more rationally upon this basis some of the vexed questions of the etiology of many nervous affections.

I shall undertake to bring forward a newer origin of many diseases of the nervous system. In these days of scientific medicine our profession rightfully demands proofs. I am aware that I have little incontestable proof in support of this theory to offer at the present time. Nevertheless, I think considerable evidence for the toxic origin of many affections of which the etiology has long been a source of doubt will be shown.

In speaking of the toxic origin of nervous diseases it was intimated that the idea was new. This is not entirely true. It is well known to you that of late years no inconsiderable rôle has been attributed to toxicity as an etiologic factor in a number of maladies. But in medical literature I have found little recorded relating to affections of the nervous system attributed to the effect of bacteriologic or analogous influences. For a long time it has become impressed upon me in my special study of nervous diseases, that the degenerations, respectively inflammations, of both the central and peripheral nervous organs are, in a great measure, due to the effect which certain discovered and undiscovered toxins exert upon them. In some instances this result is attained only after an extended period of time; in others the effect upon the nervous tissue is quite acute as, for example, in poliomyelitis anterior, the so-called "infantile paralysis." In some cases the toxin is the product of microorganisms, as in diphtheritic and typhoid affections; in others the poison is of an inorganic nature, as is the paralysis due to lead, arsenic, mercury and alcohol.

There are several reasons which prompt me to seek the origin of many abnormal conditions of the nervous system in a chronic or acute exposure to the influence of toxicity. It will be impossible to enter deeply into the subject, for the realm of nervous diseases is vast, and the number of agents which may be powerful to exert their action possibly still greater. I must necessarily simply allude to many things to which further study and experiments may attach considerable importance.

Now it has been the just aim of pathologists and neurologists for many years to attribute the lesions of well-known diseases of the nervous system to defects of a congenital nature. These defects vary in degree, and in some instances require the assistance of an exterior agent to unfold to such an extent as to impress us with their importance as factors producing disease. With this tendency and aim I am most heartily in accord, as is shown in a recent

paper by myself on "Syringomyelia."¹ It may be well, however, to caution against a too great willingness to search for congenital deficiencies or "retarded development," to the neglect of other causes, as in almost every case where such an etiology is apparent, prognosis is grave, except, perhaps, where surgical methods can be adopted.

We are all well acquainted with the patient's story of exposure to cold, to wet, to heat, etc., and doubtless such exposure, if it be long continued, can produce serious effects upon the entire nervous system, in fact upon the entire body. The popular notion concerning exposure is, perhaps, not so ridiculous as many of our fellow-physicians would have us believe. However, these histories of exposure of various kinds are to the inquiring mind unsatisfactory, to say the least. Guided by the light which the researches of the latest years have shed upon every field of scientific medicine, we should attempt to arrive nearer to the true causes in the production of all diseases. Therefore I would bring forward the following facts:

1. We find as sequelæ of affections of known microbic origin, inflammations and, secondarily, degenerations in both the central and peripheral nervous elements.

2. After and during the course of such illnesses as may be justly supposed to be due to bacterial invasion we find characteristic symptoms from the side of the nervous system denoting organic disease of the tissue of this system.

3. By analogy we may infer that both of the former classes are due to the effect of the microbes themselves or to the production of poisons by them.

4. This analogy is given by the two following subdivisions: (a), the inflammations and degenerations found in the nervous tissues as the result of toxins of non-microbic character; and (b), those notably due to the presence in the nerve elements of microorganisms or their products.

Under these classes we find affections of acute, sub-acute and chronic character. Again, among these we find affections of peripheral and central nature, both organic and functional. Into these conditions, which appeal to almost all of us as results of poisoning of shorter or longer duration, I shall enter but little, even though their importance for the worth of the toxic theory is of great value. I refer particularly to the nervous sequelæ or complications which follow the acute exanthemata and other febrile diseases. Some of these are undoubtedly, and others manifestly, due to the presence of microbes in the system. Of the former I mention diphtheria, typhoid and influenza as paradigms; of the latter, scarlet fever and measles. Paralysis, usually of peripheral origin, is comparatively frequent after the first named, seldom after the latter. It is still an open question as to the specific agent producing these paralyzes, whether it be the bacteria themselves or their toxins. It seems to me that the cause must be sought in the action of the latter alone. As has been intimated, these paralyzes are due to inflammations and often consequent degeneration of the peripheral nerves. We know that peripheral neuritis is frequently of toxic nature; as is seen in cases of lead and alcohol poisoning.

Speaking more particularly of affections of the nervous system we have among the acute forms due to

¹ Indiana Medical Journal, December, 1893.

toxic influences of *bacterial* nature, those presenting the clinical and pathologic conditions due to destruction in the central nervous organs. First, the poliomyelitis anterior or "infantile paralysis" with degeneration and atrophy of the ganglion cells in the anterior cornua of the spinal cord; also meningitis cerebro-spinalis epidemica and inflammations of the meninges, due to tubercular and other bacillary forms. Those rarer diseases, such as encephalitis and myelitis acuta appear from their clinical and pathological character to be toxic. Of the acute peripheral affections produced by the microbic toxins, I cite "beri-beri" and, in repetition, the diphtheritic pareses and paralyzes and the ascending paralysis of Landry.

It will be vastly more difficult to establish a toxic origin for those conditions, both organic and functional of the nervous system, which are commonly denominated as nervous diseases. The suggestion that the functional disorders which show themselves as epilepsy, hysteria and the mental perversions both of depression and exaltation as the direct manifestations of toxic action lies very near. Assuredly many parallels could be drawn to express the similarity in the effects of known poisons upon the cerebral and spinal functions, and the above mentioned affections. In this connection it will be necessary simply to allude to the action of strychnia, and of curare among drugs, and to recall the symptoms often supervening from the results of intestinal, biliary and renal intoxications. Disturbance in the physiologic action of many glands produces chronic nervous ailments. So for instance, is this true of the thyroid and presumably of the thymus where this persists after puberty. It is an achievement of modern science which has given to us a knowledge of myxedema, and of exophthalmic goitre, both of which seem due to the chronic action of some still obscure toxin.

That syphilis is due to bacterial infection there can be no reasonable doubt. That of extra-congenital conditions of nerve lesions we should seek the etiology preëminently in the action of the syphilitic virus may be considered almost equally true. The three agents which play a main rôle in the production, better said, induction of nervous diseases, both organic and functional, may be said to be syphilis, tuberculosis in some form, and alcohol. All three act, it seems to me, in a similar manner, by gradual intoxication. The channel through which this action is spread lies in the blood and lymph currents. The action of the poison is primarily exercised upon the vascular and lymphatic systems, the result of which is shown in subsequently produced lesions in the nervous elements. The above statements are liable to misconstruction. To become more explicit, I believe, not that many diseased states of the nervous system are either syphilitic or tubercular or alcoholic—though for each of these there exists a distinct specific disease of both central and peripheral nature—but that the ptomaines, respectively toxin, produced by constitutional syphilis, tuberculosis or alcoholism are factors which contribute more largely even, than is generally supposed to the development of various diseases of the nervous system. That an anti-syphilitic, an anti-tubercular or an anti-alcohol cure may have little or no effect upon the diseased nervous state against which the one or the other may be directed, seems to me to carry little weight against the

etiologic importance of these specific troubles in the production of nervous affections, as some authorities contend. We have in these cases to do with the results of specific infections, not with the infections themselves.

The most common and illustrious examples of the result of chronic bacterial toxicity are tabes dorsalis and lepra anæsthetica. These two affections have many similarities, though in fact they are entirely different processes. Whereas in lepra we find the specific bacilli in the nervous tissues, no such conclusive proof of the purely microbic origin of tabes has ever been discovered, and probably never will be, inasmuch as the systemic degeneration which forms the pathologic basis of locomotor ataxia may be best looked upon as the result of some primary process, *i. e.*, chronic toxicity. It seems to me to be an error to regard the only nerve lesions present in tabes (degeneration of the posterior tracts of the spinal cord) to lie in the central nervous organs. This lesion is doubtless the most important, but there are others, notably multiple degenerative peripheral neuritis, equally constant and, moreover, responsible for many of the characteristic symptoms of the disease.

Tabes should be regarded as a constitutional process, one which places distinct and separate lesions within the nervous system, and perhaps in other tissues. It is in the vast majority of cases a post-syphilitic affection, the direct consequence not of syphilis but of the ptomaines or toxins produced by the agents of the specific disorder. That few cases of well-developed locomotor ataxia are in any way benefited by mercury and iodid of potash need not appear strange. The action of these drugs directs itself against the microorganisms and their ptomaines, not against their secondary effects. That the syphilitic agent acts most powerfully upon the vascular system of the nervous organs can be readily demonstrated. The characteristic changes in the blood vessels of the central nervous organs are present in almost every microscopic section. To these changes of the vascular system the degenerations throughout the whole body of the tabetic individual may be, to a great extent, directly traced. Just how the process is to be explained, whether through inanition due to defective oxidation on account of the condition of the vessel walls, or whether the poison exerts direct influence upon the tissues supplied by these vessels, or whether the changes spread from the vessel walls, remains a matter of doubt. It seems certain, however, that the degenerations within the nervous system are changes secondary to those of the vascular system. They are interstitial, not parenchymatous. Moreover, I regard both as consequences of toxicity.

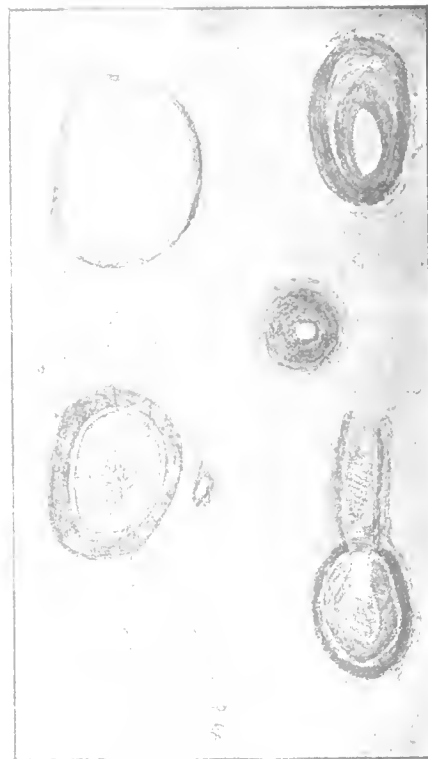
Whether or not it will prove possible to establish analogous relations for the many other essentially nervous diseases, amyotrophic lateral and multiple sclerosis, for the non-systemic degenerations, etc., I am not now prepared to say. However, we have affections of essentially nervous character which appeal to us even more, namely, tetanus and chorea. That tetanus is the result of the action of tetanin or tetanotoxin is beyond question. Experiment has proved that this product of the tetanus-bacilli causes the disease. Of the alkaloids, strychnia acts much in the same way. Whether the affection called tetany is also of a toxic nature it is yet impossible to state. Its endemic nature might lead us to infer that it is. That chorea associates itself very frequently with an



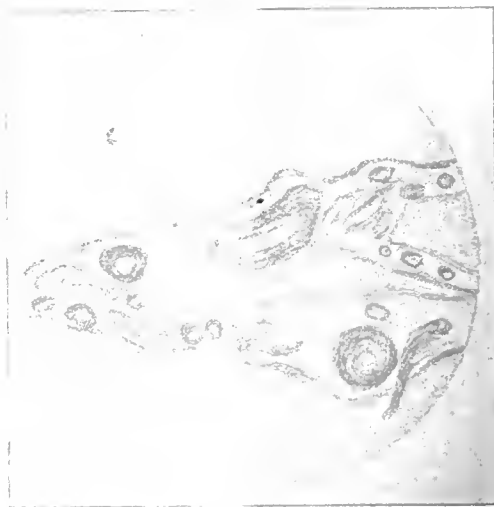
Endarteritis luetica, lues cerebro-spinalis. Very small brain artery.
M E, Membrana Elastica.



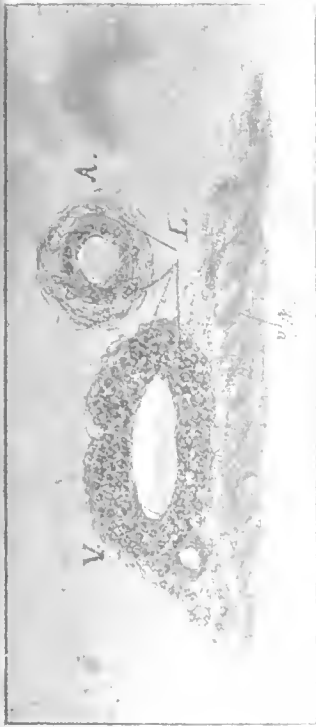
Combined Sclerosis. Direct cerebellar tract, antero-lateral ascending tract, and Goll's columns. Vascular changes. Spinal artery. Adventitia, much broken up and thickened. Media, much thickened. Intima, almost intact.



Endarteritis specifica, lues cerebro-spinalis. A, Adventitia. M, Media. I, Intima. M E, Membrana Elastica.



Endarteritis specifica, lues cerebro-spinalis.



Combined Sclerosis (25). Pyramidal tracts and Goll's columns. Vascular changes. Walls of both veins and arteries much thickened and destroyed. Leucocytes (L) are to be seen distributed throughout the vessel walls, notably in that of the vein (V). P M: thickened pia mater.



Syringomyelia. Vascular changes. Subdural artery. Adventitia (A) much thickened and fragmented. Media (M) very much thickened. Intima (I) fragmented and loosened; much thickened. M E: Elastic Membrane.



Hemorrhage and subcortical gummi, lues cerebri.



Tabes dorsalis. Vascular changes. Minute spinal artery. Adventitia (A) thickened and in fragmentary destruction. Media (M) thickened. Intima (I) much thickened. M E: Membrana elastica. Thrombus in artery.



Polymyositis anterior. Vascular changes. Spinal artery. Adventitia (A) very much fragmented and loosened from media. Media (M) much thickened. Intima (I) torn from the media.



Gliosis spinalis. Vascular changes. Small spinal artery. Stained to show proliferation of nuclei. Adventitia (A) much thickened, many nuclei near the periphery. Media (M) thickened, containing nuclei. Intima (I) somewhat loosened; no proliferation. M E: Membrana elastica.



Amyotrophic lateral sclerosis. Vascular changes. Small spinal artery. Adventitia (A) fragmented and thickened. Media (M) thickened. Intima (I) loosened and thickened. M E: Elastic Membrane.



Syringomyelia. Vascular changes. Small spinal artery. Adventitia (A) thickened and broken up. Media (M) much thickened. Intima (I) nearly intact. M E: Elastic Membrane.

undoubted infectious disease, namely acute inflammatory arthritis, seems to me to prove at least the possibility of its toxic origin in the majority of cases.

Many other examples could be brought forward. Our daily experiences teach us many. We meet with the nervous sequelæ of the infectious fevers. We look for them from the action of poisons, either taken from without or generated within the body, arising from disordered functions in various organs, absorbed from the intestines or taken into the circulation from liver and kidneys. We seek the candidates for nervous and mental diseases preëminently from among those long exposed to chemie intoxication both of organic and inorganic character; in other words, from those subjected to toxic influences and the abuse of drugs and alcohol. Dementia paralytica may aptly be mentioned here.

Acting upon this line of thought and experience, I have carefully examined many specimens of the nervous system taken from different subjects suffering from the same affections, and several of these specimens I wish to submit to your inspection. In this investigation especial attention was devoted to the condition of the blood vessels, notably in cases of tabes, syphilis, dementia paralytica, amyotrophic lateral sclerosis, multiple sclerosis, primary lateral sclerosis, poliomyelitis and myelitis acuta, syringomyelia, gliosis spinalis and various combined systemic scleroses, among the organic diseases. Of the so-called "functional" affections, epilepsy and chorea were studied. Fatal cases of diphtheria and scarlatina in which no paralysis had supervened, and of the various cachexias, notably of tubercular subjects, of profound anemia due to intestinal intoxication, and of alcoholists were also examined, in order to determine how far the vascular changes might be due to toxic action or simple inanition, in cases which had shown no essentially nervous symptoms. In all of these affections the condition of the vessel walls differed markedly from the normal. It can not be said that there was any constant degree of pathologic alteration in any one case or in a given disease. The character of these vascular changes you can easily detect in those specimens beneath the microscope, and from the drawings near them. Unfortunately the detailed structure is not given in the latter. Taken altogether it will be seen that the walls of the vessels present very decided differences from the normal. The pathologic process appears more marked in cases of syphilis and in post-syphilitic tabes and dementia paralytica than in the other diseases. It seems more intense and widespread. However, it will be noticed that in those affections which have heretofore been less studied as regards their vascular condition than the above, advanced disease of the vessel walls is shown in many cases.

All the layers of the arteries are affected by the process, sometimes the one more than the others. In the main the process is one of cell-proliferation effecting increase in the volume of the vessel wall at the expense of the vessel lumen. Even where considerable fragmentation of the vessel walls has occurred, and where the intima or adventitia are loosened from the media this increase persists. Very often the lumen of the vessels is entirely obliterated just as in endarteritis syphilitica. In several specimens enormous quantities of leucocytes were present in the vascular tissues. In several instances slight

hyalin degeneration was present, but in no case observed by me was this peculiar change constant or widely diffused. Thrombosis seems more common in the more chronic, fragmentation more usual in the acute diseases, such as poliomyelitis and myelitis. In the cases of diphtheria and scarlatina, which were all rapidly fatal, evidences of acute inflammation and extravasation predominated over other changes. Fragmentation, *i. e.*, varying degrees of tearing and loosening of the intima, media, and adventitia, also obtained.

In the cases of epilepsy and chorea which I examined, the condition was closely allied to the above, minus the signs of acute inflammation. The innumerable minute hemorrhages present in these cases certainly indicated that some agent, probably toxic, had exercised considerable influence upon the vessel walls. It seems to me that this same toxic agent acts upon the nerve cells, perhaps only functionally or chemically like certain drugs, and causes the clinical symptoms of these affections.

It is interesting to note that the state of the vascular system in the marantic conditions investigated, namely in the cachexias of tubercular, profoundly anemic and alcoholic subjects showed no great divergence from that described above. The quality of the pathologic changes was very similar, only the intensity of the process was less marked. It seems, therefore, that in all of the affections in which some degree of toxicity was manifest, that the blood vessels are more or less intensely altered. These changes I consider the direct result of some toxic action, possibly chemical in its nature. In how far the period of exposure acts in producing varying grades of lesions it would be difficult to say. That the duration of time in which the toxic agent has exerted its influence may be a factor of great consequential importance can not easily be denied, when we reflect, that, in a notoriously long-lived intoxication *i. e.*, syphilis, the vascular lesions are most intense and widespread. How it is that different parts of the nervous system possess decided affinity for certain toxic agents it would be difficult to determine. That such an affinity exists, I believe that no one can gainsay. How else can we explain rationally the predilection with which lead attacks the radical group, or the diphtheritic toxins certain nerve territories? Functional overwork undoubtedly plays no inconsiderable rôle in this selective and elective play, but some peculiar chemie affinity seems clearly at work in many afflictions following given types. We are still far from a clear conception of nerve chemistry, the proper knowledge of which would render these problems more easily solved, and eventually teach us the way to reconcile our bedside and consultation experiences with pathologic processes and theories of diseases.

75 E. Michigan Street.

DISCUSSION.

DR. PRESTON, of Baltimore—I think the subject presented to us is one of extreme importance, and one which certainly is attracting the attention of neurologists very greatly. It is almost too vast to discuss, but there is a part of it that has attracted my attention for several years. I was particularly pleased to see the importance which Dr. Sterne attaches to vascular changes. There is one affection, namely, posterior sclerosis (tabes) which I think shows that in a very interesting and remarkable manner. If we consider that we very rarely ever have a cervi-

cal tabes, that is I think of itself a fact worth noticing. A few cases have been reported of purely cervical tabes but this is unusual. If we recall the blood supply of the spinal cord, we see that the lower part of the cord is supplied mainly by the branch of the intercostal artery, the upper portion of the cord getting very little from the artery. There is a small branch coming off at right angles from the trunk, and the sclerotic material is heaped up just at the mouth of this intercostal artery. That being the fact, we see at once that the nutrition of the lower portion of the cord is certainly much diminished by this change in the intercostal artery, so that instead of getting its proper blood supply, the lower part of the cord does not receive proper nutrition. I think the branch of the intercostal supplies mainly the lower part of the cord, and if that can be demonstrated we could say, I think, that a large part of the cause of tabes was due to the fact that the proper nutrition was cut off on account of the arterial sclerosis of the intercostal arteries, just the arteries we would expect to find affected first. We have a great many toxic causes, alcoholism standing prominently forward, gout, rheumatism, lead poisoning, etc., and syphilis, all contributing to the production of arterial sclerosis, and these causes certainly act in the production of locomotor ataxia. The syphilitic process, while producing an arterial sclerosis unlike the other sclerosis of gout and lead poisoning, does produce a distinct change. Some years ago I began using nitro-glycerin in the treatment of early tabes, and I am satisfied that I have obtained some good results. I have been able to relieve the pain in early cases of tabes, I am sure, by the continuous use of nitro-glycerin, acting upon the idea that I might produce in that way a slight increase of nutrition to the spinal cord. I think that the fact that certain local applications have proved of advantage is perhaps due to that.

DR. PATRICK, of Chicago—I should like to vote a very decided aye, in regard to the first part of Dr. Sterne's paper, and a very decided no, in reference to another part of the paper. As to the influence of the various toxic agents upon the nerves I do not think there can be much difference of opinion. The influence of the various agents has been shown so conclusively that we are scarcely on debatable ground. Even toxico-pathic heredity has been very conclusively proved. This has long been known and generally established in regard to syphilis, morphin, etc. Parents subjected to lead, mercury, bisulphid of carbon, also beget children with neuropathic tendency. When the Doctor goes a step further, and would attribute almost all diseases of the nervous system to an affection which begins in the blood vessel, I think he will have extreme difficulty in maintaining his position. To group all these affections which he has enumerated, including locomotor ataxia, acute anterior poliomyelitis, etc., under one head, is decidedly going further than our present knowledge of pathology would justify. Our present knowledge would vote a decided no, to these propositions. These affections begin in the nervous structures themselves, and the change is in the nervous conditions primarily, and not in the blood vessels. When these diseases have gone on into an advanced state, we find a change in the blood vessel, but that is secondary. Tabes has been conclusively shown not to be a disease of the blood vessels. These cases begin almost always in the nerve cell, or in the nerve fiber, consequent upon atrophy, destruction, or disintegration of the nervous element. The connective tissue may take on changes, but these are secondary; it is not primarily a disease of the blood vessels at all. Even the changes which have been recorded chiefly by Nunez which were changes in the cord occurring in pernicious anemia, were primarily of the nervous tissue.

DR. STERNE—Dr. Patrick misunderstood me when he thought I classed all these cases together. I did not say that I class all these cases together, except in physiologic importance. It is very difficult, if not impossible, to say where you have these changes, whether they are secondary or primary, in cases of such long standing as tabes dorsalis. I do not believe that the ganglionic cells or the nervous fibers of the axis cylinder are primarily affected.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

BY BYRON ROBINSON, M.D.

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(Continued from page 67.)

THE GREAT OMENTUM.

Synonyms: mesogastrium posticum, posterior mesogaster epiploön, gastro-colic omentum, omentum majus, ligamentum gastro-colicum, apron or caul.

The great omentum is a double fold of peritoneum which stretches from the mid-dorsal line to the greater curvature of the stomach and concave surface of the duodenum. The mesogaster posterior and the meso-duodenum are one and the same mesentery. It is twisted into the shape of the letter S, with one loop of the S larger than the other on its

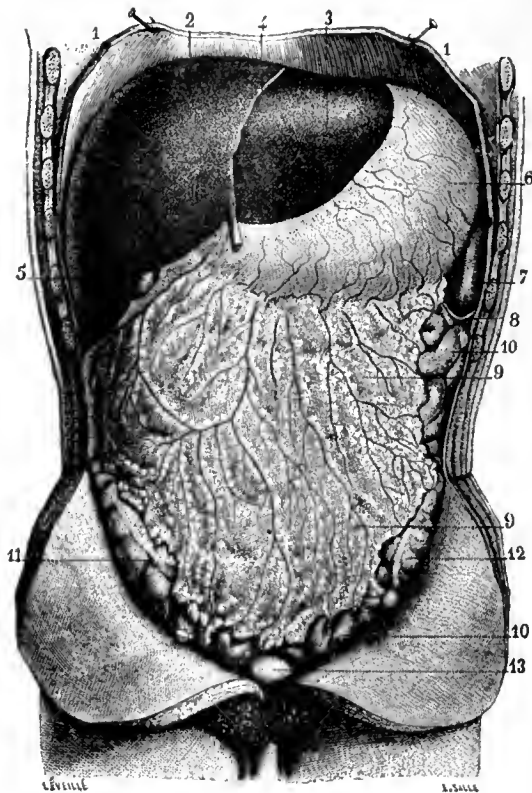


Fig. 17 (after Sappey, 1889) represents a front view of the great omentum. It is unusually well spread out and quite symmetrically located. It shows well the relations of the great omentum to the surrounding organs, especially the three great peritoneal regions, viz.: gall bladder, appendicular and pelvic. It does not cover the cecum (No. 11), nor does it reach the pelvis, and the top of the gall bladder (No. 5). 13, summit of bladder; 12, s. iliac; 10, points to loops of small intestines.

stomach aspect. The ligamentum hepato-duodenale has dragged the pylorus toward the right from the atrophy of the liver. The mesogaster (posterior) or the great omentum is very long and wide, and easy to inspect. But the mesoduodenum is so changed by the rotation of the great intestinal loop that it is not readily inspected. However, if one dissects up the transverse colon it will be seen that the whole mesoduodenum is still in existence except the serous covering which faces both sides of the mesoduodenum in early fetal life. In other words, the membrana mesenterii propria is still existing, minus its serous shining epithelium. One can dissect out the mesoduodenum and note the arches and arcades of blood vessels just as they are in the mesentery of the small intestines. The head of the pancreas lies im-

bedded in the membrana mesenterii propria as I have often proved by dissection. The great omentum in early fetal life is a simple double-bladed membrane which suspends the stomach and duodenum from the mid-dorsal wall. As time and growth progresses the mesogaster elongates. It stretches and elongates toward the left before the moving stomach. The mesogaster is at first a plain surface, later a shallow wide-mouthed bag and finally in the shape of a jug with its mouth at Winslow's foramen. The great stomach curvature which was originally at its posterior border has moved to the left, and by so doing the mesogaster has become extraordinarily long. The movements of the stomach (chiefly due to the liver) viz., axial rotation and twisting, with descension are supposed to be the main factors in regard to the elongating of the great omentum or mesogaster (posterior). However, these forces are inadequate to explain the excessive length which the great omentum attains. In man or the higher mammals the rôle played by the transverse colon aids in explaining some factors as regards the length of the mesogaster. Yet some obscurity still exists, for in the dog where the transverse colon is not connected with the great omentum there exists even a longer great omentum than in man. If one could place the fist against the right face of the mesogaster in a

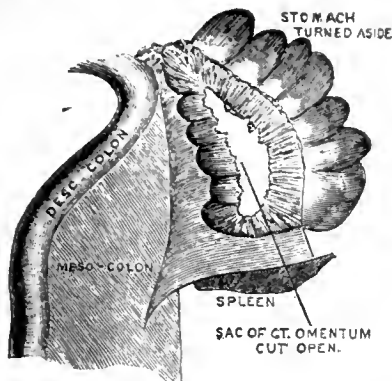


Fig. 18 (after Treves) represents a primitive condition of the great omentum found in the kangaroo. The omental sac is cut open to show that it has not formed a long pendulous omental bag, as in many mammals. In this animal the posterior mesogaster appears as if it were simply pushed slightly toward the left, forming a shallow, wide open depression with no Winslow's foramen. The neck, or rather circumference of the depression in the mesogaster never contracted to form a foramen.

fetus and continue pushing toward the left until the mesogaster was stretched into an irregular sac, the bag could be observed at the left of the stomach while its neck would be found at the right and behind (Winslow's foramen). The walls of the bag consist of a double-bladed membrane, the stomach mesentery which continues to elongate until its walls pass in front of the small intestines and normally to the pelvis. The layers of the great omentum start from the great stomach curvature where they arise from the convergence of the anterior and posterior serous blades of the stomach and pass downward in contact with the anterior parietal peritoneal layer. After descending normally into the pelvis, these two layers turn or reflect on themselves and pass upward in front and in contact with the small intestines until they reach the transverse colon, whence by divergence they embrace the colon and again come together to form the transverse mesocolon. The transverse mesocolon passes to the back wall of the abdomen where the upper blade ascends along the dorsal abdominal wall, while the under blade

descends on the dorsal abdominal wall. The chief variation in the mammalian peritoneum exists in the great omentum especially in reference to its relation with the transverse colon.

By reference to Fig. 18, a beautiful illustration of the great omentum of a kangaroo may be observed. In this cut the slightly pendulous bag of omentum is cut open to better show its construction. The part of the mesogaster which bulges is about midway between the pylorus and lower end of the esophagus. This is the case as far as I can determine in the

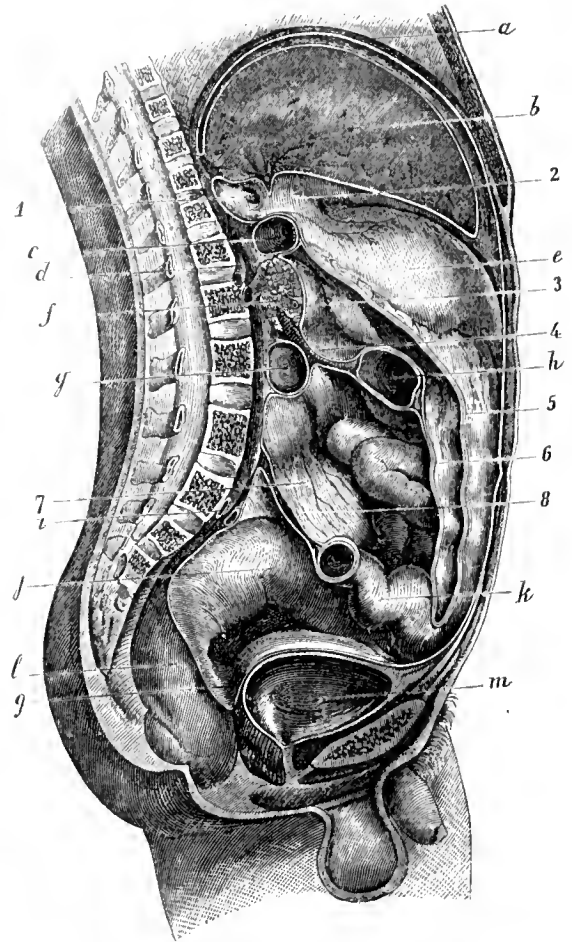


Fig. 19 (after Forstheuf) represents a beautiful profile view of the great omental bag. It is worthy of careful inspection. It is drawn in vertical section in the middle line; a, diaphragm; b, liver; c, duodenum; d, renal vessels; e, anterior face of the stomach; f, pancreas covered by the ascending or superior blade of the transverse mesocolon; g, inferior transverse colon; h, colon transversum; i, iliac vessels; j, S-iliac; k, small intestine; l, rectum; m, bladder; 1, Winslow's foramen (orificium epiploon, foramen bursa omentalis pinum or hiatus Winslowii); 2, gastro-hepatic omentum, lesser omentum, or ligamentum gastro-hepaticum; 3, the lower blade of the lesser omental cavity, or the upper blade of the mesocolon transversum ascending over pancreas; 4, mesocolon transversum; 5, anterior or descending blades of the great omentum; 6, posterior or ascending blades of the great omentum (the part below the colon Huschke called the omentum colicum, and the part between the stomach and colon the gastro-colic omentum); 7 and 8 point to the upper blade of the mesenterium, which consists of three layers, (a) an upper and (b) a lower, shining, serous epithelial layer, and (c) a middle layer (membrana propria mesenterii); this middle layer is the real neuro-vascular visceral pedicle, composed of blood vessels, lymphatics, nerves, elastic and fibro-connective tissue; 9, Douglass' pouch (excavatio-recto vesicles). It may be observed that the shining serous epithelial layers may be displaced or entirely dragged off of a viscus, but the middle layer, the membrana mesenterii propria is never displaced or dragged off of its original viscus, e.g., the pancreas in the human fetus lies in the gastro-colic omentum very distinctly, as it plainly does in the dog. In the adult human the shining, serous, epithelial peritoneal layer does not surround the pancreas, but simply lies against its anterior face. The epithelial layer has been displaced or readjusted. But the pancreas is enveloped by the middle mesenteric layer, i.e., by the membrana mesenterii propria, which holds in order as it always did the vessels, nerves and fibrous tissue. Again the duodenum is similarly deprived of its peritoneal epithelium on its posterior surface by displacement or readjustment; but the duodenum is definitely enveloped as it originally was by its real neuro-vascular visceral pedicle, the membrana mesenterii propria or middle mesenteric layer.

fetus of man and animals. If the largest bulge in the mesogaster does exist halfway between the cardiac end of the stomach and pylorus, it accords with what seems to me the method of formation of the omentum and that is through stomach movements. It appears to me that the existence of the serous membrane or peritoneum is due to free moving viscera, plus fixed and independent surrounding walls, *i. e.*, serous cavities depend on the coalescence of interstitial (lymph) spaces from fluid pressure and independent action of surrounding or adjacent walls. In the case of the great omentum its appearance is chiefly due to the liver. The liver enlarges and pushes the stomach toward the left and downward. The stomach coincidentally dilates and contracts. The liver enlarges so enormously in fetal life that it elongates the esophagus below the diaphragm and

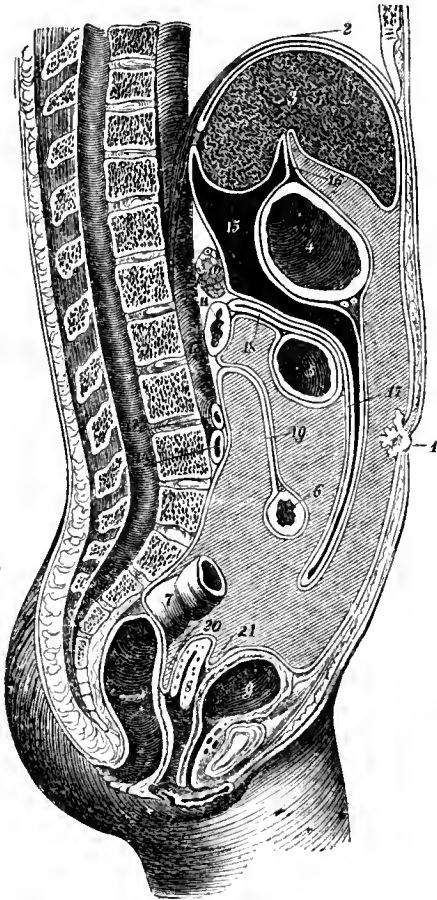


Fig. 20 (after Luschka, 1863) represents a sagittal section of the peritoneum. It is an excellent cut. It may be noted that the peritoneum does not descend sufficiently on the anterior surface of the uterus. 1, navel, with adipose collection; 2, diaphragm; 3, liver; 4, stomach; 5, colon transversum; 6, intestine; 7, rectum; 8, uterus; 9, bladder; 10, pancreas; 11, pars horizontalis inferior duodeni; 12, aorta abdominalis; 13, art. iliaca communis dextra; 14, vena iliaca communis sinistra; 15, bursa omentalis minoris; 16, omentum minus; 17, omentum majus; 18, mesocolon transversum; 19, mesenterium; 20, Douglass' pouch (excavatio recto-uterina); 21, utero-vesicle pouch (excavatio vesico-uterina). Notice that Luschka shares the views of coalescence and not displacement at No. 18, which shows four layers instead of two layers for the mesocolon transversum.

forces the stomach to the left and downward to a surprising degree. The force that twists the stomach so much (as in the pig and dog) appears to reside in the irregular and unequal growth of the liver lobes. At one time in fetal life the left lobe of the liver enlarges so rapidly as to force the stomach extensively to the left and downward. Spigel's lobe enlarges enormously and produces the sharp bend in the lesser curvature of the stomach, beside forcing the

stomach downward and to the left. Again, at another time of life, the right lobe of the liver atrophies so rapidly that the pylorus is very much dragged over to the right side, thus increasing the apparent transverse position of the stomach. Yet this transverse position of the stomach is more apparent than real, for the line from the lower end of the esophagus is almost straight and parallel to the vertebral column. The delusiveness of the stomach position consists in the excessive bulging of the great curvature. But why there is such an excessive length of omentum is not clear. An explanation which I offer is that the force (liver) which produces the elongation of the mesogaster works continually on its base from beginning to end of formation. (Fig. 19.) The only method of explanation of the origin and method of formation of the great omentum must be sought through evolutionary development of the mammalian close connection with the condition and size of the liver. For example, Treves notes that in

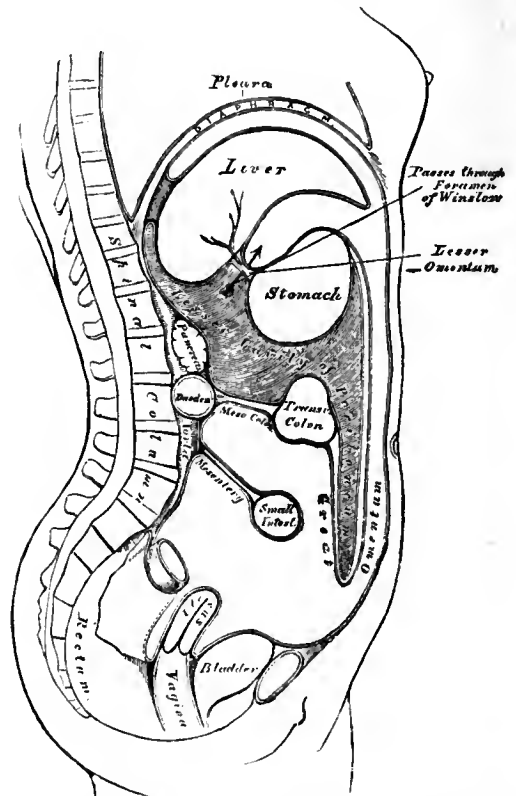


Fig. 21 (after Gray, 1887) represents a profile outline of the peritoneum as it lines the abdominal cavity. It is quite diagrammatic. The coccyx is drawn entirely too low, as it should only reach the level of the junction of the lower and middle third of the pubic bone. Notice the colon lies between the layers of the posterior ascending omentum, *i. e.*, between the mesocolon. Neither the displacement or coalescence view is here hinted at.

the rudimentary disposition of the great omentum in the two-toed anteater a mere shallow bag is observed bending toward the left, but he does not say a word as to the condition of the liver, or why the anteater has such a simple mesogaster. Unfortunately I am not situated as Treves is, whereby his relations to the London Zoological Gardens enable him to examine the viscera of many animal species. In lower mammalia the mesogaster is a mere bag bulging toward the left with no relations with the mesocolon. The bag is a mere depression in the plane of the mesogaster and it can scarcely be considered to have a mouth or foramen. With the progress of

the mesogaster, bulging toward the left assumes more and more the shape of a bag lying around the great left bulge of the stomach. The wide circumference of the depression gradually contracts into a neck and, finally, jug-shaped, we have a bag (lesser omental cavity) and a mouth (Winslow's foramen). Now, the student would naturally suppose that the mouth of this bag formed by the elongated mesogaster would be at its mesenteric root, *i. e.*, on the vertebral column, but the atrophying right liver lobe has dragged the pylorus and lower end of the stomach to the right so that the neck of the sac or foramen of Winslow is also drawn to the right. But the relation of the foramen with the portal vein, hepatic duct and artery are not altered, for the whole apparatus, constricting the mouth, with the foramen, is dragged to the right. Hence the mouth of the sac (Winslow's foramen) is not situated at the root of the mesogaster on the vertebral column, but to the right where it is forced by the atrophying right liver lobe. An excellent diagrammatic illustration of the great omentum I have copied from the anatomy of Dr. Debierre which is from the valuable labors of Dr. Forabeuf. (Fig. 19). The involvement of the great omentum is inevitable where the rotation of the navel loop is so extensive as in man and higher mammals, because the right end of the transverse colon and the duodenum is so closely related.

All serous cavities are secondary. No serous cavity arises as a primary structure. Embryologic development teaches this fact in all animal life. Serous cavities are really points; points of motion. They regulate pressure, facilitate motion, modify circulation and allow visceral rhythm to have anatomic and physiologic functions. With the above views the anatomy and physiology and method of origin of the great omentum must be associated.

It is well to look at the root of the mesogaster for proof of origin and distribution of the great omentum. By examining the root of the mesentery it will be observed that the celiac vessel springs from the aorta at the middle of its origin. This short arterial trunk soon divides into three smaller arteries, *viz.*, gastric, splenic and hepatic. A knowledge of the distribution of these three arteries is essential in discussing the mesogaster. The gastric artery starting from the celiac artery passes forward and upward to gain the cardiac end of the stomach. In its course it projects a fold of the right blade of the mesogaster forward for one to two inches. This fold is called *ligamentum gastro-pancreaticum* and it partially divides the lesser omental cavity into two compartments. The right compartment of the lesser omental cavity we may call the *bursa omentum minoris*, and the left *bursa omentum majoris*. The aperture between the right and left divisions of the lesser sac is the *foramen omenti majoris* while Winslow's aperture is the *foramen omenti minoris*. The fold of peritoneum thrown up by the gastric artery varies much in size and length. Generally it is one and a half inches high and it reaches from the upper border of the pancreas to the junction of the esophagus and stomach where the gastric artery gains access to the stomach. In some cadavers I observed that the gastric vein would accompany the gastric artery intimately for three-fourths of its distance and then diverge from the artery and border of the fold. Generally the gastric vein does not accompany the gastric artery very far in the border of the fold. The

ligamentum gastro-pancreaticum is due to the gastric artery and not to the gastric vein in the vast majority of cases. The peritoneal duplicature produced by the gastric vessels projects from the upper and posterior surface of the omental sac, dividing the cavity into a smaller right cavity, containing a viscus, and a large left cavity containing no viscus. In quite a number of bodies I found another peritoneal duplicature projecting into the omental cavity beside the one due to the gastric vessels. However, they were small and inconstant, due to small blood vessels or to a past peritonitis. A practical method, to observe the peritoneal fold due to the gastric artery, is to well inject the arteries of a very spare subject and then to allow the subject to stiffen with cold, which will give a fixation and solidity to the viscera, so that their outlines and the borders of the peritoneal fold can be easily noted.

The hepatic artery which also springs from the celiac axis turns downward and runs under the right blade of the mesogaster until it reaches the *ligamentum hepato-duodenale* whence to gain access it turns and passes the liver. The hepatic artery passes directly downward from the celiac axis and slightly deviates to the right for several inches before it gains access to the *hepato-duodenal ligament*. During this whole course, from the celiac axis to its turn around Winslow's foramen, it generally does not raise the right blade of the mesogaster into a fold thicker than the width of the artery. One can easily observe the ridge produced by the peritoneal duplicature under which lies the hepatic artery. I never saw the ridge high enough to pass the point of the forceps between the artery and the anterior abdominal wall. As soon as the artery reaches the duodenal ligament it sharply bends forward, surrounding the foramen of Winslow and then producing peritoneal duplicatures. But after the artery has passed into the *ligamentum hepato-duodenale* it is beyond the pale of the mesogaster, so we drop its course at this junction. At this point the hepatic artery is important as it really forms the mouth of the sac known as the lesser omental sac. Though the distal end of the hepatic artery makes a sharp bend and hooks itself around a small aperture, *hiatus Winslowi*, yet the main trunk borders a larger foramen just to the left of the small one of Winslow, so that a careful examination on a well-prepared subject, fitted for the inspection, will reveal that an aperture exists to the left of Winslow's which is really a second Winslow's foramen. The aperture (*foramen omentalis bursa*) is bounded by the gastric artery in front and by the hepatic artery behind. It produces a constricted communication between the larger and smaller cavities of the lesser omental bag. We really have two foramina connected with the lesser omental bag. The first, *foramen Winslowii primus*, is the small end lying between the distal end of the hepatic artery and the inferior vena cava, and it leads into an anteroom (*atrium bursa omentalis*, or *bursa omenti minoris*) which contains Spigel's lobe. This anteroom of the lesser omental cavity is about the size of the fist, and is especially closed in front by the *pars flaccida* or middle portion of the *ligamentum gastro-hepaticum*. The second, *foramen Winslowii secundum*, is a constricted orifice, bounded by the gastric artery and trunk of hepatic artery or rather the peritoneal duplicatures produced by the vessels. The foramen

leads from the anteroom or right cavity to the larger sac (bursa omenti minoris) of the lesser omental cavity. This left cavity is more uncertain and irregular than the right, as toward the spleen above and the ligamentum phrenico-colicum there are frequent constrictions due to past peritonitis. Various spaces and sacs are constricted off at the left end of the lesser omental cavity.

(To be continued.)

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

The regular monthly meeting, March 11, 1895.

DR. HOMER M. THOMAS, Temporary Chairman.

DR. BISHOP exhibited for Dr. John B. Hamilton the specimens from a case of extra-uterine pregnancy, and prefaced his remarks as follows: I regret that he is not here to give us the clinical history and the points connected with the operative procedure. The notes from which I shall presently read were furnished by the interne in charge of St. Joseph's Hospital where the operation was performed. Dr. Bishop then read the following clinical notes:

EXTRA-UTERINE PREGNANCY—DR. HAMILTON'S CASE.

Clinical notes obtained from records of St. Joseph's Hospital.

Mrs. G. H., age 31 years, housewife. Family history: father died of consumption, mother suffering from the same disease. Personal history: always in fairly good health except for some injury in sacral region eight years ago, followed by an abscess in the pelvis, which was opened and drained through the vagina. Entire recovery after four weeks. Uniformly good health continued until about two years ago, when she was ill for a short time, having a vaginal discharge, her physician telling her she had miscarried, the fetus being only a few weeks old. Her present illness began one year ago with pain in the right inguinal region. Menstruation became scanty. Amenorrhea for past fourteen weeks. About two months before entrance to the hospital, the pain in the right inguinal region became very severe and has persisted ever since. Four weeks later profuse uterine hemorrhage set in, continuing up to five days before operation.

The patient consulted Dr. Hamilton Jan. 10, 1895, who advised laparotomy. Operation January 15. The right ovary and tube with the hematoma and contained fetus were removed. The remainder of the clinical history deals with the progress of the patient, which was uniformly favorable, she leaving the hospital February 3.

It will be seen that the ovary itself is fibrous, and there are a few cysts upon its surface. The clot altogether is not larger than a hen's egg and the sac in which the fetus lay is demonstrable at the outer end of the tube which has been incised and held open. As will be seen by examination of the specimen this is an example of tubal gestation. The outer end of the Fallopian tube is expanded to the size named, by the clot, and the fimbriae can be seen coursing up over the extremity. It would seem that the implantation of the ovum took place very near the fimbriated end of the tube. The tube and clot were incised before reaching me; save for the incision the tube walls appear to be intact. The fetus (shown in a separate bottle) is about 2 centimeters long, probably four or five weeks old.

DISCUSSION.

DR. GEORGE HENRY CLEVELAND—I am sorry Dr. Hamilton is not present this evening, as I would like to ask him one or two questions, one of which is as to whether the diagnosis of extra-uterine pregnancy was made previous to operation or not.

DR. BISHOP—The notes make no statement on that point, and I have had no conversation with Dr. Hamilton.

DR. CLEVELAND—The question of diagnosis of extra-uterine pregnancy is of a good deal of interest. Tait has created the opinion, either by statement or by his practice, that it was next to impossible to diagnose a case of extra-uterine pregnancy previous to rupture, but that after rupture it was an exceedingly simple thing. Dr. Noble, of Philadelphia, does not agree with Tait, and I have lately observed that he reports some twenty-five cases, in the *American Gynecological and Obstetrical Journal*, of extra-uterine pregnancy, in nineteen of which a positive diagnosis was made. Noble says: "Of the cases in which a diagnosis was made (one strongly suspected) three of them were instances of unruptured tubal pregnancy, and seventeen (two strongly suspected) of cases in which rupture had taken place."

There is another exceedingly important and interesting point in connection with the subject, viz., the causation of tubal pregnancy. In looking over the subject I find it stated that the generally accepted opinion now is that the place of contact of the germ and sperm cell is always in the body of the uterus, and that subsequently the fecundated ovule passes into the tube, lodges there, and then develops. It is a pretty theory, if it is a tenable one.

DR. E. R. LE COUNT—I would like to ask Dr. Bishop whether the case was one of tubo-ovarian pregnancy? I did not exactly catch the description of the case so as to differentiate it.

DR. BISHOP—The specimen plainly shows that there was no relation with the ovary in this case. The ovary is remote from the tube, and was in that position when I received the specimen.

MICROSCOPIC SLIDES.

DR. HUGH T. PATRICK, in demonstrating microscopic slides, illustrating some of the more recent methods of staining nerve tissue, said in substance: The anatomist, histologist, and pathologist will probably agree that the nervous system constitutes the most difficult part of the field of their labors, notwithstanding the fact that enormous strides have been made in our knowledge of this system in the last fifteen or twenty years. As we follow the steps of this advance, we are forcibly struck by the fact that each step was due in large measure to some improvement in appliances or technique. For this reason it is essential that those who would keep abreast of the times and wish to do practical work in the anatomy, histology or pathology of the nervous system must be acquainted with the more recent methods of investigation.

Slides illustrating the following methods were exhibited: Kronthal's method which is particularly adapted for demonstrating the larger cells of the nervous system.

The Bevan Lewis stain is especially important for the cerebral cortex, and it is claimed for it that it shows details and changes not discoverable by any other method. It is particularly valuable in showing hypertrophied neuroglia cells. For the nerve cells the speaker considered it inferior to the Nissl stain which shows the structural details of the various ganglion cells with most exquisite distinctness. Nissl has gone so far as to make a classification of nerve cells based upon the findings by means of this method.

The Rosin stain is simply a modification of Ehrlich's blood stain, and the author would classify the cells of the nervous system on the same basis as Ehrlich divides the various blood corpuscles. His views have been fiercely attacked by Nissl.

The silver stain (Golgi, Ramon y Cajal), has given us most of the later important discoveries in the structure of the nervous system with respect to both cells, fibers and the various systems. It is not adapted for pathologic work.

The chlorid of iron, dinitroresorcin stain, introduced by Platner, is particularly valuable for peripheral nerves. The speaker hoped to report more fully upon this method in the near future.

The Marchi method is adapted for following the degeneration of fibers not exceeding three months in duration, and in these cases it gives pictures excelling in accuracy and distinctness those of all other methods.

Slides were also shown, demonstrating the Flechsig developmental or embryonic method, the new Weigert neuroglia stain, and peculiar results sometimes obtained by the Weigert-Pal method.

DR. H. B. STEHMAN reported two cases, one of SUBMUCOUS FIBROID OF THE UTERUS, and the other of

CARCINOMA OF THE RECTUM,

and exhibited specimens. Mrs. C. J. V., age 55; the mother

of several children has never had any uterine trouble, and passed through menopause without any special disturbance. Two years ago she began to have an occasional uterine hemorrhage; these in time became not only very profuse, but she scarcely, of late, was free from them for any length of time. Upon examination a large tumor occupying the entire uterine cavity, attached to the left and entire fundus, was discovered. The cervix was split bilaterally and enucleated with great difficulty owing to its size. The uterine cavity was tamponed with iodoform gauze and the cervix repaired. Owing to careful aseptic precautions there was no febrile disturbance and the patient was up and about in ten days.

A striking feature of the tumor is not only its form but the depressions which make its resemblance to a fetal head all the more striking. Deep perineal stitches were then used to approximate the wound, leaving an opening of about one inch at the upper angle, which was partially packed with iodoform gauze, the same extending around a tube which communicated with the bowel. This dressing remained unchanged for forty-eight hours, at which time both tube and gauze were removed and re-inserted. The deep perineal sutures were left in ten days, when it was found that union was complete throughout. Several of the vaginal stitches sloughed, causing a fistula which remained open for several weeks, but under faithful dressing closed.

The external wound, which was left for an anus, showed a disposition to close, and a hard rubber tube attached to a plate, so constructed that it would barely reach the bowel, but sufficiently curved to fit it nicely, and held by soft rubber tubing, overcame this disposition and left the opening that had properly granulated. The tube is now worn at night, and the patient is quite delighted with her physical condition which has vastly improved since the operation, and also with the control she has over the fecal movements, provided the feces are not too liquid.

Miss M., age 65. About a year previous to the operation she began to feel some soreness in the rectum, which became in time quite distressing during the act of defecation. Accompanying the movements there was considerable mucopurulent discharge which was occasionally mixed with blood. On digital examination the rectum was found ulcerated, more particularly on the anterior surface and extending up about four inches on the left side. The infiltration involved not only the rectum but the cellular tissue separating it from the vagina. A modification of the Kraske operation was performed, removing the coccyx with the lower sacral vertebra. As you will notice by the specimen, the entire rectum was resected, the dissection including the sphincter ani, the perirectal fat *in situ* and the posterior wall of the vagina up to the fornix, while the bowel itself was amputated still beyond this point. The specimen has been in absolute alcohol for three months, and is quite shrunken. The vagina was then closed with the stitches on the mucous surface, leaving a canal of about one-half inch caliber.

Dr. E. J. SENN read a paper entitled

REPORT OF A CASE OF OSTEOMYELITIS OF THE ANKLE-JOINT,
ILLUSTRATING THE UTILITY OF BONE CHIP
IMPLANTATION.

The patient was 18 years of age, female, admitted to St. Joseph's Hospital with disease of ankle-joint. The case was of two years' duration. Diagnosis of chronic suppurative osteomyelitis resulting from a previous acute osteomyelitis. Patient was etherized, incision made over sinus into joint cavity. A sequestrum in lower end of tibia was removed and some superficial necrotic bone in the astragalus was dealt with by curettement. Cavity was disinfected with mercuric chlorid solution and hydrogen peroxid, dusted with iodoform and packed with decalcified bone chip. Recovery was uninterrupted, the patient bearing entire weight on foot in seven weeks. A point of interest in the case was that probably the osteomyelitis had its origin in the tibia above the epiphysis, and instead of the pus taking the usual course and discharging on the surface after penetrating the wall of the tibia, it extended to the epiphysis and emptied into the joint.

DISCUSSION.

Dr. H. B. STEHMAN—I do not propose to discuss Dr. Senn's paper, but simply to call attention to one point, and that is the method of securing aseptis. I would like to raise a protest against one thing that he has used, which is probably one of the most efficient remedies we have to secure aseptis under certain conditions, and that is peroxid of hydrogen. I believe I can substantiate what I say. While peroxid of

hydrogen is one of the most efficient aseptic agents we have, it does more mischief than any other agent we use in a great many cases; that is, we have a more extensive septic infection after the use of it. I am not criticising the manner in which the agent was used in this case, but I would call the attention of the members of the society to its dangers. Not very long ago I saw a case of death from the use of peroxid of hydrogen, and it is a very dangerous agent to use where we have not free drainage and where there is a great amount of cellular tissue. It is dangerous to use in tendons, as it travels along tendon sheaths and carries infection. I am satisfied I have seen infection carried up the arm where peroxid of hydrogen has been used in infection of the fingers. I simply ask you to beware of it.

THE PRESIDENT—Dr. Stehman's experience is perhaps a little remarkable. It may not coincide with the experience of others.

Dr. JOSEPH B. DELEE—The subject of the use of artificial means to procure obliteration of cavities is a very interesting one, and the use of ivory for this purpose instead of decalcified bone chips is now being worked upon by Professor Gluck, of Berlin. He takes discs of ivory an inch and a half in size and replaces defects with them, and in the active process which goes on the ivory becomes a part of the bone. I have seen dogs operated on in this way and in three or four weeks they would be jumping around the room as if nothing had happened to their femurs. He has taken a joint made of ivory, placed it in position with the normal joint, fastened it, and the joint has become active. This has been demonstrated on the human being. In one case in which the third phalangeal bone of the second finger was missing, by means of two platinum pins he fastened the phalanx, which was made of ivory, and the patient is moving the finger to-day as if he had the normal bone in it.

I think there is a large field open to us in the replacement of defects by means of artificial substances. Gluck has taken steel pins to replace defects in bone, which become so walled in by the tissues, and especially bone, that they will remain for years as a part of the body. In some sections of the joints that were made with ivory, it was not an easy matter to determine where the ivory stopped and where the bone began. The subject has not been as well worked up in this country as it should be.

Dr. GEORGE H. WEAVER—There was one remark made by Dr. Senn which particularly attracted my attention, and was to this effect, that probably the space at the time of operation was not perfectly aseptic. It has been demonstrated—as I presume most of you know—that it is not necessary to make the empty spaces absolutely aseptic. A series of experiments were made by Halsted, of Baltimore, in which he allowed large empty spaces to fill with blood and introduced a considerable quantity of pyogenic organisms into the cavity, finding that these were destroyed and taken care of; that the space was filled with granulation tissue, replacing the temporary blood clot that was formed. If the empty space is filled with various materials in this manner, the secretion from the wound following the operation will take care of a certain number of bacteria if they are not too numerous and of too great a degree of virulence.

Dr. E. J. SENN (closing the discussion)—I wish to say in reply to Dr. Stehman that in certain cases peroxid of hydrogen is harmful, that is, in those cases in which we have a circumscribed focus of suppuration, because the pressure due to the decomposition of peroxid of hydrogen will increase the pressure within the abscess cavity, and disseminate microbes into the connective tissue spaces, and from here enter the lymphatics, eventually becoming diffused. In a case like the one which I have described, the whole joint cavity was infected, and there was very little danger of the infection becoming more diffused by the use of peroxid of hydrogen. I would ask Dr. DeLee whether the ivory joint he mentions was expected to remain as a perfect joint. I was always under the impression that ivory became absorbed sooner or later, but not as readily as catgut. In the cases which I have seen, where ivory bone nails were used in ununited fracture, they eventually became absorbed, and I should think that ivory used in a joint would also in the course of time be absorbed.

Dr. DELEE—The part of the ivory that had become united was infiltrated by the bone cells, so that it is possible in the course of time that the ivory will be entirely replaced by bone and perform the functions of a natural joint. In the case I have reference to, the ivory joint remained for several months, finally suppuration took place and it had to be taken out. The wound was entirely united and we could hardly tell where the bone ended and the ivory began.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine
New York, Sept. 25, 26, and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 70.)

DR. W. S. HEDLEY, of Brighton, Eng., read a paper on THE HYDRO-ELECTRIC THERAPEUTICS OF THE CONSTANT CURRENT.

This paper chiefly concerns itself with the electric water bath. Those localized applications by douche, by water introduced into cavities, or by local immersions are, it is understood, to be dealt with in other communications. To designate respectively that form of bath in which the water constitutes only one pole of the circuit or that form in which both poles are in the water the terms "monopolar" and "dipolar" are adhered to. It seems scarcely necessary, however, to admit the words "multipolar" of recent introduction. To regard the multiplication of electrodes as a divided anode or a divided kathode is probably simpler and certainly more correct. The question of exact dosage in the dipolar bath is one of pure physics. In other words the following is the problem that presents itself: with a given current running through a given bath what proportion of such current will find its way through the body of a patient immersed therein? This question, however, does not enter into the scope of the present paper. It is one of extreme difficulty, and well worthy the attention of those distinguished physicists who are about to discuss it. One of the chief difficulties lies in ascertaining body resistance under the conditions of immersion. It is obvious that the body then becomes part of a compound conductor and that it will take its share of current according to definite physical laws. As to what that share is, various estimates have been hazarded. These have varied between 5 per cent. of total current flowing and 20 per cent. and within an even wider range. But so far as the present writer is aware, neither by direct measurement of body resistance nor by more indirect methods has this question ever received a satisfactory answer. Under these circumstances therefore dosage can only be expressed in terms of a certain current, running through a certain bath, containing a human body under certain conditions of immersion. It also becomes evident that if results are to be compared and any approach to exactness arrived at, in no form of electrization is "standard" apparatus of greater consequence than in the case of the electric bath. The dimensions and construction of the bath tub which the writer has found useful in practice are given in an appendix to this paper. With so large a number of electrodes the current is easily manipulated by means of a suitable switchboard. This subdivision of the two poles presents advantages, both in the way of diffusion and localization. Until after investigations more extended than any that have yet been carried out, it will be difficult to assign to the constant current bath its exact place in therapeutics. So far as the present writer is concerned it is still on its trial. He does not hold a brief in its favor. Indeed so far from being its apologist he has to confess that he now finds himself using it much less frequently than the bath with sinusoidal and other alternating currents. But at the same time he feels bound to ask himself how far his practice is based on careful inquiry, and how far it is a mere experiment; how far carried away by the enthusiasm of others; how far borne along on one of these irresistible fashion-waves that every now and then in medicine as in other things sweep everything before them. It may at least be well to suspend judgment until some of the excitement has passed over which, for the moment at least, seems to have placed alternating currents everywhere in the ascendant.

Before proceeding to details, it is well in the first instance to clear the ground by distinguishing between the electric and the purely thermal effects of a bath. The warm bath (*i.e.* the bath at 95 to 104 degrees F.) slightly increases the activity of the circulation and somewhat retards tissue metamorphosis. It is a valuable soothing agent, but in other respects its effects on the system are almost inappreciable (Shelly). It appears therefore that we have not much to expect from the warm bath *per se*. As a means, however, of applying electricity to the body it is invaluable.

With the dipolar form of bath and a bath tub of the construction and dimensions indicated¹ the writer finds that he uses a current strength of 50 to 280 milliampères. With the cervical, dorsal and terminal electrodes in action the

first bath begins at the lower figure (the current being gradually turned on through a cell collector or rheostat) for the first five minutes. A somewhat greater strength is gradually attained during the rest of the time—which altogether extends to eight or ten minutes for the first bath. Both duration, direction and strength will vary according to the therapeutic result aimed at, the strength and electrical capacity of the patient, the number of electrodes in action and other circumstances. The case is then watched for a day or two, and another bath given with an increasing current. In another day or two, a third bath is administered. Tolerance having thus been attained and no contra-indication having manifested itself, a series of half a dozen baths are taken in successive days. Then follow two or three on alternate days; an average "course" thus extending over about three weeks and consisting of twelve baths. The position of the patient in the bath will vary according to circumstances—completely immersed if desirable to act on the whole length of the spine or sitting upright on the gluteal electrode in the direct line of current between the two laterals in cases where it may be intended to influence the hips or the organs of the abdomen and pelvis; the arms being allowed to lie across the line of current flow or carried to the front of the patient so as to avoid it. Temperature will vary according to circumstances, but 94 to 100 degrees F. is a sufficiently wide range in this climate. It is often considered useful to allow a faradic current of moderate strength to run for a few minutes before the patient emerges from the bath, or while he stands up in the water a cold affusion in some form or a mild faradic douche is applied, according to individual toleration. The patient who finds it necessary to undergo a course of electric baths has not generally any considerable resisting power to cold; he is moreover often nervous or hyper-sensitive. Therefore if stimulation either by cold affusion or by the electrized douche be attempted it is obvious that the operator must have his apparatus well in hand. It is scarcely too much to say that the success of the electric douche depends upon the easy graduation and the perfect controllability both of its electric and of its hydiatic strength. A quarter of an hour's rest is taken and weather and strength permitting, the patient walks at least part of the distance home. In administering a bath to insane, paralyzed, anesthetic and other helpless people, special precautions must be taken especially if the patient be heavy as well as helpless. In certain cases, paralyzed in the lower extremities only, I have availed myself of the suspension tripod ordinarily used for locomotor ataxy. With this placed across one upper corner of a low bed and with an improvised seat or "chair" made of straps or stout webbing, a patient can easily be swung into a bath placed alongside the bed as seen in this rough sketch.

If wholly helpless, the apparatus figured and described by Mr. Stephen for the cold bath treatment of typhoid may be used. Of this, also, I attach a very rough reproduction.

In all such cases the greatest care must be exercised, not only in placing the patient in the bath, but in looking for wounds, ulcerated surfaces, skin abrasions, etc., and protecting them from the action of the current.

Before being placed in the bath the condition of the patient's "sensibilities" (tactile—pain—temperature—muscular sense) must be carefully inquired into. It is within the writer's knowledge that in the case of tabetics who were also anesthetic, serious ill effects have followed the administration of electric baths by incompetent persons whose only limit to dosage is what the patient will bear.

The question of polarity will have to be decided on general principles, or rather by a process of cautious experimentation. The late Dr. Stevenson states that the direction of current flow should generally be from the feet to the head. No reason seems to be assigned for this rule and it is not altogether easy to feel satisfied of its usefulness; but always necessary to bear it in mind, as being the opinion of an admitted authority and the outcome of a large experience.

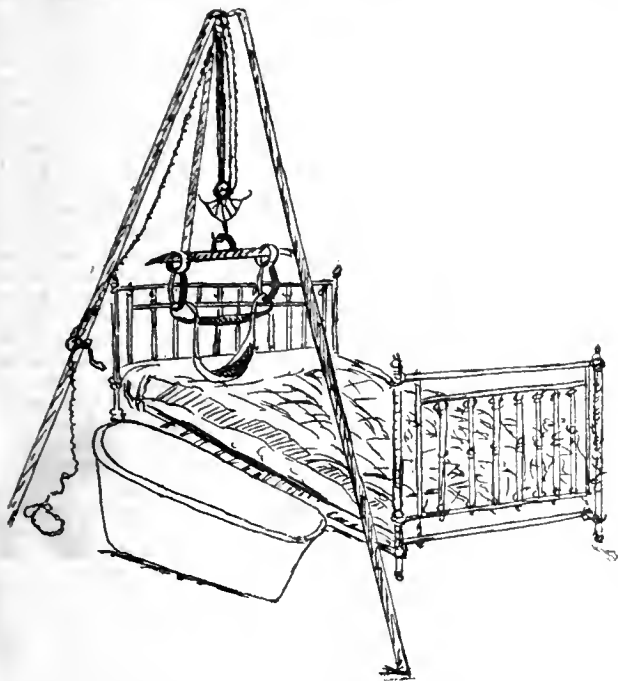
Although the douche is the subject of a special paper, it will not be out of place to advert to it here as a means of applying the constant current for the purpose of general electrization. To avoid the necessity for repetition and to secure at the same time a certain amount of completeness, some details of apparatus with explanatory remarks thereon, already published by the writer, are added as an appendix to this paper.

Rules for administration, intensity—direction and duration of current flow—the necessity for a gradual making and breaking of circuit (unless when the special effects of sudden rupture or reversal are desired), all these things are as in ordinary electrical applications and need not be entered

¹ In Appendix.

upon before a society like this. It will be noticed that the douche apparatus is *single*, not double. The latter has recently been recommended and the details of application as given in a recent essay² are as follows: there are two douches, or jets, one attached to each pole of the battery. While one is directed upon the body of the patient, the other is directed downward on the cemented floor of the cabinet, until a sheet of water is formed surrounding the patient's feet, thus constituting the second or indifferent electrode. This seems a very unnecessary application of douche to the floor, and it is difficult to see why the second electrode be not in metallic communication with the source of supply. There are circumstances when two jets might be useful to secure a strict localization, but any one who has tried to manipulate two jets held at a definite distance apart, and both at equal distances from the body, and at the same time to watch the galvanometer, will not be slow to express a preference for a purely polar application and an "indifferent" electrode. Those who are familiar with what has been already written on this subject will not materially add to their knowledge by a perusal of this essay unless, indeed, it be by the following electrical discovery. Its writer finds to his surprise that not only water but watery vapor will conduct his currents; and the reason why he thinks so is this: the wire connecting one pole of the induction apparatus to douche No. 1 having been detached from the latter, rolled up and hung

pole of the coil might be connected with a gas or water pipe. Then if the arm be touched by a second person standing "to earth," a distinct effect just short of muscular contraction will be produced. These are not mere experiments, but modified in a variety of ways they are most useful in practice. But the present point is this, that in all these cases, there is a circuit completed—one pole is "idle" and—where is the moisture-laden air? A few experiments with this "idle pole" work might have suggested to the writer in question, that when he hangs up his wire or carbon plate attached to one pole of the coil, he is perhaps in reality only making a good "earth" for his idle pole—via ceiling, wall and floor, and that the earth rather than the watery vapor is the medium of conduction. But there is the control experiment to deal with. It is stated that when a galvanic battery was substituted for the coil, a galvanometer in circuit showed a deflection. Nothing is stated as to the character of this deflection. Was it a steady and persistent rise denoting leakage—or was it a "kick" denoting some possible capacity effect, or was it neither, or only an error of observation? Be the explanation what it may, the following simple experiment will exclude the one (watery vapor conduction) offered in the essay referred to. Let the experimenter provide himself with a tea-kettle boiling and with a



about 3 meters from the patient (its other extremity being still connected with the coil), and the second wire still attached to the second pole of the induction apparatus as well as to the metallic part of the second douche, and the cabinet full of a thick cloud of watery vapor—behold, a current was established. The patient said he felt it and the fact, it is stated, was further verified by a galvanometer and a constant current. "Evidently, therefore, the circuit was completed by the watery vapor surrounding the body of the patient."

Before publishing this conclusion it might have been well if the writer, leaving behind him his douches and cabinets and moisture-laden air—but taking with him a large coil and (say) two bichromate cells to drive it, had proceeded to a dry room and there carried out the following experiment: attaching a conducting wire by one of its ends to the secondary of the coil, the other end of this wire being free and the other pole of the coil being "idle," let the coil be put into action. If now the free end of the wire be touched by the finger, a current is felt to pass each time contact is made. A person slightly insulated might then take into his hand an ordinary electrode attached by its rheophore to one (secondary) pole of the coil. If now the "operator" lightly touch the person's forehead a distinct electrical sensation is felt; other things being as in the last experiment—the "idle"



good jet of steam issuing from the spout. Then taking a metal tube say two inches long by two inches diameter, connect it with one pole of a c.c. circuit having a pressure of 115 volts, placing in circuit a galvanometer, and a rheophore of (say) 600 ohms. Hang this tube at the end of the kettle spout so that the steam issuing from the spout becomes condensed in the metal tube and assumes the appearance of a dense cloud of watery vapor. To the other pole of the source of supply, attach by its rheophore an ordinary metal disc electrode having a wooden handle. Now, holding this handle, let the watery vapor driven through the tube play upon the metal disc held at say one-fourth of an inch or as near as possible to the tube. The ordinary galvanometer will not betray the completion of a circuit by the very faintest "kick." How, then, can it be hoped to convey a therapeutic current by such means? Now all this is very elementary and I owe an apology for bringing it before this society. But the case quoted is no solitary instance of that loose and inaccurate work which has again and again brought medical electricity into disrepute. Better than to theorize is simply to try.

Speaking broadly, the painless and evenly distributed current of the electric bath makes it one of the best methods of general electrization, with, at the same time, a considerable power of concentration on special parts, according to the indications of the case. In all states of general debility

² Sur une nouvelle méthode d'application des courants électriques à l'aide de l'eau et de la vapeur d'eau. Par le docteur P. Guyonot.

and impaired nutrition (Erb), in weakness or exhaustion of the spinal nervous system, "nervous dyspepsia," palpitation hysteria (Erb), neurasthenia, ("nervous breakdown,") and many of those diseases referable to some derangement of the nervous system without appreciable lesion, commonly called neuroses, it may be resorted to with excellent and unique results. Neuralgias, sciatica (whether perineuritic or purely neuralgia), paralyzes both of central and peripheral origin, chorea, primary lateral sclerosis, muscular rheumatism, gout, rheumatoid arthritis, and occasionally chronic articular rheumatism are all recorded to have been cured or alleviated by its use. It is said that it has been used with good effect in some irritative conditions of the spinal cord, in alcoholic or mercurial tremors, plumbism, and even paralysis agitans (Lehr, Erb), and peripheral neuritis from whatever cause, though not, perhaps, in every stage.

Of the cases which the present writer has found himself able to treat by the constant current bath with a fair measure of success, perhaps the largest is that of rheumatoid arthritis. He, comparatively seldom, is fortunate enough to encounter this class of case in an early stage when it can be dealt with as a trophoneurosis—but even when of old standing with articular mischief well established, locomotion may be improved and pain relieved more frequently, at least, by this than by any other remedial measure with which the writer is acquainted—with the exception perhaps of baths with the current from alternating light circuits, having a pressure of 100 volts and about 8,000 alternations. His experiences of this treatment in other diseases may be summarized thus: muscular rheumatism frequent and rapid cures—not superior, however, to other electrical methods. Chronic articular rheumatism—results on the whole disappointing. Gout often improved after a course of baths in suitable cases, but being generally combined with other remedies and *always* with dieting, the exact relationship of cause and effect becomes comparatively obscure. Sciatica, good results—not superior to alternating current baths but perhaps superior in the majority of cases to other electrical methods. Urethral synovitis only yields to these baths when the disease has continued for some time and is probably waning in the ordinary course of events. Locomotor ataxy—occasional alleviation in symptoms but not always easy to separate results from those periods of arrest which usually characterize the disease. Not all cases suitable. Chorea—ordinary cases sometimes get rapidly well under a course of these baths as after faradic baths or any other form of treatment, or after no treatment at all. But that comparatively small class of cases (occurring before 20) which not only do not cure themselves but often resist even rest and arsenic, and known as "relapsing" chorea have been treated with only temporary benefit, lasting perhaps for only a few hours after each immersion, seldom with a permanent success. In amenorrhea, a current localized between the lateral and gluteal electrodes has in several instances been found quickly successful. Among the rarer cases one of melancholia and one of hysterical paralysis have been greatly improved. In the insomnia of neurasthenia this form of bath has been found useful as a beginning of electrical treatment. A case of "ataxic paraplegia" has been notably benefited and in Parkinson's disease the tremor temporarily alleviated. In the four last-mentioned cases, however, alternating currents were also used.

The following result of treatment by electric baths has been kindly sent me by Dr. Lewis Jones from recent records of the Electrical Department of St. Bartholomew's Hospital:

A—GALVANIC BATH, ANODE TO FOOT.

Sciatica:

1. Louisa F., 41, twelve baths, 200 milliampères, sciatica, cured, general health improved much.
2. Louisa F., 41, eight baths, cure.
3. Henry G., 64, relieved after four baths; returned five months later; eight baths, but no relief.
4. Henry G., 64, cure after four weeks; eight baths.
5. M., gonorrheal rheumatism, nine baths, no definite improvement.
6. F., rheumatoid arthritis, twelve baths, slight improvement.

B.—FARADIC BATH.

7. H. B., male, 43, 7 baths; induction coil; cure.
8. Male, 47, seven baths; induction coil; cure. A long previous treatment with anode to thigh (without baths) ineffectual.
9. F., 50, rapid cure, number of baths not given.
10. Thos. H., 25, galvanic baths first, then anode to thigh. Then faradic baths last, most useful—relieved.

C.—ALTERNATING MAINS.

11. R. E., 60, male, fifteen baths, sinusoidal, cure.
12. F., 30, female, four baths, sinusoidal, cure.
13. F., 30, female, same patient with general rheumatic pains two years previously, had galvanic baths, twelve, and was cured.
14. W. H., 23, male, five baths, much relieved. Left London; wrote a week later that improvement continued.
15. G. T., 25, female, severe neuralgia (cervico-brachial), ten baths, sinusoidal, cure—old standing case.
16. F., rheumatoid arthritis, twenty baths, no improvement.
17. F., rheumatoid arthritis, twenty baths, doubtful.

Those rarer uses of the constant current bath consisting of the introduction of medicinal substances, or the elimination of metallic impurities ("medication and de-medication") must be considered. The latter is demonstrable and certain. Apart from other evidence, a case has occurred within the writer's knowledge where an appreciable quantity of lead which could have come from no other source than the tissues of the body, was found in the deposit on the copper plate. To carry out the process in a case of plumbism, a little sulphuric acid is added to the water of the bath into which a large copper plate connected with the negative pole of the battery is introduced.³ The patient then grasps the anode (outside the water) and the current is gradually turned on. The lead from the patient's tissues becomes deposited on the copper plate according to the law well known to electro-platers. For metals other than lead, nitric acid takes the place of the sulphuric. The question of making use of the constant current bath as a means of introducing medicinal substances into the body deserves a close and patient investigation. Now that the process of cataphoresis has passed the experimental stage, this method is not without a promise of tangible results. Its practicability will depend upon the density of current necessary to secure with a given substance cataphoric transference through the skin. If, in order to secure a large surface for the anodal diffusion, the bath be made monopolar and the water anode, the density of current per square centimeter of body surface must be exceedingly small. If the external electrode be anode, it is difficult to see any advantage of the bath over ordinary methods of cataphoric medication. Speaking in the absence of experiment, which alone can decide such questions, it would seem that the dipolar bath, in which large currents are practicable, will be found the only efficient form of bath for this purpose. For use with mineral waters, and equally for medicated water, Gartner has, it appears, introduced a division or diaphragm into baths. The present writer has not seen this arrangement, but presuming that the body passes through the diaphragm and even without supposing the possibility of securing an actual electro-tight junction between the two, the arrangement seems practicable. (It may be suggested that (supposing an electro-tight junction), the same expedient might also perhaps be available to determine body resistance under conditions of immersion.) The questions, then, for the experimentalist seem these: What is the current density required to pass a certain substance in a solution of a certain strength through the skin? Is such a density theoretically secured on the surface of the body by the current proposed to be used? Can the medicinal substance be found in the secretions or excretions of the body after having been subjected to the conditions named?

The treatment of skin disease by electrical methods is one of great and growing importance. The material in possession of the present writer does not enable him to deal with it in any satisfactory way so far as the constant current bath is concerned. Judging, however, by the few cases in which he has seen it used (urticaria and eczema), and by the effects of other forms of electrical treatment with which all are familiar, this form of bath would seem to deserve a patient and extended trial. No doubt there are those present who have valuable experience on this point. For purposes of the present paper and his own information the writer has consulted special works on cutaneous disease, but without adding materially to his information. Among these works, however, there lies before him a brochure on "The Bath in Diseases of the Skin,"⁴ wherein (at p. 81) he finds a passage so interesting and instructive that he ventures to extract it: "It will naturally be expected that I should say something of the galvanic baths. . . . I frequently employ them

³ Unless the bath itself be of copper.

⁴ The Bath in Diseases of the Skin, by J. L. Milton, Senior Surgeon to St. John's Hospital for Diseases of the Skin; Lecturer on Diseases of the Skin; Member of the Harvelian Society; Corresponding Member of the New York Dermatological Society, etc.

through the medium of a foot bath; one foot being placed on each handle and the force being given by the 100 cell Becker Muirhead used at the hospital, or a good-sized wheel magnet." After indicating this latter novel source of galvanic supply the author proceeds: "But to suppose that a galvanic bath possesses any power beside that inherent in galvanism . . . I certainly say that if such be the case it has entirely escaped my powers of observation." So say we all, and it would be pleasant to leave the question at a point where none can differ, but the following passage seems too instructive to omit: "In matters of charlatanism an amount of credulity is constantly met with even among the educated classes of this country which would be considered abject superstition in a Hottentot. The opinion may seem a strong one but . . . what are the proper words to use respecting the confidently expressed statements by patients that they know that the disease has been drawn out by the electricity and that they have seen it deposited at the bottom of the bath in the shape of shreds." To those who know anything of the matter an interesting question here suggests itself. Was this a case of metallic poisoning? Is it possible that a patient in describing the disease as "drawn out by the electricity," might have been making a practically accurate statement of what sometimes is known to occur? Is it within the bounds of possibility that this was an instance of the elimination of metallic impurities from the body by the agency of the constant current bath—a case of "de-medication"? Perhaps, after all, a patient without the learned author's medical (and electrical) knowledge in speaking of such a deposit had scarcely done anything so outrageous as to deserve to be called a Hottentot. We must, however, tear ourselves away from this fascinating and instructive volume; this paper has already grown to undue length and its writer owes and offers an apology.

APPENDIX.—(Not forming part of the foregoing paper, but explanatory of it and inserted here to secure a certain measure of completeness without the necessity of repetition.)⁵

Against the hydro-electric methods, more, perhaps, than against any other form of electrical treatment, has been levelled the charge of empiricism. And, perhaps, not without reason. Never having been adequately investigated, their real power is but little known, and their real province but little understood. Could anything, for example, be looser and more haphazard than the way in which that commonest and best of hydro-electric methods, the electric bath, is commonly prescribed and administered? For carrying out treatment by these methods, the electrical equipment must be not less complete than that for other purposes. The requirements will be:

1. A constant current supply in the shape of a battery with a low resistance which will work up to a powerful current strength through the estimated R. If we take our supply from an electric light circuit, it will have to be safe-guarded by shunts and appropriate resistances in addition to a reliable "cut-out."
2. A means of opening and closing the circuit, and regulating strength by easy gradation so as to avoid pain or shock, i.e., "current-collector," or rheostat or, in dynamo circuits, an adjustable rheostat or a sliding shunt.
3. A milliampere meter, i.e., a galvanometer graduated in milliamperes, and registering up to, say, 500.
4. A powerful induction coil for faradic bath or supply from an alternating dynamo.
5. Some means of suddenly reversing the current ("current reverser" or "pole changer") as well as an arrangement for throwing the two currents together for combined use ("current combiner" or "De Watteville key").
6. As an adjunct but not an actual necessity may be mentioned a voltmeter, useful for occasionally determining the electro-motive force of the battery, or any particular cell, and for other purposes. Some galvanometers are also voltmeters.

The ordinary electric bath is best made of oak or porcelain, perhaps porcelain for choice, if expense need not be considered. Insulation must be carefully attended to, both of conducting wires and waste-pipe, the latter being insulated from earth by a short length of rubber tubing let in near the bath.

The bath may be an ovoid oak tub, four feet ten inches long and two feet six inches at greatest width, which is about two inches nearer head than foot. Height at head one foot eleven inches, height at foot one foot five inches. There are five fixed electrodes of bright metal covered only by light removable open wooden framework, size as follows:

Cervical, 28 x 29 cm.
Lumbar, 24 x 17 cm.
Lateral (2), 26.5 x 18 cm.
Gluteal (circular), 30 cm. (diameter).
Terminal (foot), 22 x 38 cm.

In addition to these there is an electrode for monopolar purposes, consisting of a removable metal rod, one inch in diameter, covered with wash leather. This is fixed across the widest part of the bath, and can be conveniently grasped by the hands. These electrodes are connected, by carefully insulated wires, with seven terminals, and these in turn lead to a switch-board, so arranged that by the insertion of plugs any electrode can be brought into action, either as anode or kathode. The connection with the battery, coil, or other source of supply, is by means of well-insulated connections leading to two ordinary "binding-posts" on the plug switch-board.

It is best in the interests of cleanliness, if for no other reason, that the electrodes be of bare bright metal, as the cleansing and changing of covers is often very imperfectly attended to, and is a matter of serious consequences sometimes, as several unfortunate instances show.

The size of the electrodes will depend upon the theoretical considerations already advanced, looked at in the light of experimental results which are detailed elsewhere.⁶ But, speaking generally, the sizes and positions of those electrodes already mentioned are suitable. The only further addition (and a very useful one) is the so-called "paddle" electrode. By means of a long insulated handle this electrode can be applied to the vicinity of any part of the body upon which it may be desirable to concentrate the current.

For the comfort of the patient it is sometimes considered advisable to use some support for the shoulders. Individual views and ingenuity will here be the guide. One way of effecting the purpose is to use straps, one under the back of the neck, the other supporting the body under the arms. Another method is to have an open framework, made of wood and webbing, somewhat like the invalid appliance known as a "bed-rest." For spinal affections the wooden "back-rest" may be modified by having it made solid, excepting a longitudinal opening throughout its whole length opposite the vertebral column, the upper electrode being of such size, shape, and distance from the part as to allow the lines of current flow to concentrate themselves on this opening. My experience, however, is that with the bath shaped as described—the fixed metal electrodes in the positions named, and controlled by a switch-board—the current can be so handled as to concentrate it, or diffuse it, or send it longitudinally, or transversely, or obliquely, through the water as may be desired.

The question of "density," which is so important a factor in "dosage," and which in ordinary electrical applications depends upon the size of the electrodes, becomes a very complicated one in the dipolar bath. Here it is evident that not only the size of the electrodes is to be considered, but also the amount of diffusion the current undergoes in passing through the water from the electrode to the body; and this will depend partly on the size of the electrode, partly on distance, and partly on the conductivity of the water. In other words, we have not only to consider the size and position of the electrodes electrifying the water, but we have to look upon the whole extent of water in contact with the body, as a huge electrode carrying a widely diffused current with a density diminished in proportion to its diffusion.

The device of placing a partition or diaphragm across the bath through which the immersed body passes seems well worthy of a trial. It must in an important degree influence current diffusion, and if further investigation and experience prove its usefulness it ought to become a constant feature of the "standard" electric water bath.

(To be continued.)

American Climatological Association.

Twelfth Annual Meeting held at Hot Springs, Va., June 13 and 14.

The President, Dr. S. E. SOLLY, of Colorado, made a brief introductory address, congratulating the society upon the good attendance and the choice of such a pleasant place for meeting.

Dr. GUY HINSDALE, of Philadelphia, read a paper on "Recent Measures for the Prevention and Treatment of Tuberculosis," reviewing the provision made in England, Germany, France and the United States for the care and treatment of the consumptive poor.

⁵ The Hydro-electric Methods in Medicine, W. S. Hedley, M.D., July 1, 1892.

⁶ Hydro-electric Methods.

DR. FREDERICK I. KNIGHT, of Boston, reported that the committee having this matter in hand in Massachusetts had recently secured an appropriation of \$150,000 from the Legislature for the erection and maintenance of a hospital.

DR. H. L. TAYLOR, of St. Paul, under the title "Clinical Results of the Use of Tuberculin," gave a report of seventy-two cases, with a complete analysis of thirty-nine cases, treated by this method. Eighteen were third stage cases; of these seven died; five became worse; five improved, and one improved greatly. Taking the first and second stage cases together—the only cases in which the physician would encourage a patient—there was a total of twenty-one cases with a mortality of 10 per cent. In the early cases by themselves, 84 per cent. improved greatly. While not considering tuberculin a certain remedy, Dr. Taylor held that its careful use is not dangerous, and that, in beginning cases, its use should be encouraged.

In the absence of DR. V. Y. BOWDITCH, chairman, DR. E. O. OTIS, Boston, presented the Report of the Committee on Health Resorts in the United States. The work of this committee will appear from year to year in the transactions of the society and will ultimately be published in book form.

"Sunshine Statistics" was the subject of a paper by PROF. MARK W. HARRINGTON, Chief of the Weather Bureau, Washington. The sunshine—that is, the presence of a direct ray of the sun, not shut off by cloudiness—forms one of the most interesting elements of meteorology, from a sanitary standpoint. The data considered were all from the United States, with the exception of two stations in Canada. The number of years during which these data have been collected in the United States is smaller than in Great Britain, and there is a large literature and a long series of observations in English and other European publications. Professor Harrington's paper was divided into three parts: a description of the photographic sunshine recorder, with the results obtained from it; a discussion of the thermometric sunshine recorder; a comparison of the results obtained in the United States from these two records.

DR. W. F. R. PHILLIPS, of the Weather Bureau, read a paper on "Mean Atmospheric Temperatures." Throughout the month of July the average daily temperatures exceed 70° in the States bordering on the South Atlantic and Gulf coasts and in the greater part of the Middle Atlantic States.

The paper gave statistics as to the mean minimum temperatures and the mean maximum temperatures in July.

The variability of temperature or average difference from day to day is less in July and August than in any other months of the year, and it is so nearly alike in either that it is not practicable to discriminate between them in this respect. In other words, July and August are the most equable months of the twelve as regards temperature. On the Pacific and Gulf coasts the variability is little more than 1 degree. As we go northward and inland the variability gradually increases. In the latitude of Savannah it is equal to 2 degrees, and in that of Washington City 3 degrees. The greatest variability is observed in Montana and in the Dakotas, where it reaches 4 to 5 degrees.

East of the Rocky Mountains the highest one day mean temperatures have been observed generally in the central valleys and in the South Atlantic States.

The lowest mean temperatures for one day have ranged from 75 degrees on the Gulf to 55 degrees in the northern portions of the United States. In the greater part of the country the lowest mean temperatures range between 60 and 65 degrees.

DR. RICHARD C. NEWTON, of Montclair, N. J., read a paper on "Some Observations which appear to establish the Aerial Transportation of Malarial Germs." After reviewing the evidence brought forward to prove the transmission of malaria by water, he took up the literature bearing upon the belief in aerial transmission. He believes it fair to assume that in places ordinarily non-malarial the drinking water is probably the more frequent cause of ague, when it does appear, than the atmosphere; but that in places like the Campagna of Rome, the Orinoco River in South America and the jungles of East India, where malaria is so constant and so deadly, the atmosphere is the usual method of its transportation.

"The Geographical Distribution of the Mineral Springs of the United States," was read by DR. A. C. PEALE, Washington. Dr. Peale has recently compiled two maps; one showing the distribution of the 330 springs, the waters of which are put upon the market to the amount of 20,000,000 gallons annually, with a valuation of from four to five million dollars. Upon the other was plotted nearly seven hundred mineral spring resorts. The majority of the springs used

commercially are in the Eastern United States and the Mississippi Valley; not because the number of springs is much greater in these regions, but because the resources are better utilized. The writer gave an interesting discussion of the subject, including a description of the springs of the various districts and showing their dependence upon the geologic structure of the country.

DR. S. E. SOLLY, of Colorado Springs, read a paper upon "The Influence of Heredity upon the Progress of Phthisis," to be published in full in this JOURNAL.

At this session, papers were also read as follows: "Etiology and Treatment of certain kinds of Cough," Dr. Beverly Robison, New York; "A Case of Simple Chronic Pleural Effusion; its Final Outcome," Dr. J. C. Mulhall, St. Louis; "Two factors in the Production of Disease in New York City," Dr. Thomas Darlington Jr., New York.

Officers for the ensuing year were elected: President, Dr. James B. Walker, Philadelphia; Vice President, Dr. C. E. Quimby, New York; Treasurer, Dr. James E. Hart, Colorado; Secretary, Dr. Guy Hinsdale, Philadelphia.

DR. FREDERICK I. KNIGHT, of Boston, was elected Representative to the Executive Committee of the Congress of American Physicians and Surgeons, and Dr. R. G. Curtin, of Philadelphia, alternate.

On motion of DR. F. I. KNIGHT, the following resolution was unanimously adopted:

WHEREAS, Since tuberculosis has been demonstrated to be a communicable disease, it has become doubly desirable that hospitals for the reception of the poor afflicted with this disease should be established.

Resolved, That the American Climatological Association recommend the establishment of such hospitals in every State, not only for the great suffering attending this disease among the poor, but also as a protection to the community against its spread.

At the request of the Association, DR. C. E. QUIMBY presented the following resolution:

Gentlemen of the American Climatological Association:

Duty and established custom makes it fitting that in formal manner your committee report to this Association the death upon Jan. 23, 1895, of our former President and member, Alfred L. Loomis, M.D., LL.D.

Love and respect make it imperative that in so reporting we dwell for a moment upon the many ties which united us, and make some record by which his many and varied gifts and qualities which have enriched us may be made a powerful influence upon those who are to continue this Association.

Dr. Loomis was born in Bennington, Vt., in 1831. His early education was largely under private tutors at Woodstock, Vt., while his academic degree was taken at Union College. After graduation in 1852, at the College of Physicians and Surgeons, he served the usual term in Bellevue Hospital. Very soon after starting in private practice he was appointed visiting physician to the same hospital, where he continued in active duty until the day of his final illness. For more than thirty years Dr. Loomis held the chair of pathology and practice in the Medical Department of the City of New York, and to his energy and wise efforts, more than to any other force, may be attributed the growth and prosperity of that institution.

In his professional life, Dr. Loomis was preëminently an active, energetic, sagacious physician. In all his relations to medicine and medical progress he was conservatively but uniformly progressive; never assuming an advanced position until fully or even superfluously convinced of its accuracy, he was unfaltering in its defense. A similar faith in the eventual success of truth, made him unable even to consider the possibility of failure in any purpose once undertaken.

Dr. Loomis was one of the faithful band who originated this Association, and we all know how faithfully he worked for its advancement and success. He was its first President and was again its President during the first Congress of American Physicians and Surgeons in Washington assembled and, as our delegate, was elected the President of the third Congress.

At one time efforts to merge the American Climatological Association into another national organization threatened to destroy it. Dr. Loomis averted the danger if any such existed. He had a most enviable reputation; not only in his professional but also in his private life. He was a frequent contributor to the proceedings of this Association.

In expressing our sense of personal as well as united loss in the death of Dr. Loomis, we realize that we can do him no greater honor than to present this record of his work for a perpetual stimulus to members of this Association.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES, 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JULY 20, 1895.

DEGENERACY.

This term has suddenly come into prominence, as describing a class of popular modern literature. DR. NORDAU's work on "Degeneracy" has created a profound impression and roused bitter criticism and extravagant praise. He attempts to show that the literature and many of the popular authors of today are degenerate and diseased. DR. NORDAU is not only a physician and practical student of mental disease, but a clear, vigorous thinker and writer and has made out a very strong case. While a large number of physicians are not very familiar with many of the authors described, they will recognize the evidence presented, and will follow the author with keen pleasure in his grouping of symptoms and the deductions which follow. There can be doubt from the writings alone, that a large class of books widely read are the products of thoroughly diseased minds. Stories, essays, poetry and discussions of popular topics have certain stigmata of diseased and disordered reasoning that are unmistakable. The reader is referred to DR. NORDAU's work for a full discussion of these topics.

The question is often asked by thoughtful men, why medical literature should be so vague and confusing? Why the ordinary journal articles from the *British Medical Journal* and *London Lancet*, down to the latest-born periodical which boasts of coming to "fill a long-felt want," should have so many signs of egotism, mysticism and dogmatism? Why so many writers and teachers should manifest such hysterical confidence in every new theory and alleged discovery in medicine? Why should the practice of medicine develop in certain persons intense selfishness, cre-

dulity and ego manias? These and many similar questions have often recurred to close observers, and are unexplained except on NORDAU's theory of degeneracy. The rush of half-trained, incompetent young men to obtain entrance into the profession of medicine; and the selfish, grasping teachers and colleges who encourage this; and the isms and pathies, mystical, confused and narrow that gather up these men, are symptoms of degeneration. There is arrested development, imperfect growth, degeneration both physical and mental, with vicious training at the bottom. They come into the profession prepared to foster all sorts of errors and new beliefs, to follow blindly the teaching of some prominent medical man; gathering round the flaring lights of some novel theories, and accepting them without question. Or they may mount some pedestal of their own fancies and go down through life supporting wild theories and defending strange, unhealthy views of science, superstitious egotists, impressionists, medical mystics. Clearly they have passed over into the army of degenerates, and leave unhealthy influences and memories behind them.

All these men lack soundness of mental development; they are inharmonious in conduct and judgment; they seldom advance the cause of truth, and rarely ever do any scientific work that is sound and true. In medicine they are pessimists and critics, pulling down every good work, and pointing out bad motives in others who are working for truth. In medical colleges they are bitter rivals for places and supposed honors, and boating manias; mechanical teachers, and call themselves practical, as an explanation for want of technical knowledge. As journalists, they are chiefly noted for frantic efforts to become popular with their readers and avoid offense on every topic. The reader readily recognizes the vast number of books, papers and journals on medicine that are as dreary and destitute of scientific life as the alkaline plains of the West. The authors are simply writing out their own degeneration, pointing out evidence of dementia, melancholia, deliriums, symbolisms, mysticisms, decadents, and general failure of healthy vigorous thought.

NORDAU's degenerates are not all writers of fiction and teachers of philosophy. They are found in medicine, in law and theology. Men who oppose reforms in preventive medicines; men who oppose laws for the regulation of practice; who want all barriers thrown down and a free open field for all kinds of practice; who would like to follow medicine as a trade and use the papers to advance their interests, the same as a circus, are evidently away over the border lines of health. Physicians who are looking for truth in the mysteries of quackery and concealment; who expect figs of thistles and grapes from thorns; who expect facts by intuition and

without labor, and become enthusiastic defenders of theories that are untested and unproven, are clearly of NORDAU'S class. Medicine, like other sciences, is not a great camp-ground for parade and show and trade. It is a road narrow and rough, leading out into the unknown; a road for discovery, for investigation, lined with facts and new truths. No man of health properly trained can traverse this road without observing new facts and new laws governing them, and be impressed with the vastness of truth and his limited capacity to understand it. Modesty, conservatism and persistent study of the constantly changing evidence, are signs of health. Dogmatism, assertiveness, credulity and hysterical enthusiasm in defense of facts show an involved brain. The mania to write, to teach, to lead as authority, with no bases but the inner consciousness and some acquaintance with cotemporary medicine, and a morbid faith in the writings of foreign authors, is a sad sign of decadents.

What we need is a larger, clearer, more vigorous literature; a literature of facts, urged by robust men, who stand on strong ground and who write and teach for the purpose of stimulating further study and inquiry along the same lines.

THE EARLY DIAGNOSIS OF DIPHTHERIA AND THE PHYSICIAN'S DUTY WHEN CONFRONTED WITH CASES OF DOUBTFUL CHARACTER, PRESENTING SYMPTOMS OF DIPHTHERIA.

The existence of the Klebs-Löffler bacilli in the secretions or exudations, upon an acutely inflamed pharyngeal mucous membrane, or upon the tonsils, as demonstrated by microscopic examination of cultures, is relied upon at the present day as the prime indication that diphtheria, or, to be more specific, diphtheritic angina is the correct diagnosis in the case. Similarly, when the colonies of bacilli are located beneath the epiglottis, we recognize the presence of a diphtheritic laryngitis, which may or may not be preceded, attended, or followed by angina, but is still truly diphtheria. So firmly is the bacteriologic diagnostic test relied upon, that communities and boards of health all over the world are establishing expensive laboratories mainly for the purpose of making these culture-tests, the finding of the Klebs-Löffler bacillus in doubtful cases being held to be conclusive evidence of the presence of diphtheria. Since the diagnosis of diphtheria often involves forced isolation and so-called household quarantine, with all the vexation, inconvenience and disturbance of social and business relations resulting therefrom, it becomes a matter of considerable moment, at least to the city physician, that he shall avail himself, in all cases of supposed diphtheria, of the assistance offered by the municipal laboratory. This is the more important, because as it appears to us, in thus coming to the aid of the physician, the authorities for-

mally relieve him of the risk and responsibility of making the positive diagnosis of diphtheria.

It must be borne in mind that under the regulations prevailing in our principal cities, the diagnosis of diphtheria falls upon a family like a veritable calamity. The Health Officer enjoys the unenviable distinction of adding new terrors to death. His advent in the family circle is regarded with undeserved but undisguised aversion, and his departure is the occasion for general rejoicing and libations of disinfectant solutions. Under these circumstances it is only natural for a physician to proceed with due caution when confronted with a case of suspicious-looking sore throat; if it be diphtheria and he should neglect to report it, he may find himself in the disagreeable position of becoming the object of official censure, in addition to being treated as a criminal and being forced to pay a heavy fine; or he may report it and incur unreasonable enmity, the consequences of which he can not foresee. Should he be so unfortunate as to make a mistake in diagnosis, or should such a mistake be only asserted by the patient, the results may be sufficiently serious, as in a case occurring in Philadelphia recently, where damages to the amount of \$50,000 were claimed for an alleged error in diagnosis, the patient having been taken to the municipal hospital on the physician's diagnosis of diphtheria. In such an emergency, the possession of an official certificate from the public bacteriologic laboratory, stating that the characteristic diphtheria bacilli were present in the secretions, would have a very soothing influence upon the mind of the doctor defendant.

The duty of the physician, when called to attend a suspected case of diphtheria, is stated in a recent monograph by L. FURST¹ in terms which may be regarded as expressing the most recent views held in Europe, with reference to the early diagnosis and treatment of this important disease. In diagnosis, he gives the first place to the clinical complexus and states that the symptoms alone will enable us to make a diagnosis between diphtheritic anginas and the non-infectious forms with approximate certainty and sufficient promptness; but the bacterial diagnosis forms a valuable supplement, which should not be neglected. In the great majority of cases of supposed infective anginas, the positive proof of the presence of the diphtheria bacillus turns the scale in favor of the diagnosis of diphtheria. Where the bacteriologic tests yield no evidence of the presence of the characteristic bacillus, but only of pseudo-diphtheritic forms, streptococci, etc., the disease, according to FURST, is still to be regarded as diphtheria and is to be treated accordingly, provided the clinical symptoms call for such treatment. On the other hand, even though the diphtheria bacilli be

¹ Berliner Klinik. Sammlung Klinische Vorträge, Marz, 1895.

found, the diagnosis is not to be regarded as conclusive, unless the usual local appearances and general symptoms warrant it. As physicians can not be expected to provide themselves with bacteriologic laboratories at their own expense, the duty of making the clinical diagnosis is imperative; but it is deemed also necessary that public institutions of this kind shall be established by the health authorities in all large centers of population, in order to positively determine the character of the infection in doubtful cases of diphtheria.

As regards treatment, serum-therapy now has the floor. The duty of the attending physician is stated—rather dogmatically it may be thought in view of the unsettled questions still remaining to be solved with reference to the so-called antitoxin—as follows: the physician, in cases of suspected character, or supposed diphtheritic angina, should at once proceed to apply local treatment and administer serum injections, while adopting prophylactic measures, isolation, etc., without waiting for the report of the bacteriologic examination. Should the examination yield a negative result, the injections possibly being unnecessary, FURST regards this as only an insignificant evil in comparison with the very decided risk which had been set aside by the early treatment. He strongly urges that in all convalescing cases of diphtheria, attendants, children of the family, school companions and others, in short, wherever there is a possibility of the spreading of the bacillus diphtheriticus, that the throats should be subjected to the same bacteriologic examination, even when they present no symptoms of disease. All of those who have been exposed to infection should, without exception, be immunized.

This may be regarded as a summary presentation of the most advanced treatment of to-day. That it will be still regarded as sound doctrine ten, or even five years from now, very few will be bold enough to affirm. The argument from analogy and experience with other new remedies, would rather favor the view that the serum-therapy of diphtheria is still destined to undergo important modifications before it can be regarded as permanently established; unless, indeed, our health authorities shall take the unprecedented step of imposing, by legal enactment, this special method of treatment upon medical practitioners of all kinds, including the several restricted schools of practice—a step which they are not likely to take, or, at least, not very soon.

This subject has been under discussion at various society meetings during the past year, and it was a special feature of the session of the Association of American Physicians at Washington. DR. W. H. WELCH very accurately summed up the situation in his statement that: "The decision as to the efficiency of the diphtheria antitoxin is in the hands of the

clinician and not of the pathologist." The clinician, however, was ably represented by DR. JACOBI, who declared himself to be a practical man, desirous of saving his patients, and advised that the local and systemic measures which experience has proved to be useful should not be laid aside while also resorting to serum-therapy, in cases where it seems likely that it may be beneficial. This advice is sound and the course of proceeding prudent, following both the letter and the spirit of the injunction to "prove all things and hold fast to that which is good."

THE ASSOCIATION AND ITS JOURNAL ABROAD.

In his appreciative, genial and always interesting gossip of the month MALCOLM MORRIS, editor of *The Practitioner*, takes occasion in the current mensual to say some very pleasant things about the AMERICAN MEDICAL ASSOCIATION and its JOURNAL, which it will, no doubt, gratify the members of the one and the readers of the other to see reproduced.

While it is pointed out that our ASSOCIATION is a much smaller, and less wealthy body than the British organization, MR. MORRIS, basing his judgment on the reports of the recent Baltimore meeting, holds that the scientific work which it does is no whit inferior in quality and but little inferior in quantity to that of its cis-Atlantic homologue. "The general level of the communications was high, but I was particularly struck by the importance of those dealing with surgical and gynecologic subjects." Particularizing as to these he cites the Address on Surgery by DR. C. A. WHEATON of Minnesota, who "raised a voice of warning against what the late PROFESSOR VERNEUIL called the *furor secandi*, which has sometimes given the enemies of medical science cause to blaspheme and which is looked upon with disfavor by the more conservative spirits among hospital surgeons. DR. WHEATON said that a retrospective examination of surgical literature since the introduction of anesthesia 'does much to make the thinking student wonder whether the longevity of the human family has been conserved or its physical welfare materially enhanced by modern surgery.' Has not, he asked, our feeling of safety engendered by our acknowledged perfection in surgical detail opened a wide field of surgical speculation and experiment that serves rather to enrich the surgeon (the orator refers, I presume, to intellectual enrichment) than to minimize disease and prolong life? DR. WHEATON, however, spoke with enthusiastic appreciation of the achievements of a score of brilliant men, whose work had been instrumental in placing surgery in its present advanced position."

MR. MORRIS does not agree with the orator as to the decline of the "family physician"—at least in England, where he says there is no such decline. "Some years ago it was predicted that the general

physician would in time be forced out of existence by the inevitable development of specialism; but I find it simply impossible to conceive of an evolution of the medical profession which would cause the family doctor to disappear. He is the foundation on which the whole superstructure rests. Perhaps, however, by the words 'family physician' DR. WHEATON means the general physician as distinct from the specialist," which is, of course, precisely what DR. WHEATON did mean.

In the Section on Diseases of Children, MR. MORRIS thinks one of the most interesting papers was that read by DR. LOUIS FISCHER, of New York, on "Antitoxin in Diphtheria." "He has probably tried the remedy more extensively than any other physician in the United States, and he said that while, before the introduction of antitoxin, his mortality, as nearly as he could estimate, was about 55 per cent., the proportion of deaths in over two hundred cases reported by him in April last, in which the antitoxin had been used, was about 15 per cent. He declared he would not treat diphtheria without the antitoxin any more than he would treat intermittent fever without quinin or syphilis without mercury."

We do not look aside to see whose heads the following charge may strike: "Too many American medical journals are, on the face of them, mere advertising media, evidently conducted on the principle that all is grist that comes to the mill." It is of more interest to us to note that MR. MORRIS has learned that the "AMERICAN MEDICAL ASSOCIATION is taking the lead in a movement for reform in this particular, and has shown an excellent example as regards the management of its own journal, as may be gathered from the following passage in the report of the Trustees"—the passage being that relating to the character of advertisements which is quoted in full, and the fact noted that "the report was unanimously adopted." Can it be that MR. MORRIS had in mind any other association and its journal which might participate in "a movement for reform in this particular," even if it would now have to follow an American 'lead'?"

MAY A PHYSICIAN PREPARE HIS OWN DEATH CERTIFICATE?

The above question is propounded and answered by the editor of the *Medical Press and Circular*, June 12, although the phraseology of the question is somewhat different. His question reads: "Can a Medical Man sign his own Certificate of Death?" The following is his answer:

"This question seems a somewhat paradoxical one, but everything depends upon when this particular duty is discharged. The impossibility of the act could not be disputed should the medical man have joined the great majority; on the other hand, while life remains, it would not be a difficult matter for

him to fill in and sign the familiar document, and record the means by which he expected to die. A case of this description is said to have actually occurred a short time ago. In an Italian town the death took place of the communal medical officer, one of whose duties consisted in visiting the dead in the public institutions, and in writing death certificates. Among his papers was found his own death certificate, with the disease from which he suffered duly recorded, the certificate being complete in all particulars save the insertion of the date of his death. When, therefore, the new medical officer appeared on the scene, all that was deemed to be necessary was to fill in the date, and the certificate was then regarded as valid. This, it must be conceded, is something quite novel in the matter of death certificates. Perhaps objection might be taken to it in a legal sense were the practice to be adopted in this country. Nevertheless, in the case of a medical man suffering from an incurable malady which was destined to destroy his life, it could only be said that he was anticipating events were he to fill up and sign his own death certificate some time before his actual decease took place, leaving some one else to add the precise date of death."

This case of the Italian physician is one where the medical certifying officer lived in an isolated locality. His certificate was, in point of fact, one of existing disease before death, not a certificate of death; and this certificate, if not countersigned by the new communal certifiant, would not be valid for any official purposes whatever. The *causa mortis* was presumably well understood by the dying physician; the fact and date of death became well known to the new-coming officer. These two or three data being brought together, a valid certificate is the result.

THE NEW YORK QUARANTINE.

Notwithstanding the fact that yellow fever has been unusually prevalent on the islands of the Spanish Main, necessitating stricter precautions at our ports of entry, the *Saratoga*, of the Ward Line Steamship Company, arrived in New York July 8 from Havana after a fast passage of a little more than three days.

No fact is clearer than that the extreme limit of the period of incubation of yellow fever is only reached at the end of the fifth day.

Some of the passengers of the *Saratoga* had provided themselves with certificates from DR. BURGESS at Havana, showing that they had been "acclimatized," that is to say, that they had had yellow fever, and therefore were not likely to transmit the disease, or to acquire it after landing. Others, however, were not so fortunate, and the Health Officer, DR. DOTY, very properly directed that those not provided with proper certificates, coming from an infected port, must either be removed to Hoffman's Island detention station, or remain in quarantine on board the ship. The steamship company preferred the latter alternative, and although there has been much growling, sanitarians generally will sustain DR. DOTY in his course.

THE AMERICAN MEDICAL ASSOCIATION PRESS.

It is with some satisfaction that we point to the illustration in colors accompanying Dr. Sterne's article on "Toxicity as an Etiology of Nervous Diseases." This was printed on our own presses and is a handsome specimen of press work. The ASSOCIATION PRESS imprint will in years to come, we trust, stand for all that is excellent in mechanical work, and good in itself as well.

CORRESPONDENCE.

A Post-mortem Examination In a Case of Appendiceal Abscess.

TECUMSEH, MICH., July 13, 1895.

To the Editor:—Mrs. B., age about 54 years, was confined to her bed on the first of July of the present year. The family sent for a homeopath, who appears to have had not the slightest idea of the nature of her illness, but apparently satisfied the gullibility of the friends until the death of the patient, which occurred ten days from the commencement of the attack. After death, the friends became anxious to know the cause, and whether, or not, the patient died from neuralgia of the heart, which was the cause assigned by this ignorant homeopath. At the solicitation of the family, three physicians (including the writer), and two homeopaths attended the post-mortem examination. Upon opening the abdominal cavity, there was found a ruptured appendiceal abscess which occurred a few hours before death; doubtless the rupture was produced by the attendant pressing upward upon the cervix of the uterus, in such a manner that the fundus came in contact with the abscess, in an effort made by him a few hours before the death of the patient to reduce an imaginary displacement.

The point which the writer desires to make in bringing this case before the profession is the necessity of making an early diagnosis in appendicitis, and the absolute necessity of calling in a competent surgeon, upon whom shall fall the responsibility of operating or not operating.

Very respectfully, J. F. JENKINS, M.D.

Treatment of Hernia Cerebri.

CORONADO, CAL., July 6, 1895.

To the Editor:—Moved by a very interesting and instructive paper, recently published in the JOURNAL, on brain surgery, in which Volkmann's treatment of fungus cerebri by the curette is mentioned, I wish to report a case successfully treated, in my first year of practice, by a different process.

In July, 1838, my father (University of Pennsylvania, 1809) was called several miles in the country to a child about 3 years old, who had been kicked by a horse, and I went with him. We found a tumor over the left parietal, the child in deep stupor, and other indications of compression. The knife was given to me and I made a crucial incision, brain and clots of arterial blood following the knife. The dura was much torn and was trimmed after eleven pieces of bone were removed. Fearing erysipelas few sutures were used and water dressings were applied.

The case was left in my charge, and to our surprise and gratification the recovery was complete.

A few weeks after I was called, and found a fungus cerebri, half the size of an egg, cut horizontally in two. I proposed to excise it, but the mother objecting, I took an old tea caddy, hammered it so as to make a convex compress, and, after first covering the fungus with lint smeared with cerate, applied my lead compress, and over that a bandage. This

was removed and reapplied every day, and the result was complete absorption, and a most satisfactory cure, without any impairment of the intellect.

F. W. TODD, M.D.

To Prevent Accidents.

CHICAGO, July 12, 1895.

To the Editor:—I noticed that in several of the eastern cities it was the custom of the street car companies to have cable and electric cars stop before crossing the street. It seems to me that this would be much safer for pedestrians and drivers than the plan followed here, and it would add much to the safety of bicycle riders.

Yours truly,

I.

American Medical College Association.

RIDGEWAY, S. C., July 12, 1895.

To the Editor:—I want the list of names of all medical colleges belonging to the American Medical College Association. Where can I get it and how much will it cost?

Respectfully, S. S. L.

ANSWER:—Apply to Dr. Bayard Holmes, Secretary, 104 E. 40th Street, Chicago, Ill.

Dr. Jas. E. Reeves.

CHICAGO, July 14, 1895.

To the Editor:—Why don't you publish the address of Dr. James E. Reeves? I would be glad to send 50 cents for a copy of his report, if I knew his address.

D.

ANSWER:—The address is Chattanooga, Tenn.

BOOK NOTICES.

A Treatise on the Nervous Diseases of Children, for Physicians and Students. By B. SACHS, M.D. Cl., 8vo., pp. 666. New York: William Wood & Company. 1895.

American medical literature will soon rival the French in the extent and variety of its monographs, and works devoted to specialty subdivisions. We should also add that the quality of American medical literature is constantly improving. The book under consideration is well written and exhaustive. It contains eleven chapters devoted to General Nervous Diseases; twelve to Organic Diseases of the Nervous System; eight chapters to Diseases of the Brain, an introduction and an appendix; a copious index concludes the work. There are 162 illustrations. The author's conservatism is well shown in the chapter on chorea, wherein he rejects the large doses of arsenic recommended by some, and takes issue with Erb regarding the use of electricity. In regard to the question of school-going the author says: "A special caution is necessary as regards the question of attendance at school. Every choreic child, however mild its attack may be, should be kept from school, both for its own sake and for the sake of the other pupils who might imitate the disease. I have sometimes allowed myself to be persuaded to permit a child with a mild form of chorea to continue at school; in almost every instance I have had reason to regret it, for nothing is better calculated to bring out severe chorea than the competitive spirit that obtains in most schools. Periods of examination are fraught with greatest danger to those children who have had attacks in early life. The atmosphere of the school-room seems to have a depressing influence upon such children, and among the wealthier classes far better progress can be made in the ordinary studies if the child is instructed at home than if it is taught at school. It is necessary for the physician to take a firm stand on this question, or else his treatment of the case will be thoroughly unsatisfactory."

The book is a valuable one, and worthy of praise.

Remote Consequences of Injuries of the Nerves and Their Treatment. An examination of the present condition of wounds received in 1863-65, with additional illustrative cases. By JOHN K. MITCHELL, M.D., Assistant Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases, Philadelphia; Lecturer on Physical Diagnosis in the University of Pennsylvania. In one handsome 12mo volume of 233 pages, with 12 illustrations. Cloth, \$1.75. Philadelphia: Lea Bros. & Co.

More than thirty years have elapsed since Acting Assistant Surgeons S. Weir Mitchell, George R. Morehouse and William W. Keen made their special investigations on gunshot and other injuries of the nerves, in the temporary U. S. Army Hospital in Christian Street, Philadelphia. The report which these gentlemen prepared in 1864 may be read now with all the interest which attaches to the recital of a traveler upon a new and hitherto unknown territory. "Never before in medical history has there been collected for study and treatment so remarkable a series of nerve injuries," say the authors. The opportunity was afforded by the setting apart of a hospital for diseases and injuries of the nerves, by order of Surgeon-General Hammond, and the report cited is now a medical classic.

The book now under consideration, by the son of the senior medical officer mentioned, may be said to be the sequel to that report, since it is a pretty successful attempt to trace the history of many of the cases treated in the Christian Street and Turner's Lane Hospitals in 1863.

The military surgeon and the neurologist have alike an interest in this class of cases, and we predict that the little book will meet with favorable reception. The records of the Pension Office, which should long ago have been published as a whole, under proper editorial supervision, are here made use of with reference to this class of cases, with judgment and skill.

Indigestion. An Introduction of the Study of Diseases of the Stomach. By GEORGE HERSCHELL, M.D. Lond. Second Edition 8vo., cl., pp. 343. New York: G. P. Putnam's Sons. London: Baillière, Tindall & Cox. 1895.

This book "does not profess to be a complete treatise upon all the disorders of the digestive apparatus, nor to exhaust the subject of diseases of the stomach." It is intended as an elementary manual for students and as such it very fairly meets the indications.

The general nutrition of the body depending, as it does, upon the function of stomach and intestinal digestion, it follows that the pathologic processes of all tissues, are profoundly affected by the manner in which that function is performed. The study of digestion, and its derangements or disturbances, must therefore be of interest to specialists as well as general practitioners desiring to bring their knowledge up to date. Therefore too many fundamental works of this character can not be had, and the book of Dr. Herschell is very welcome. That it has already reached a second edition is a testimonial to the intrinsic merits of the work.

The Art of Massage. Its Physiologic Effects and Therapeutic Applications. By J. H. KELLOGG, M.D., 8vo., cl., pp. 282. Battle Creek, Mich.: Modern Medicine Publishing Co. 1895.

Massage properly applied is of interest to all divisions of medicine and surgery and in some is indispensable. The author has in this volume well classified the different procedures employed by expert masseurs, and the work is well illustrated. As a text-book for nurses' training schools we think it admirably serves the purpose. Less elaborate than Graham it is still complete enough to furnish the necessary information, but perfection in massage can only be reached by a few. No amount of drill can supply delicacy with strength to persons naturally deficient. All, however, may be improved by study and practice. The style of the book is such as to adapt it to recitations and reference rather than continuous reading. We commend the book.

Transactions of the New York State Medical Association for the year 1894. Volume XI. Edited for the Association by E. D. FERGUSON, M.D. 8vo., cl., pp. 751.

This large and handsomely printed volume contains the proceedings and papers read at the meeting of the Association held at New York City Oct. 9 to 11, 1894, under the Presidency of Dr. Charles D. Strong, an account of which was printed in this JOURNAL in due course.

Memorial notices are inserted of Drs. J. B. Andrews, M. K. Hogan, William Goran, N. M. Perry, W. T. White and John Young.

Reports of the District Branches, and the annual report of the Council are included in the volume, which is printed in New Hampshire. The widely distributed lecture of Dr. H. O. Marcy on Hernia, adorns the volume, with its usual grace and perspicuity.

The Association is flourishing, having upwards of 800 Fellows on the active list, and the papers in this volume are many of them of such merit as to permanently enrich medical literature.

Transactions of the Medical Association of Central New York. Buffalo: Buffalo Medical and Surgical Journal print. 1895.

This brochure contains the papers and proceedings of the twenty-seventh annual meeting of the Medical Association of Central New York, held in Buffalo, Oct. 16, 1894, under the Presidency of Henry L. Elsner, M.D.

The fortunate subscribers of our contemporary, the *Buffalo Medical and Surgical Journal*, have had the opportunity of reading these papers. Others will be instructed and entertained by reading the little volume, which contains sixteen excellent papers.

Transactions of the Southern Surgical and Gynecological Association. Vol. VII. Published by the Association. 1895.

This elegant volume of 336 pages comprises the proceedings and papers of the seventh session, held at Charleston, S. C., Nov. 13, 14 and 15, 1894, under the presidency of Cornelius Kollock, M.D. We printed in our issue of Dec. 15, 1894, a full abstract of the papers read at the meeting. The biography of Warren Stone, by the late A. B. Miles, and the sketch of Marion Sims by Edward Souchon can not fail to be read and re-read with interest.

SOCIETY NEWS.

Third International Congress of Physiologists.—Bern, Sept 9 to 13, 1895.—At its opening session on Sept. 10, 1889, the first International Congress of Physiologists adopted the following resolutions:

1. An International Congress of Physiologists shall be held triennially, with the object of contributing to the advancement of physiology by affording physiologists of various nationalities an opportunity of personally bringing forward experiments, and of exchanging and discussing their views together, and of becoming personally acquainted one with another.

2. Membership of the Congress shall be open to all professors and teachers of biologic science, belonging to a medical faculty or any other similar scientific body, as well as to all scientific men engaged in biologic research.

3. The sessions of the Congress shall be devoted to physiologic communications and demonstrations. Further, communications relating to original research in anatomy, general pathology, and pharmacology, are acceptable in so far as they present features of general biologic interest.

4. It is desirable to keep the communications as far as possible demonstrable and experimental in character.

5. No official report of the work of the Congress shall be published.

The following regulations were discussed and adopted for conducting business at the sessions of the Congress:

1. The languages recognized as official at the Congress are English, French and German.

2. At each sitting, two presidents for the next sitting are chosen by the meeting, on the proposal of the chairman.

3. At the opening of the Congress, the meeting elects for each of the official languages, a general secretary, who shall superintend the preparation of the minutes of the meetings.

4. The minutes are written in the three official languages by three Secretaries chosen at each sitting, by the President in the chair. Each person who makes a communication shall sign the protocol of his own communication. The President in the chair shall confirm the correctness of the minutes for the whole sitting.

5. The length of a communication may not exceed fifteen minutes. When that period has been exceeded the President must ask the meeting whether it desires the communication to continue farther.

6. A motion backed by three members for the closure of a communication or of a discussion, must be immediately put to the vote.

7. The press shall not be officially admitted to the Congress; each member is free to send private communications to scientific journals.

On Sept. 12, 1889, the first International Congress of Physiologists passed the following resolutions:

1. The signal success of the Congress shows the appropriateness of its inception and the desirability of continuing its meetings.

2. The second International Congress of Physiologists shall be held in the year 1892 in Belgium or in Switzerland, and, if possible, in a town in which the community employs the French language.

Accordingly in August, 1892, the second International Congress of Physiologists was held at the Liège in the Laboratory of Professor Fredericq, and, as before, official meetings were held for three successive days, and were devoted chiefly to demonstrations and experiments.

The second Congress, which met at Liège, resolved on the recommendation of its Executive Committee that the third International Congress of Physiologists be held in September, 1895, from the 10th to the 14th of the month, at Bern, Switzerland. Professor Kronecker, Director of the Physiologic Institute of the University of Bern, has kindly expressed his readiness to afford to members of the Congress all facilities for demonstration and experiment, as well as for the exhibition of scientific apparatus. It is particularly desirable that those intending to avail themselves of Professor Kronecker's assistance should let him know what their requirements are not later than June 30.

In connection with the Congress, an exhibition of physiologic apparatus will be held. Exhibits may be contributed by all members of the Congress, by the directors of physiologic laboratories, and by makers recommended by any member of the Congress, or by the director of a physiologic laboratory. The exhibition of apparatus will open two days before the Congress, and will close two days after the Congress.

I desire hereby, on behalf of the Executive Committee, to invite you to attend the third Congress, September 9 to 13 of this year, at Bern. Should you intend to be present, kindly notify your acceptance, and, if possible, the title of your communication, either to Professor Hugo Kronecker, Bern, or to myself, before August 1.

Each member of the Congress is required to contribute the sum of 10 francs toward defraying the expenses of the meetings; he will obtain in receipt from the President, Professor Kronecker, a card of membership of the Congress.

Titles of communications may be sent to Frederic S. Lee, Secretary of the American Physiological Society, Columbia College, New York City.

I am, dear Sir, yours truly,

C. S. SHERRINGTON,

General Secretary for the English Language,

On behalf of the Executive Committee.

27, St. George's Square, S.W., London.

NECROLOGY.

E. R. PALMER, M.D. The sudden death of this eminent physician and surgeon, which occurred on the night of the 6th inst at the Norton Infirmary, Louisville, Ky., produced a profound sensation of sorrow, not only in that city, his home from early boyhood, but throughout the whole land wherever

his name and reputation were known. While returning from a pleasure ride on his bicycle on the night in question, when crossing the railroad tracks at their intersection with the boulevard, the Doctor lost control of his wheel, which ran against the curbing and caused him to fall to the pavement. His head struck the curbing when he fell and the skull was fractured. He was removed in an ambulance to the Norton Infirmary, but died just after midnight, about two hours after the accident occurred, without recovering consciousness, although nearly a score of his fellow-practitioners were at his bedside, busily and anxiously engaged in using their best efforts to save the life of their friend and co-worker. Dr. Edward R. Palmer had lived in Louisville since he was 6 years old. He was born in Woodstock, Vt., Nov. 18, 1842. His father was Prof. Benjamin R. Palmer, who was a leading physician in Vermont, and moved to Louisville in 1848. He accepted the chair of surgery in the Medical Department of the University of Louisville. Dr. Palmer graduated from the University Medical College in 1864, during the war. He immediately became assistant surgeon in the U. S. Army and was assigned to hospital duty in Louisville. He also served in the same capacity at Lebanon, Ky. At the close of the war he located in his father's office in Louisville, which he was occupying at the time of his death. His father died in 1865.

Dr. Palmer was extremely successful in his practice, which at that time was that of a regular practitioner. He continued in this manner until ten years ago, when he began as a specialist in genito-urinary troubles. His career as a physician was unusually brilliant. He was called to the chair of physiology in the medical department of the University of Louisville in 1868, just before his marriage. Since then, Dr. Palmer has occupied the chair without interruption, and was noted for his splendid lectures. He was also clinical teacher of diseases of the chest and of genito-urinary diseases. In 1893 he was elected President of the Association of Genito-Urinary Surgeons, of which he was a member at the time of his death. He was also one of the promoters and members of the Surgical Society of Louisville, and a member of the Louisville Academy of Medicine, Medico-Chirurgical Society, Kentucky State Medical Society, AMERICAN MEDICAL ASSOCIATION, and a Fellow of the College of Physicians and Surgeons of Louisville.

The Doctor was a brilliant and forcible writer, and his contributions to the medical and surgical journals were always interesting and instructive. He was enthusiastic in everything he undertook. He was a prominent club man and was welcomed everywhere for his genial temperament. He had a reputation for after-dinner speeches and brilliant conversation—moreover, he was a good singer, and his rendering of such selections as "My Old Kentucky Home" has charmed many brilliant companies around the festal board.

Dr. Palmer leaves a widow and three grown children—a daughter and two sons. The latter, Edward R. Palmer Jr. and J. B. Palmer, were recently graduated from Princeton University and are now attending the medical department, University of Louisville, from which they will graduate next March.

Dr. Palmer's funeral took place from Christ Church Cathedral on the 8th inst., and was one of the largest that ever occurred in the city. The principal physicians and surgeons of the city were in attendance, a large number of whom served as active and honorary pall-bearers. Many of the professional brethren of the deceased from neighboring cities were also in attendance.

FIDELIO B. GILLETTE, M.D., formerly of Brooklyn, died July 1, at De Ruyter, N. Y., in his sixty-first year, from an attack of renal disease. He was an alumnus of the University of Pennsylvania, class of 1856. He was a resident of Brooklyn for over twenty years, and early joined the county medical society. He was a member of the Physicians' Mutual Aid Society. He was a gentleman of refinement and those generous traits of character that naturally and readily tend to popularity. Interment took place at Shiloh, N. J.

PAUL J. TAYLOR, M.D., of Hoboken, N. J., died July 6. He was taken seriously ill while at the bedside of a patient. He

became comatose soon after being taken to his home and did not rally. His death is attributed to cardiac disease. He was a graduate of the University of New York in the class of 1870. He was city physician of Hoboken from 1886 to 1887, for fourteen years examining physician of the Metropolitan Life Insurance Company, and was the medical examiner for several fraternal benefit societies. He was a member of a large number of social organizations and an influential officer in several. A widow and four children survive him. He was 58 years of age.

GERARD GEORGE TYRRELL, M.D., of Sacramento, Cal., died June 8, 1895, aged 64. He was born at Dalkey, Dublin County, Ireland, in 1831, and was graduated from the Royal College of Surgeons, Ireland, in 1856, and from King's and Queen's College of Physicians in 1859; after graduation he came to the United States and established himself in practice in Milwaukee, Wis., where he remained until 1861, at which time he moved to Grass Valley, Nev., and in 1868 to Sacramento. He was an old and honored member of the AMERICAN MEDICAL ASSOCIATION.

PUBLIC HEALTH.

Limited School Quarantine for Infectious Diseases.—The following scale of school detention of scholars and teachers has been adopted by the Pennsylvania State Board of Health. The recommended time of quarantine, for persons who have been exposed to the infective diseases, after which those persons may safely be admitted again to schools, if they continue in good health and have taken proper measures for disinfection: for diphtheria after twelve days; smallpox eighteen; measles, eighteen; chickenpox, eighteen; mumps twenty-four; whooping-cough, twenty-one. Adults may be admitted at once, if they disinfect their clothes and persons.

Death Rates of European Cities in 1894.—Following are the death rates per 1000 of the principal European cities for the year 1894: Bristol 15.4, Frankford-on-Main 16.5, Berlin 17.2, London 17.7, Leeds 17.8, Brussels 18.1, Hamburg, 18.1, Amsterdam 18.3, Birmingham 18.5, Leipzig 18.7, Copenhagen 18.7, Turin 18.8, Zurich 18.9, Genoa, 19.0, Stockholm 19.4, Rome 19.6, Christiana 19.6, Nice 19.7, Glasgow 20.0, Paris 20.2, Rotterdam 20.2, Manchester 20.4, Lyons 20.9, Dresden 20.5, Berne 21.0, Venice 21.6, Bordeaux 21.9, Bologna 21.9, Prague 22.1, Vienna 22.8, Cologne 23.1, Munich 23.7, Liverpool 23.8, Budapest 24.4, Dublin 24.7, Milan 25.0, Naples 27.7, Marseilles 28.3, Barcelona 29.6, Havre 29.8, Bucharest 29.9, Trieste 30.1, Rouen 31.3, St. Petersburg 31.4, Moscow 34.1.¹

Nature's Compensations.—Vital statisticians have frequently commented upon the fact that after a period of devastating wars the birth rate runs high, that after an epidemic the death rate falls. Whatever the principle involved it is obviously operating in Milwaukee this year. One of its local journals of the 9th inst., says: "This morning there were only two cases of contagious diseases in the city and these were cases of scarlet fever. Last Saturday the weekly report gave the number of scarlet fever and diphtheria cases in the city as eight each. To-day diphtheria is wiped out, smallpox has given no signs of revival and scarlet fever dropped down to two cases. Never in ten years past has this record been equalled or even approached and the members of the Health Department feel correspondingly pleased."

Did Not Blame the Americans.—Two severe outbreaks of ptomaine poisoning have recently occurred in Great Britain—in one of which all the members of two families, numbering twenty-two persons became seriously ill after eating "tinned"

meat and one died; in the other, a man purchased some veal on a Saturday and, having shared it with two other families, all partook of it on the Sunday, and the following morning nearly a dozen persons who had eaten of the veal were attacked with violent purging, vomiting, etc., and one also died. The singular feature, common to both these outbreaks, is that in none of the accounts which have come under observation has there been any charge that the sickness and death were due to the poisonous meats which, it is well known Americans are in the habit of putting up for export to the unsuspecting foreigner.

Preventing a Stench Nuisance.—The Conseil d'Hygiene of Paris has suggested to the municipality that all butchers in that city be required to prevent the nuisance arising from the putrefactive decomposition of bones, fat, meat trimmings and other *debris* accumulating about their shops and premises. At the request of the Conseil, M. Nocard has recommended a disinfectant for this purpose, which is at once cheap, easily applied, free from danger, effective and does not destroy the value of the *debris* for industrial purposes. This consists of a 2 per cent. zinc chlorid solution to be used in the following manner: the butcher will provide a large wooden vat of 120 liters (30 gals.) capacity, in which will be mixed 2 liters of zinc chlorid solution at 40 degrees, with 100 liters of water; the scraps, bones, etc., will be thrown into this vat and kept there until removed. A sufficient quantity of the 2 per cent. solution must be added from time to time to maintain the strength necessary for disinfection and exhausted by use.

Errors of Diagnosis in Infectious Diseases.—In *Public Health* for July we find a brief analysis of cases of the above nature, in the last Annual Report of the Metropolitan Asylums Board of Greater London. This monster organization has under its control accommodations for 12,000 patients, and carries an average population of not less than 9,000 a day. In this figure are included the "imbecile" as well as infectious classes. The number of admissions to the infectious disease hospitals was nearly 17,000 in 1894; of scarlet fever alone there were 11,596 admissions. These figures are quoted solely to show the enormous volume of business conducted by the Board. Concerning the question of errors in diagnosis, the analysis in *Public Health* remarks:

"In the course of 1894 no fewer than 864 patients, or a percentage on the total admissions of 5.2, were, after admission at the fever hospitals of the Metropolitan Asylums Board, found not to be suffering from the diseases mentioned in the medical certificates upon which they were removed to hospital. The largest number of cases of mistaken diagnosis admitted at any one hospital was, as in previous years, at the Eastern Hospital, where 258, or 9.8 per cent., were received. Of the patients admitted to the hospital ships, 24 were not suffering from smallpox at the time of admission. Of this number: four were mothers admitted with their infants; nine were infants admitted with their mothers; one had no symptom of disease at the time of admission, but was sent to hospital as convalescing from smallpox; and ten suffered from other diseases, a list of which is given in the report of the medical superintendent. From these figures it appears that the actual number of mistakes in diagnosis among the patients admitted to hospital was 10, or only 0.8 per cent. If, however, we consider the total number of cases certified as smallpox, and removed to the wharves and medically examined there, we find that of 1,263 cases 155, or 12.2 per cent., were in the opinion of the managers' medical officers not suffering from smallpox, and were returned to their homes, with the exception of four, who were transferred to fever hospitals. It would be interesting to hear the other side of these cases. Did any of these patients, after being returned home prove to have the diseases originally notified? Do mistakes in diagnosis occur only on the part of private medical practitioners? There is a general consensus of opinion in large towns that isolation accommodation for doubtful cases form an indispensable part of the administrative machinery of fever and smallpox hospitals; but this is almost entirely wanting in the metropolis."

¹ Rev. Int. Med. et Chir. Prat., No. 11, 1895.

Cause of Cancer.—Dr. James Braithwaite of Leeds, Eng., editor of the *Retrospect of Medicine*, does not positively assert, but he confidently believes, that he has discovered the cause of cancer and sarcoma in a spore-bearing mycelium which he has succeeded in fully demonstrating to his own satisfaction and which he illustrates in a descriptive paper.¹ So well satisfied is he of the correctness of his conclusions that he leaves to others their disproof, and proceeds to discuss the question, Is any practical result likely to accrue from this discovery? So far as he can see at present the answers may be given as follows: 1, the cure of a cancerous growth actually in existence does not seem more probable [by reason of this discovery] but less probable, because the enemy is so subtle, so penetrating, and so indestructible—proved by immersion in liquor potassæ for an hour without killing it—that it almost seems impossible to eradicate it; it is, however, better to have an enemy exposed to view than one invisible. But it seems likely that, after removal of a growth by operation, it would be better not to close the wound absolutely, but to keep the surface in contact with dressings soaked in glycerin containing liquified carbolic acid and also perchlorid of mercury—the carbolic acid partly to relieve the pain; glycerin penetrates the tissues and carries with it any substance in solution. 2, it seems not improbable that cancer of the breast in women past the child-bearing period may be altogether prevented by closing the orifices of the milk-ducts in the nipple by a small surgical operation or by the use of a fine electric cautery; for the fungus must enter the breast via the milk-duct orifices. 3, it is possible that men may have to return to a certain Mosaic rite in order to save wives from uterine cancer, unless the daily use of soap will do away with this necessity. 4, in order to prevent the fearful mortality from cancer in low-lying, wet-soil districts the bodies of persons dying from cancer must be buried at a great depth or they must be cremated. Moisture is absolutely necessary for the formation of zygospores, spore masses and spore-bearing mycelium. It does not seem probable that the fungus necessarily spends part of its life in the earth, but no doubt when the interment is at no great depth the earth will become infiltrated if it is constantly wet and floods will carry the spore masses all over the country. 5, a fungus can attack only effete tissues. We are, ourselves only tools of nature; we must not rust from luxury and idleness. Business men must be careful how they retire—for, just as tuberculosis is favored by excessive work and poor food, so the growth of a fungus is likely to be favored by the effete material present in the system and engendered by opposite conditions.

Prophylaxis of Consumption.—The researches of Professor Cornet into the mode of propagation and the life history of the tubercle bacillus and the methods of prophylaxis based thereon which he suggested have profoundly influenced the restriction of tuberculosis all over the world. As is so frequently the case many of his disciples, with more zeal than discretion, have carried prophylactic measures to extremes and have advocated wholly unnecessary precautions and restrictions. In a paper recently read before the Berlin Medical Society¹—the gist of which was the results obtained in the Prussian prisons by caring for the sputum—Cornet makes it clear how comparatively simple are the means necessary to limit the spread of consumption. He pointed out that microorganisms with a moist surface could not be detached by a stream of air passing over them, and exploded the idea that the breath was the source of infection in pulmonary tuberculosis, making clear at the same time that this source must be looked for in the excretions from the patient. He proved that the bacillus showed its earliest and widest development at its point of entrance into the organism or in the corresponding lymph glands, and that in man the lungs and bronchial glands formed this point in the large

majority of cases. He looked upon the sputum and especially dried sputum, as almost the sole cause of the extension of pulmonary tuberculosis, and was confirmed in the conclusion that by preventing the sputum from drying and becoming dust, an efficient prophylaxis of tuberculosis was possible. Precautionary measures in this direction have been in force for the last few years in Germany, and especially in Prussia, where the authorities have interested themselves in the question. Cornet gives statistics showing the mortality from tuberculosis in the prisons in Prussia and Bavaria. The figures in both countries show much the same proportion from 1881 to 1887. Since 1887 the rate in Prussian prisons has fallen very rapidly and in the period 1892-94 was only 81.2 per 10,000 inmates—hardly one-half the former figure. These prophylactic measures are not, however, generally adopted, and in Bavaria, the view of Bollinger—that predisposition is a potent factor in tuberculosis—has interfered considerably with their adoption. Cornet's ideas have lately made progress, and now the figures, which have remained stationary up to 1891, have begun to show a reduction. Similar results are obtained from asylums: a fall from 184 to 150—i.e., about one-sixth—is seen in Prussia, while no reduction takes place in Bavaria. The statistics of the Catholic nursing orders of Prussia are very interesting. In these, the disposal of the sputum has been attended to with great care, and in consequence, during the last six years, a decided improvement is shown; while in 1887 the rate stood at 100 in 10,000, in 1893-94 it had sunk to 67. Going into larger figures, Cornet quotes those issued by the Royal Statistical Bureau of Prussia. From the year 1875, when reliable information was first obtained to 1887, the death rate from tuberculosis averaged 31 in 10,000 inhabitants. Since the latter year it has sunk from year to year to 25 in 1893. Stated generally, there were in Prussia alone between the years 1887 and 1893, 70,000 fewer deaths from tuberculosis than were expected from the average of previous years. A similar disease has been noticed in Hamburg, where precautionary measures have been instituted, and a comparison made with towns which have not adopted them shows that in the latter little or no decrease in the mortality from tuberculosis has occurred.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Smallpox reported July 6 at Battle Creek, Danby Township, Detroit, Olivet and Warren.
Ohio: Cincinnati, July 5 to 12, 1 death; Cleveland, June 1 to 30, 1 case, 1 death.
Wisconsin: Milwaukee, June 1 to 30, 2 deaths.
Tennessee: Memphis, July 7 to 13, 2 cases.
Louisiana: New Orleans, June 8 to 29, 6 cases, 7 deaths.
Pennsylvania: Philadelphia, June 30 to July 6, 1 death.
Missouri: St. Louis, June 1 to 30, 2 deaths.

SMALLPOX—FOREIGN.

London: June 22 to 29, 25 cases, 1 death.
Dublin: June 22 to 29, 18 cases.
Antwerp: 15 to 22, 1 death.
Batoum: June 18 to 25, 5 cases, 3 deaths.
Birmingham: June 22 to 29, 1 case.
Calcutta: May 28 to June 1, 34 deaths.
Gibraltar: June 16 to 23, 1 case.
Hiogo: June 1 to 8, 1 case.
Hong Kong: May 25 to June 1, 1 death.
Liverpool: June 22 to 29, 1 case.
Manchester: June 22 to 29, 1 case.
Montevideo: June 1 to 8, 1 case, 1 death.
Moscow: June 15 to 22, 2 cases, 1 death.
Naples: June 15 to 22, 2 cases, 2 deaths.
Odessa: June 15 to 22, 3 cases, 1 death.
Rio de Janeiro: June 8 to 15, 9 deaths.
Rotterdam: June 22 to 29, 1 case, 1 death.
Warsaw: May 26 to June 2, 2 deaths; June 8 to 15, 1 death.

CHOLERA.

Bombay: May 28 to June 4, 1 death.
Calcutta: May 25 to June 1, 45 deaths.
Hiogo: June 1 to 8, 6 cases, 5 deaths.

YELLOW FEVER.

Santiago de Cuba: June 30 to July 6, 25 deaths.
Vera Cruz: June 27 to July 4, 9 deaths.

¹ The Lancet, June 29, 1895.

¹ Berl. Klin. Wochenschrift, May 20, 1895. The Practitioner, July, 1895.

MISCELLANY.

Change of Address.—Dr. W. Xavier Sudduth, from Minneapolis, Minn., to 100 State Street, Chicago.

Was this "Writ Sarkastik?"—We find the following in the "Literary Notes" of our esteemed contemporary and namesake, the *British Medical Journal* of June 29: "*Medicine* is the name of a new monthly journal of medicine and surgery published at Detroit under the editorship of Dr. Harold N. Mozer. Our new contemporary presents a very creditable appearance, and to judge from the first three numbers it will be a valuable addition to medical journalism. We congratulate both the editor and the publisher (Geo. S. Davis, whose name is favorably known in connection with the *Index Medicus*), on the fact that the trail of the advertiser is not over their journal as it is over so many trans-Atlantic periodicals." The *Journal* is itself so immaculately free from the "trail of the advertiser" that our colleague will, no doubt, appreciate the "congratulations" not less highly than the change made in the orthography of his patronymic.

Origin of Syphilis.—At the beginning of the sixteenth century it was claimed on the authority of Roderigo Diaz and Oviedo that syphilis was a disease imported from America by the companions of Columbus. This theory held undisputed sway until near the close of the last century and it is still held by many physicians. It was about 1493 that the disease first came to be spoken of and it was natural to attribute it to the most marked contemporary event—the discovery of America. It would seem very astonishing, however, that it should suddenly have such a great extension over Europe if it had not existed there before. Puschmann has collected evidence which proves to him that the disease existed in Europe during the Middle Ages and even in antiquity. The disease remained unknown, however, until about the time of Columbus' discovery when it caused serious epidemics which attracted attention to it. The American origin was rendered all the more probable because the guaiac wood, then used in its treatment, came from America. It seems probable, nevertheless, that it existed before in several lands—especially among the negroes and the Moors driven from Spain.¹

Diagnosis of Serous Effusions by Acetic Acid.—It is sometimes a very delicate task to determine in cases of serous effusion whether we have to deal with an inflammatory exudate, as in pleurisy or peritonitis, or a simple transudation, as in hydrothorax and mechanical ascites. Primavera has facilitated this research by showing that acetic acid precipitates the paraglobulin held in suspension in inflammatory exudates. Rivolta points out a practical means of using this test for differentiation. Two successive examinations are made, controlling each other. In a small quantity of fluid, attained by puncture and filtered, is placed a drop of slightly diluted acetic acid; in the case of an exudate a slight white precipitate is immediately formed, which follows the drop as it falls to the bottom; in the case of a transudate the liquid is colored throughout. 2, in a test tube are placed 200 to 300 c.c. of distilled water to which has been added one drop of glacial acetic acid to each 100 c.c. of water; a drop of the liquid to be examined is allowed to fall into the tube, when, in case of an exudate, it will form a whitish-blue flocculent precipitate which falls to the bottom. If some more drops of acetic acid be added this precipitate completely disappears. This test must always be carried out to exclude a precipitate of insoluble mucin.²

Disinfection of Wells.—Wells are frequently infected, especially when the country has been inundated. As they are

often situated close to dung hills the drainage of the latter often becomes mixed with the well water, forming a culture medium for microbes. It will be some months before the well furnishes pure water again—that which trickles from the walls being contaminated from the deposits left on the surface of the bricks and between them. Frank has recently recommended the following procedure which he employs on the banks of the Rhine. A plate, containing 50 to 100 grains of bromin, is suspended in the mouth of the well; as is known, bromin is volatilized in air, and its vapors are heavier than the latter, hence there is formed a cloud of vapor which falls slowly into the well, skirting the surface, penetrating into crevices and completely destroying organic matters. At the bottom of the well the bromin is dissolved and, being heavier than water, the mass of liquid is completely penetrated by the disinfecting agent; the water retains a slight taste of bromin for some time, which is not very agreeable, but it is purified and made perfectly healthy.¹

The Index Medicus.—The following paragraph, quoted from the London *Lancet*, for June 29, shows that there are in England medical workers who duly appreciate the *Index Medicus*. There are endowed medical organizations in that country that could legitimately and "without feeling it,"—as the saying is—contribute to the \$2,000 subscription suggested by Librarian MacAlister.

"In another column will be found a letter from the Resident Librarian of the Royal Medical and Chirurgical Society concerning the imminent decease of that invaluable publication, the *Index Medicus*. When it is remembered that this work is a carefully classified index of the whole of medical literature, not only books but pamphlets and original articles in the medical journals, and that on a reference to it any articles which have been written on medical subjects can be easily found, it will be seen that the cessation of this work would be an incalculable loss. Our correspondent's suggestion that £400 a year should be subscribed by this country is well worth the consideration of the profession and the medical societies, and as such we commend it to them."

"To all who have profited by the wealth of information in the *Index Medicus*, the news that its publisher, George S. Davis, has felt obliged to discontinue its publication will be read with regret. It seems that since 1885 the annual loss which has been borne by Mr. Davis has been from \$500 to \$1000, and that this year it bade fair to reach \$2000, and no one can blame him for discontinuing his philanthropy. An endeavor was made by his friends to raise the number of subscriptions to a paying basis, but unfortunately was unsuccessful. The *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* states, however, that if its subscription list could be placed at twelve thousand that publication could and would carry on the *Index* with profit, and it is to be hoped this may be done. No one who has used the *Index* can fail to appreciate its value."—*The Atlantic Medical Weekly*, July 13, 1895.

Transmission of Tubercle Bacilli.—At the *Société de Biologie* of Paris at its session of June 29, 1895, MM. Bar and Rénon reported that they had undertaken the elucidation of the question of the direct transmissibility of the tubercle bacillus of Koch, through the placenta, to a human fetus. In five cases they took at the moment of birth of the child a certain quantity of blood from the umbilical vein, and injected it under the skin of abdomen of guinea pigs. In three cases the results were negative, and the guinea pigs did not become tuberculous, but in the remaining two, results were positive. In the first case the mother was in the third stage of phthisis, the sputa contained the bacilli. The placenta in this case presented no apparent lesions. The blood from the umbilical vein was injected into a guinea pig, which showed a chancreous ulcer at point of inoculation, and died two months later, with tuberculosis of the liver and spleen. The spleen pulp and the caseous masses of the chancreous ulcer contained the bacillus. The autopsy of the stillborn infant was practiced immediately after its expulsion; the result was

¹ Bulletin Medical, No. 47, 1895.

² Bulletin Medical, No. 47, 1895.

¹ Le Province Medicale, No. 25, 1895.

negative, but the injection of three guinea pigs with the juice of the pulp of the lung and liver, and peritoneal serum, caused the death of two. In the second case the mother had pulmonary cavities, but examination of the sputa was not made. The child born living, died on the fortieth day with bronchopneumonia. The placenta appeared to be normal. At the moment of the birth of the child, blood from the umbilical vein was injected into two guinea pigs; one of the pigs survived but the other died with a chancre of inoculation and generalized tuberculosis. The careful technique of the authors make the results obtained by them all the more certain, and when corroborated by other observers, no doubt may be left on this subject.

Will of the late Manufacturing Pharmacist, S. M. Burroughs.—The late Silas Mainville Burroughs, former head of the young but famous house of Burroughs & Wellcome, of London, has left a considerable property, a part of which is in this country. In New York City, on July 12 "application was made to Surrogate Arnold for ancillary letters of administration upon the estate of Mr. Burroughs, a celebrated chemist, who lived in London. The estimated value of the estate is £125,926, of which a small portion is in this country. Mr. Burroughs made bequests to Stanley, the African explorer, Henry George, and the Presbyterian church in Medina, N. Y."

Nearly Two Million Patients in 1893.—The following is a kind of half protest, in an English journal, concerning the misuse of hospitals in London: "The dependence of Londoners on their hospitals is very strikingly shown by the fact that out of a population of 4,306,411, the population of the administrative County of London in 1893, no less than 1,717,187 received aid from them. In other words, one out of every two men went to the hospital for relief, one woman in every three, and nearly one child in every two. Ought this to be? In towns in the north they seem to help themselves a good deal more. This is a form of eleemosynary aid which carries no stigma with it, and to which many resort who surely ought to be above doing so. Or is this one of the features of city life to which we must submit as inevitable?"

The Overclothing of Children in Summer.—The following taken from the *Archives of Gynecology and Pediatrics*, is seasonable:

"Much misery would be avoided if mothers and nurses could be made to realize that in hot summer weather children are far more likely to suffer from heat than from 'taking cold.' There is one source of cruel suffering and dangerous or even fatal illness in very hot weather which is often overlooked, because it is unsuspected: it is want of water. At 11 A.M., of one of our hottest days, I found in my consulting-room a woman, and with her a weak, rickety, 3-year-old child, with big head, groveling on the floor, pressing its forehead against the cool oilcloth; was clad in thick woollen overcoat and heavy 'Tam O'Shanter.' The child had become restless and almost convulsed at night; eyes rolling, face and fingers twitching, sweating profusely and passing urine in small quantities every ten minutes, crying with pain. I asked why the thick overcoat and heavy cap, and elicited the reply she was afraid to bring the child out without an overcoat, as it was 'subject to bronchitis.' I inquired if it ever received water to drink, and the mother indignantly answered in the negative, asserting it was allowed only pure milk and, being weakly, strong beef tea. I gave it half a glass of water, which was seized upon with a joyous sound and eagerly drank. When the greater part was gone I took away the glass, but the poor creature screamed for it and drained it to the last drop. The change was immediate and marked. The little one no longer groveled, sweating, restless, panting, miserable, hardly conscious of its surroundings, but sat up cheerfully and began to look around and even to talk. I took off the thick coat and cap and ordered it to be lightly clad, to be kept as cool as possible, and to have its hair cut short; also to be given a little water frequently, and to have its milk and beef-tea diluted. I saw it three days later. Though the hot weather had persisted the child was bright and well; had no more twitchings, no more

convulsions, no more restless nights; micturition was no longer painful or too frequent, and there was no excessive sweating."

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended July 6 is as follows: number of deaths (still-births not included): white, 61; colored, 71; total, 132. Death rate per 1,000 per annum, white, 17.28; colored, 42.43; total, 25.34. As the season advances the death rate of the city increases. The number of deaths reported at the Health Department during the past week was 132, as compared with 105 in the week previous, and the rate rose from 20.0 to 25.25. The increased mortality was confined to infants under 5 years of age, of whom seventy-seven died. This exceeds the average mortality of this class by nearly 60 per cent. The principal causes thereof were cholera infantum, teething and various inflammatory ailments of the intestines. Among adults there was less fatality, of which heart and kidney maladies were the most prominent causes. The city remains comparatively free from contagious diseases in mortal form. There was one death from scarlet fever and no death from diphtheria reported. While there was no reported death from typhoid fever during the week, there were thirty deaths therefrom during the last half of the fiscal year, as against fifty-one during the corresponding period last year.

INSPECTION OF MILK IN THE DISTRICT.—The systematic inspection of milk will be pushed to the full extent of the law passed during the last session of Congress. Under this law little chance is left to those who have for sale milk not up to the standard, and when detected the penalty is a fine of not less than \$5 or more than \$25 for the first offense, with imprisonment for thirty days in the work-house in the discretion of the court. For the second offense the fine is from \$50 to \$100 with an imprisonment for ninety days and suspension for six months of permit to sell. The standard for milk is stated in the law and other safeguards are provided. Prosecution will issue after warning to the offenders, although the warning may not be given in each instance. No one may sell or have for sale unwholesome, watered, adulterated, swill milk, milk from cows fed on swill garbage or any other like substance, skimmed milk, without conspicuous notice of the same on the can containing it, or milk containing less than 9.3 per cent. of milk solids, including fat, milk taken from cows less than ten days before or the same time after parturition, or from any cow known to be suffering from any general or local disease liable to render milk unwholesome.

SMALLPOX HOSPITAL.—The contract for building the new smallpox hospital has been awarded and the work will begin at once in order to complete building by November 1. There will be a model disinfecting plant and all will be inclosed within a high masonry or brick wall. It is to be located near the Eastern branch and almost directly east of the District jail.

GARBAGE DISPOSAL.—The Commissioners are having a thorough investigation made by the Health Department to determine the best method of disposal of garbage. The different plants in the large cities have been inspected and reported upon, but no decision has been reached so far.

BOVINE TUBERCULOSIS.—The report on bovine tuberculosis, by Dr. Theobald Smith, Chief of the Division of Animal Pathology in the Agricultural Department, is in the hands of the Secretary, and contains many valuable suggestions for the suppression of the disease and its detection. Among other things, the report says: "The situation certainly demands a most rigid periodical inspection of all animals furnishing milk to consumers, the prompt removal of all suspicious cases, and, above all, a more thorough control of the dairy in the interests of public sanitation."

Hospital Notes.

THE GOVERNOR OF PENNSYLVANIA has signed the following appropriation bills for Philadelphia institutions passed by the Legislature during the session just closed: University of Pennsylvania, \$200,000; and the Hospital Department of the same, \$55,000; Jefferson Medical College Hospital, \$112,000; Medico-Chirurgical Hospital, \$150,000; Kensington Hospital, for Women, \$5,000; Maternity Hospital, \$5,000; Memorial Hospital, Roxborough, \$7,000; Philadelphia Lying-in Charity, \$6,000; Gyneccean Hospital, \$25,000; Philadelphia Orthopedic Hospital, \$5,000; St. Christopher's Hospital for Children, \$4,000; Woman's Hospital, \$8,000; Rush Hospital for Consumptives, \$10,000; German Hospital, \$20,000; Philadelphia Home for Infants, \$5,000, also, Homeopathic Medical and Surgical Hospital and Dispensary, \$50,000; Children's Homeopathic Hospital, \$8,000; Hahnemann Medical College Hospital, \$57,100. Outside of Philadelphia, provision was likewise made for the following: Columbia Hospital, \$3,000; Scranton West Side Hospital, \$4,000; Reading Hospital, \$15,800; Reading Homeopathic Hospital, \$10,000; South Bethlehem, St. Luke's Hospital, \$20,000; Easton Hospital, \$15,000; Conemaugh Valley Memorial Hospital, \$10,000; Chester Hospital, \$10,000; Scranton Lackawanna Hospital, \$25,000; Lebanon, Good Samaritan Hospital, \$8,000; Pittston Hospital Association, \$14,000; Carbondale Hospital Association, \$12,000; Pottstown Hospital, \$14,500; Pottsville Hospital, \$10,000; Charity Hospital, Montgomery County, \$9,500; Lancaster General Hospital, \$4,000; Chester County Hospital, \$6,500; Jefferson County, Adrian Hospital Association, \$10,000; Altoona Hospital, \$12,000; Westmoreland Hospital at Greensburg, \$6,000; Wilkes-Barre City Hospital, \$25,000; Williamsport Hospital, \$12,000; Pennsylvania State College, \$212,000; Western University, \$50,000. Among the bills vetoed by Governor Hastings were the following: a bill establishing, purchasing land and erecting buildings for a State Hospital for the Homeopathic Treatment of the Chronic and Epileptic Insane near Titusville, \$150,000; Philadelphia Polyclinic, \$30,000; Wells' Eye Hospital, \$5,000, and several others, including one for establishing hospitals at Allentown and at Puncatawny. Some of these institutions which have received substantial aid from the treasury of the commonwealth are practically under the control of the State since the Governor *ex-officio* is a member of the board of managers, himself, or he appoints one or more representatives of the board. Others are county or municipal institutions; but the greater number are independent or private institutions and, in some instances in fact rivals, to some degree, of the public charities existing in their vicinity.—The Pittsburgh Eye and Ear Hospital was formally opened July 8.

TRAVELERS' PROTECTIVE ASSOCIATION.—At a meeting of the directors of the Illinois division of the Travelers' Protective Association held in Peoria, July 13, action was taken relative to the establishment of a system of hospitals for the benefit of the members of this organization who may require medical services.—A new pavilion hospital is to be built in Montpelier, Vt., and presented to that city by the Hon. Homer W. Heaton. The cost of the building will be \$25,000.—The new Santa Fé hospital at Topeka, Kan., will be finished October 1.

Philadelphia Notes.

ACCIDENTAL ADMINISTRATION OF BICHLORID.—Prompt treatment saved a man's life after he had swallowed by mistake 15 grains of corrosive sublimate, at the Polyclinic Hospital recently. An operation of minor character had been performed without ether, and at its conclusion the surgeon, Dr. Thos. G. Morton, directed a resident physician to give the patient half an ounce of whisky. The young man went to the medicine closet and returned with a small amount of liquid in a glass which he handed to the patient, who swallowed it just as Dr. Morton remarked that it did not look like whisky. The victim replied, "It did not taste like whisky either." The resident was immediately directed to produce the bottle, which was marked, "solution of corrosive sublimate, 30 grs. to the ounce." Inside of the next four minutes the patient had swallowed the albumen of half a dozen eggs and in another minute a stomach tube was introduced and the stomach thoroughly washed out. The effi-

ciency of the treatment is evident from the fact that the patient has not exhibited a single symptom of mercurialism and has suffered no inconvenience from the energetic treatment to which he was subjected.

PENNSYLVANIA HOSPITAL MEMORIAL WARDS.—The new memorial wards of the Pennsylvania Hospital are now in use, and the older portion has been vacated of patients in order that extensive plans for renovation and extensive improvement may be carried out before next winter.

IODOFORM GAUZE.—The methods of making iodoform gauze in different hospitals are far from being uniform. The following formula is used in the service of Prof. J. William White in the Hospital of the University of Pennsylvania: to a pint of distilled water, add a small quantity of castile soap (the amount is a matter of experience), boil for ten minutes, allow to cool, add a portion of iodoform, mix and steep in this a quantity of sterilized gauze. If the color does not indicate that sufficient iodoform has been used, more is added, and the steeping process continued. When the gauze has assumed the proper color it is wrung out, folded and wrapped in waxed paper, which has been sterilized in bichlorid solution. The exact strength is of little practical importance, since the iodoform is also freely used as a dusting powder over the surface of the wound.

INTERESTING CASE OF HEAD INJURY.—A man, while playing base-ball, was struck by a pitched ball on the side of his head. He did not seem to be badly hurt and made no special complaint, but walked home from the ball-grounds, ate his supper and went out to make a call on a young lady. During the evening he became sick, and the symptoms were so grave that he was taken in an ambulance to a hospital, where he shortly afterward died. It was found that he had sustained a fracture of the skull and that sub-dural hemorrhage had taken place; the latter accounting for the late development of the symptoms of compression.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 6, 1895, to July 12, 1895.

Lieut.-Col. JOHNSON V. D. MIDDLETON, Deputy Surgeon-General, is granted leave of absence for one month, to take effect on or about the 23d inst.

Capt. WILLIAM W. GRAY, Asst. Surgeon, is granted leave of absence for two months, to take effect on or about August 1, 1895.

Capt. REUBEN L. ROBERTSON, Asst. Surgeon, resigned July 8, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending July 13, 1895.

P. A. Surgeon R. P. CRANDALL, detached from the U. S. R. S. "Vermont," and ordered to the New York Navy Yard.

P. A. Surgeon GEORGE MCC. PICKRELL, ordered to Washington Hospital.

P. A. Surgeon H. T. PERCY, detached from Naval Hospital, Washington, and to the Navy Yard, Washington, D. C.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Armstrong, S. T., Asbury Park, N. J.; Adams, F. A., Syracuse, N. Y.
Battle & Co., St. Louis, Mo.; Bullington, T. A., Louisville, Ky.
Criley, B. H., Dallas Center, Iowa; Craig, Alex., Columbia, Pa.; Christian, E. A., Pontiac, Mich.; Caldwell, F. J., Adel, Iowa; Cook, G. F., Oxford, Ohio.

Dickinson, C. S., Winchester, Cal.; Deemer, G. W., Adair, Iowa; Deacon, A. R., St. Louis, Mo.; Davis, F. A. Company, Philadelphia, Pa.
Ellis, H. Bert, Los Angeles, Cal.; Eskridge, J. T., Denver, Colo.
Fite, C. C., New York, N. Y.; Frazee, Geo. E., Monroe, Mich.; Fredigke, C. C., Chicago, Ill.; Friend, E., Chicago, Ill.

Goss, E. L., Sheffield, Iowa.
Hodges, J. A., Richmond, Va.; Hummel, A. L., Philadelphia, Pa.
Johnston, J. A., Craig, Neb.; Jones, Talbot, St. Paul, Minn.
Keen, W. C., Burkville, Ky.; Kansas City Advertising Co., Kansas City, Mo.; Knight, C. H., New York, N. Y.; Kingsley, B. F., San Antonio, Texas.

Lee, F. S., New York, N. Y.; Lea Bros. & Co., Philadelphia, Pa.; Loewy, Arthur, Elgin, Ill.; Lehn & Fink, New York, N. Y.; Lord & Thomas, Chicago, Ill.; Lemen, E. G., Cincinnati, Ohio; Leaming, J. K., Coopers-town, N. Y.

Miller, L. C., Twelve Mile, Ind.; Millard, Perry H., St. Paul, Minn.; Moore, O. T., Marion, Ohio; Moon, R. C., Omaha, Neb.; Moston, Geo. T., Albany, N. Y.; Markel, C. F., Columbia, Pa.; Mill, C. K., Philadelphia, Pa.; Marchand, Chas., New York, N. Y.; Meyers, N. Ray, Wanamie, Pa.
Newman, Henry P., Chicago, Ill.

O'Brien, M. C., New York, N. Y.
Paquin, Paul, St. Louis, Mo.; Parks, E. F., PawPaw, Mich.
Quales, N. T., Chicago, Ill.

Rodman, W. L., Louisville, Ky.
Small, S. L., Saginaw, Mich.; Smith, B. M., Davis, W. Va.; Saunders, W. B., Philadelphia, Pa.; Stont, Jos., Ottawa, Ill.; Smyrna Chemical Co., Chattanooga, Tenn.; Scott, W. A., Swanton, Ohio.

Tanner, H. B., So. Kaukauna, Wis.
Theilberg, John, Rockford, Ill.; Tiffany, F. B., Kansas City, Mo.
Wright, J. P., St. Louis, Mo.; Woodward, J. H., Burlington, Vt.; Wyman, Walter, Washington, D. C.; Walker, H. O., Detroit, Mich.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, JULY 27, 1895.

No. 4.

ADDRESS.

THE PRINCIPLES OF MEDICAL CLIMATOLOGY.

Delivered at the Twelfth Annual Meeting of the American Climatological Association, at Hot Springs, Va., June 18, 1895.

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In presenting to you some thoughts upon medical climatology and its underlying principles, I am mindful that while the profession as a whole are lamentably ignorant of the principles of climatology, and sadly careless and ignorant in their application, and need instruction in the very grammar of the subject, I have now the honor of addressing those whose reputation and presence here are assurances of their knowledge and serious interest in climatic study. I shall therefore, as far as possible, avoid dwelling upon well-known facts, but it would seem wise to first define the subject we are to consider.

Climate implies the physical peculiarities of a given locality, while climatology is the study of these various climates with their special correspondences and their effects upon man.

Medical climatology, in the arrangement of its various departments, may be compared to a pyramid, the broad base of which is formed of the study of climatic physics which include the essence of meteorology and certain portions of geography, geology, botany and zoology. Resting upon this physical foundation is the tier, formed of the physiologic effects of climate, this being the study of the influence of the various physical elements of climate separately, first, and then in combination, upon the natural human being, the first consideration being the influence upon special organs and functions, and then upon the human organism as a whole. When this point is arrived at we reach the next department or tier in our pyramid, where inquiry leads to the distinctions of race; how they have been located and modified by special climates, first in their physiologic peculiarities and next in their pathologic, so that we have placed upon the layer of physiology one of ethnology and upon this, again, a tier of geographical pathology. By the latter, we are taught the special tendencies and dangers of each climate. Next, the classification of climates followed by the study of special climates and localities should claim our attention.

We have at length arrived at a sufficient elevation on our pyramid of knowledge to undertake the building up of the apex of our structure with climatic therapeutics, beginning with a tier composed of general climato-therapy, that is, a consideration of what diseases and what stages and forms of them are likely to be benefited by any climatic change. Next, the particular climates suited for the special diseases. Then the study of the influence of climate upon the

various temperaments and diatheses and, finally, the point is reached of the individual case and its appropriate climatic treatment.

Thus, climatology is based upon:

1. Physics.
2. Physiology.
3. Ethnology.
4. Geographical pathology.
5. Classification of climates.
6. Special climates.
7. General climato-therapy.
8. Individual climato-therapy.
9. The individual case and its appropriate climate.

Under the head of physics, we find certain matters connected with meteorology, worthy of emphasis and consideration. The meteorology of a given locality is broadly divided between the general meteorology of the hemisphere, State and latitude, and the local. General meteorology is being developed most efficiently by the Government Weather Bureau, and we must do all we can to aid them, especially in their new department of medical climatology, in which by collecting the necessary morbidity and mortality statistics from all parts of the country, the relations of sickness and death to the state of the general weather will be made apparent; and in time, perhaps, warning may be given to the delicate, as it now is to mariners and farmers.

The comparison of the general weather and its results with that of special localities and their health will serve to show how the general weather of a given week is modified or intensified by local conditions. In local weather reports it behooves us to urge the stating of them more fully, especially with regard to humidity, sunshine and wind and a separation of reports into seasons, and again a showing of what I have termed, in reporting upon Colorado Springs weather, as an *invalid's day*; that is, the average state of the weather during the hours the invalid can and should be out. While night air that is not too damp or chilling to permit of open windows is desirable, especially on account of its purity, yet the influence of the night climate when injurious can be much more easily modified than that of the day, and should be considered separately.

Under the head of physical conditions there is one point that is far too infrequently reported and too little dwelt upon by the physicians of this country,—the soil; whereas, in Europe, experience and the teachings of science have made it one of the prime factors in judging of a health resort, although a distinguished American physician, the late Henry I. Bowditch, was the first to study and demonstrate the importance of considering the soil in selecting a residence, which has been since abundantly confirmed by the labors of others. It is not only the material of which the soil is composed that must be considered, but also its natural drainage and the disposition of

its watershed. The importance of this consideration, while we all present here admit, perhaps we do not sufficiently dwell upon to our clients and our colleagues; often do we find a town in a health-giving air with good surrounding soil, yet situated in a river bottom, recommended for invalids; or a flourishing health resort under benignant skies, built upon a clay bed, or in a basin which can not drain.

Again, while the meteorology of a place is of great importance *per se*, it is very much more so in connection with the other conditions, such as elevation, aspect, shelter and soil, as these together make climate; the other alone only weather, and paradoxical as it may appear, it sometimes happens that the climate continues good even when the weather is temporarily bad.

There is another point that is worth remembering, that the pleasantest climate to the invalid is not always the best for him. While to come "unto a land where it was always afternoon" is well suited for some, others fare better where the cry of "Cease, rude Boreas," is often heard. Thus while a sedative climate is frequently called for, a tonic one is still more often needed. Remember, all our climatic prescriptions can not be sugar-coated.

Passing now to the study of physiology in connection with climatic therapeutics, we see a field white for the harvest, and it is only from the corn gathered in this field that the bread of knowledge can be made which is alone worthy to be served on the table of the climatologist. But, alas, to produce good physiologic work, time and money are the first requisites, in neither of which do we as a profession abound. There is a crying need for well trained and well paid physiologists in well-equipped laboratories in all the chief sanitaria of the world, and it is only by placing the knowledge gained through them freely before the therapist that our branch of medicine can advance from the present gloom of fiction and tradition, which now is but faintly illumined with a few isolated facts, and from which the health-seeker endeavors to emerge, guided more often by the rushlight of empiricism, or led astray by the will-o'-the-wisp of false theory, than by the lamp of science. Some of these lines of investigation are a fuller study of the influence of sunlight and sun heat upon physiologic and pathologic conditions, and some good work has lately been done in their effects upon bacteria. This work could be carried on most efficiently in climates where sunlight was most brilliant. The influence of atmospheric electricity, and the influence of humidity with both high and low temperature also needs study.

Further experiments are needed upon the effects of diminished barometric pressure; while excellent work has been done by Paul Bert, Muntz, Regnard, Viault, Egger, Woolff and Koeppe, in which the blood changes have been noted, yet they need carrying on further, and particularly by physiologists resident in high altitudes, so that it can be demonstrated clearly what are the permanent and what the transitory effects. These investigations have gone far to make it probable that the blood changes, such as the increase of red corpuscles and hemoglobin, are the reason for the undoubted clinical fact that altitude is *per se*, the most valuable climatic factor in combating the progress of tuberculosis. While this can be reasonably inferred it is not yet absolutely proved.

It should also be demonstrated what are the blood

changes, if any, brought about by residence upon the ocean or sea islands, as similar results upon tuberculosis to those in mountain air are sometimes brought about. The effects of sea and mountain air upon the nervous system need much elucidating. Again, the influence of atmospheric electricity upon the human organism stands ready for explanation.

To you, I need scarcely enumerate the many branches of study that require more extended work by the climatic physiologist to make way for the pathologist, with the therapist in his wake. While we ask for more workers and more means, we must not be unmindful of those who have already entered into, and are still laboring skillfully and manfully in this field.

In ethnology much good work has been done, but we need the collaboration of the ethnologist with the climatologist, so that the lessons ethnology can teach us of climatic influence, especially in transplanted races, extending over long periods of time, can be applied to the elucidation of the more immediate effects of climatic changes upon individuals in the present.

In geographical pathology the volumes of Hirsch stand out as a monument of systematic, elaborate and successful research in this field, while the work of Davidson and studies such as those of Matthews on the North American Indians, have added much to this department of climatology.

Passing on to the classification of climate, we are confronted with one of the greatest stumbling blocks in the way of placing climatology upon a really scientific basis. The interlacing and interdependence of the various factors which go to make climate and the modifications of their relative and combined influences by seasons, by local conditions, and also by remote influences makes it wellnigh impossible to formulate any classification of climates that is not imperfect and open to many objections. Therefore at present, at least, this can not be accomplished with scientific accuracy, but only in a broad and general way.

The geographical divisions of climate are comparatively easy, as into sea and land; the former with its subdivisions of ocean, island and coast, and the latter with its divisions by elevation, and again, a classification by position to the equator is not difficult. But it is when we come to classify the whole by important meteorological conditions then we find the serious difficulties. What do we mean by a dry, or what by a damp climate? Of course, when we think of extreme instances we know what we mean. But where are we to draw the line, and are we to judge by the absolute amount of moisture in each cubic foot of air for comparison, or by this relation to the temperature. Is it the absolute or the relative humidity reached or both together which determines the class in which the climate is to be placed? The meteorologists themselves are not yet prepared to clearly explain this question. Though work is going on among them which will assist in clearing off the fog hanging over it, of this nature is the work of Professor Harrington upon what he very happily terms "sensible temperatures." The amount of evaporation from the skin is regulated by the amount of watery vapor present in the air, that is its humidity, and the greater and more rapid the evaporation from the skin, the greater the coolness of its surface, so the cooled blood of the cutaneous

vessels carried into the circulation aids in preventing the general body heat rising above normal. Thus we see the value of recording the temperature of the wet, as well as the dry, bulb of the thermometer. This is an interesting subject to pursue into its therapeutic aspect, but *verbum sapientis*.

Passing to the tier composed of special climates, I will merely say that in my opinion too little consideration is shown to the circumstances of the particular place as regards food, lodging, work and amusements. So often, while the general climatic conditions are favorable, yet after all, the sending of that particular patient to that particular place is a failure, it is a case of a round man in a square hole, or *vice versa*, and while the disease may have been placed in the appropriate climate the individual has not. As Julius Braun said so admirably in his classic work on "Baths and Health Resorts:" "You have to consider not only the individual sickness, but the sick individual in climatic therapeutics." There is much to be said, from which the clock's warning face bids me refrain, but do let us remember the advice I heard Frank Buckland, the naturalist, once give: "When you get hold of a fact, pin it down for future use." When found, make a note of it. It is the slow accumulation of these, brought together by many hands, in many lands, which will ultimately give us a scientific climatology. In the recording of cases of phthisis, treated by climate, especially as to results, the history must be sought and reported over long periods to be of real value, and I know full well, this entails much labor and can, with the best endeavors, be only followed in a few out of many cases that are seen.

It is not the results of any one man or place that are of so much value as their use with many others; their family likenesses as it were, are brought out and one report aids and corrects the other. Again, for comparison, do let us receive more facts concerning the natural history of phthisis as seen by city physicians, where no climatic change could be noted. Sometimes we congratulate ourselves that while a case of phthisis did not recover, yet it lived for some time, say for fifteen years, and think that here at least we see the retarding effects of a certain climate; but turning to the pages of such careful observers as Flint, we are led to doubt this special influence when we find similar cases recorded living as long without using such climates.

I must now cease giving you these scattered suggestions concerning the principles of climatology and close this brief review of the general subject, to make way for the more important discussion of its various branches, of which the program with its names of authors promises us a rich feast. This is a gathering where the men of the sea, of the plain, of the mountain, of the city and hamlet are drawn from their homes, in many cases hundreds of miles apart, to study and advance the science of climatology.

FOURTH OF JULY SURGERY.—A recent issue of *Puck* has the following timely skit: "Physician (as he finishes bandaging up Mr. Oldboy, who has unsuccessfully set off some fireworks): 'Well, how do you feel?' Oldboy (in muffled tones): 'Just like a boy again.'"

LAUGHTER IS THE STAFF OF LIFE.—Mr. Joshua Billings believes that "Every time a man laughs he takes a kink out of the chain of life, and thus lengthens it."

ORIGINAL ARTICLES.

THE TREATMENT OF MALIGNANT TUMORS BY THE TOXINS OF THE STREPTO- COCCUS OF ERYSIPELAS.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY N. SENN, M.D., Ph.D., LL.D.

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It has been known for a long time that in exceptional cases an attack of erysipelas has exerted a curative effect on malignant tumors. A number of years ago Billroth reported a case of inoperable sarcoma of the pharynx cured by a severe attack of facial erysipelas. The tumor mass sloughed and the large defect healed rapidly by granulation, leaving a healthy scar upon the site occupied by the tumor. Isolated cases of this kind have been reported from time to time, but the diagnosis was not always established by sufficiently careful clinical observations and microscopic examination of the tumor tissue. The discovery of the microbe of erysipelas by Fehleisen, and the cultivation of the streptococcus upon artificial nutrient media outside of the body enabled investigators to produce erysipelas artificially in the uncomplicated form in man and the lower animals. As soon as it was demonstrated experimentally that simple uncomplicated erysipelas is a disease attended by but little danger to life, the suggestion was made that, if the disease could be artificially produced in man by inoculation with pure cultures, the local and general conditions thus produced might prove useful in the cure or amelioration of inoperable malignant tumors. Of seven persons the subjects of malignant tumors, inoculated by Fehleisen with pure cultures, six developed typical erysipelas; in the seventh case the patient had passed through an attack of erysipelas only a few weeks previously and was, in all probability, still protected against a new attack. This patient was inoculated a second time with a negative result. Fehleisen has seen, by this treatment, a cancer of the breast become smaller, while a case of fibro-sarcoma and another of sarcoma were not materially affected by this method of treatment.

Janicke and Neisser have recorded a death from the erysipelas thus intentionally produced, in a case of cancer of the breast beyond the reach of an operation. At the post-mortem it was shown that the tumor had almost completely disappeared, and the microscopic examination of portions that had remained appeared to prove that the tumor cells had been destroyed through the direct action of the microbes.

Biedert saw in a child suffering from a sarcoma, involving the posterior part of the cavity of the mouth and pharynx of the left half of the tongue, the nasopharyngeal space and the right orbit, the tumor disappear almost completely during an attack of erysipelas.

Kleeblatt reports the case of a lympho-sarcoma followed by infection of the cervical glands, in which the tumors diminished markedly in size under the influence of an inter-current attack of erysipelas, but resumed its former malignant tendencies as soon as the disease had subsided. The patient was afterward intentionally inoculated with a pure culture of the

streptococcus of erysipelas, but the beneficial effect was, as before, only a temporary one, as the tumors steadily increased in size, the patient dying of exhaustion. In another somewhat similar case, the inoculation caused a typical attack of erysipelas, under the influence of which the tumor rapidly disappeared.

Cases, on the other hand, have been reported in which, after an accidental or intentional attack of erysipelas, the malignant tumor began to grow more rapidly. Neelsen describes a case of carcinoma of the breast in which, after two severe attacks of erysipelas, the tumor not only began to grow faster, but at the same time regional infection progressed more rapidly.

Bruns gives an account of the effect of erysipelas on tumors in twenty-two patients. Among these, three cases of sarcoma were permanently cured. Two cases of multiple keloid after burns were also permanently benefited. In four cases of lymphoma of the neck, some of the glandular swellings disappeared completely and some were reduced in size. In three cases of carcinoma of the breast, one was not influenced by the treatment, in one the tumor was diminished one-half in size, and in the third it contracted to the size of a pea, in which condition it remained at the time the report was made. A multiple fibro-sarcoma was greatly benefited, while an orbital sarcoma was not improved.

Spraenth concludes as the result of his observations that the products of the erysipelatous inflammation in certain cases can act in a curative manner upon malignant growths. He injected subcutaneously at a point distant from the tumor the sterilized toxic products of the microbes of erysipelas. Improvement and even complete disappearance of the tumors followed, although recurrence usually took place. The effect was much more marked in sarcoma than in carcinoma.

Burch observed that as a result of accidental or intentional infections with the microbe of erysipelas, tumors such as sarcoma disappeared by fatty degeneration.

Janicke and Neisser demonstrated by microscopic examination that cancer cells were actually destroyed by erysipelas streptococci. In view of the uncertainty of the result and the not inconsiderable danger to life which attends the inoculation of live cultures of the streptococcus of erysipelas, in patients debilitated by antecedent disease, it is safe to predict that this therapeutic resource will be abandoned in the future treatment of malignant tumors.

Coley, of New York, has made the treatment of malignant tumors with live and sterilized cultures of the streptococcus of erysipelas a special study since 1891. In 1893 he reported ten new cases of malignant tumors treated by repeated inoculations with erysipelas. From a study of the literature of this subject at that time it was found that there were recorded thirty-eight cases of malignant tumors in which an attack of erysipelas had occurred, either by accident or intent. In thirty-three cases the erysipelas was accidental and in fifteen it was the result of inoculation. Of seventeen cases of carcinoma, three were permanently cured. Of the seventeen cases of sarcoma, seven were free from recurrence from one to seven years after the attack of erysipelas. Ten cases showed quite marked improvement; one patient died as the result of an accidental attack of erysipelas.

In the summary of the analysis of recorded cases,

Coley excluded eight cases of his own, treated by repeated inoculations with erysipelas cultures; in none of these cases did an actual attack of erysipelas result, and yet the inoculations appear to have been followed by marked improvement, and this would indicate that there exists in the cultures some substance which is antagonistic to the tumor growth.

In view of the fact that the artificial production of erysipelas by inoculations with active cultures of the erysipelas microbe is not devoid of risk to life, and that improvement in certain cases followed, by inoculations with live cultures, which did not produce erysipelas; these facts led Coley and others to employ sterilized cultures, which appear to have produced the same therapeutic effects as the active cultures.

It was also ascertained by experiments that the efficiency of the dead cultures is increased by the addition of the bacillus prodigiosus, a comparatively harmless microbe. In a recent article on the treatment of malignant tumors with the toxins of these two microbes, Coley maintains the efficiency of the mixed dead cultures of these two microbes in the treatment of some cases of malignant tumors, especially sarcoma. In the same publication he reports nine cases of inoperable sarcoma permanently cured by repeated inoculations with the mixed toxins of these two microbes, that came under his own observation, and refers to a few successful cases in the practice of other physicians. The toxins which he uses now are prepared in the following manner:

Method of Preparation of the Toxins.—To make the toxins of erysipelas and prodigiosus, ordinary peptonized bouillon is put into small flasks, containing 50 to 100 cc., which, after proper sterilization, are inoculated with the streptococci of erysipelas and allowed to grow for three weeks at a temperature of 30 to 35 degrees C. The flasks are then inoculated with bacillus prodigiosus, and the cultures allowed to grow for another ten or twelve days at room temperature. At the end of that time, after being well shaken up, the cultures are poured into sterilized glass-stoppered one-half ounce bottles, and heated to a temperature of 50 to 60 degrees C. for an hour; sufficient to render them perfectly sterile. After cooling, a little powdered thymol is added as a preservative, and the toxins are ready for use. The toxins when prepared in this way are very much stronger than when filtered through a Pasteur, Chamberland or Kitasato filter, the active principles contained in the germs themselves being preserved. If, as is sometimes the case, the preparation is found to be too strong to use with safety, it can be diluted with glycerin or sterilized water.

"The best method of making the bouillon is to soak a pound of chopped lean meat over night in water. In the morning strain it through a cloth, make up to 1,000 cc., and boil for one hour. Then filter through a cloth, add peptone and salt, neutralize and boil again for an hour. The bouillon will then pass through filter-paper perfectly clear, and be ready to put into the flasks. It is not, however, necessary to neutralize the bouillon, as the streptococci will grow even more readily in acid bouillon, and the resulting preparation is, if anything, stronger than when neutralized bouillon is used.

"In order to keep up the virulence of the cultures they are put through rabbits in the following way: the hair of the ear is clipped close with a pair of scissors, and the skin washed with weak carbolic

acid, and then sterilized water. A minute quantity of a bouillon culture, forty-eight hours old, is then injected subcutaneously in four or five different places in the ear. Forty-eight hours later, after again washing the ear with carbolic acid and sterilized water, a flat needle sterilized in the flame is inserted under the skin at or near the point of inoculation, and the layer of the skin cut off with a sharp sterilized scalpel. The piece of skin is then rubbed well over the surface of an agar tube with a thick platinum-wire needle. After twenty-four hours in the incubator the colonies of streptococci will show as minute white specks, and from them a pure culture can be obtained. If the agar is made with 75 per cent. of bouillon and 25 per cent. of urine, the streptococci will grow more freely than if bouillon alone is used. The dose of this preparation varies from 1 to 8 minims; I have had a temperature of 105 degrees F. follow the injection of 2 minims. I usually begin with the minimum dose and gradually increase until the desired reaction, *e. g.*, temperature 103 to 104 degrees F. is reached."

Coley does not say that this treatment is successful in all cases, and reports his failures with his successful cases, but his satisfactory results are out of proportion to those of any other practitioner, in the employment of the same remedy in similar cases. It is generally known that carcinoma has proved more refractory to the toxins of the streptococcus of erysipelas and the mixed toxins than sarcoma.

A distinction should be made between the therapeutic action of non-malignant tumors of erysipelas and the subcutaneous injections of sterilized cultures of the microbe of this disease. In erysipelas involving a malignant tumor, the superficial lymphatic channels are the seat of an active inflammation, the product of which always temporarily obstructs the pathways through which local, regional and general infections occur and, in exceptional cases, permanent interruption of the lymph current may limit or arrest the growth of the tumor. No such anatomic changes are produced by the injection of the toxins.

The treatment of inoperable sarcoma and carcinoma with the mixed toxins, as advised and practiced by Coley, has been given a fair trial in the surgical clinic of Rush Medical College, and so far it has resulted uniformly in failure.

The accompanying table is a brief summary of the cases subjected to this treatment.

The injections were made daily, gradually increasing the dose until the desired reaction was produced. In most of the cases the reaction was initiated by a chill, or at least a sense of chilliness. The temperature reached the maximum height in the course of a few hours, and continued from six to twenty-four hours. The toxins used were obtained from three different sources, the last supply directly through the courtesy of Dr. Lambert, of the laboratory of the Cancer Hospital, New York. A temporary swelling and diffuse reddening of the skin at the point of puncture was a common occurrence; abscess formation was seldom observed. Loss of appetite, restlessness and insomnia were some of the general symptoms most constantly produced by the injections, when used in doses large enough to provoke febrile reaction. In all of the cases, the injections failed to effect even temporary improvement, and in some of them the local and general conditions appeared to be aggravated by the treatment. The results of this

treatment have been most discouraging in my hands, and although I shall continue to resort to it in otherwise hopeless cases in the future, I have become satisfied that it will be abandoned in the near future and assigned to a place in the long list of obsolete remedies employed at different times in the treatment of malignant tumors, beyond the reach of a radical operation.

Name.	Age.	Tumor.	Number of injections.	Dose in minims.		Reaction.
				Minim.	Maxim.	
Ross,	35	Multiple melanoma-sarcoma of breast and subcutaneous lymphatic glands.	25	3	10	101° F.
Nelson,	32	Sarcoma of testis, regional infection of lymphatic glands.	25	3	8	103° F.
Sherwood,	47	Sarcoma of thigh.	50	5	9	103° F.
Hickman,	30	Recurring sarcoma of shoulder after amputation of humerus.	10	5	12	104° F.
Leitch-Berling,	48	Epithelioma of back.	40	7	12	102° F.
Scott,	36	Sarcoma of neck, infection of lymphatic glands of groin on both sides.	30	7	8	102° F.
Young,	55	Secondary epithelioma of lymphatic glands of neck.	65	4	12	102° F.
Ehrlich,	52	Secondary epithelioma of lymphatic glands of neck.	75	4	10	103° F.
Morris,	47	Epithelioma of uterus.	75	4	15	104° F.

DISCUSSION.

DR. W. B. COLEY—I wish to thank you for the courtesy you have extended me by asking me to open the discussion on a subject in which I have been deeply interested during the past four years. I hesitate to offer my own experience against that of so distinguished a surgeon as Dr. Senn, and I will first say that I heartily commend Dr. Senn for bringing before you his own results from the treatment with the toxins,—failures though they be. No scientific opinion as to the value of the treatment will be possible unless the failures as well as the successes are recorded, and I myself have conscientiously endeavored to follow this method in my own work.

Since May 3, 1891, I have treated eighty-four cases of inoperable malignant tumors with the toxins of erysipelas and bacillus prodigiosus, and it seems to me that a careful study of these cases, extending over a period of four years, ought to enable us to formulate some definite conclusions as to three very important questions:

1. Have these toxins a destructive effect upon malignant tumors?
2. Is this effect merely temporary, or permanent?
3. What forms of tumors are most susceptible to the action of the toxins?

A study of my own cases shows that of forty-three cases of inoperable sarcoma treated with the toxins, eleven have been successful. One of these has since had a return of the trouble; one has gone nearly four years; two, more than two years; and two, one and one-half years, without relapse.

Within one month I have presented three cases before the Surgical Section of the New York Academy of Medicine, two of which had gone more than two years since treatment, and still remain in perfect health. These results are indisputable facts, the diagnosis having been established, not only clinically by the leading surgeons of the East, but confirmed microscopically by the best pathologists; and if further evidence were needed, the fact that a number of them had rapidly recurred after operation, would be enough to establish

their malignancy. If the diagnosis is still doubted, after having been subjected to all these tests, it seems to me that we had better at once abandon the discussion as to the treatment of sarcoma, and employ our time in learning how to make a diagnosis.

In regard to carcinoma, up to the time of my last paper read before the Academy of Medicine, Nov. 15, 1894, I had nothing but improvement follow the treatment in cases of carcinoma, and I have never advocated the toxins in carcinoma except as a matter of experiment, though I confidently believed that in time good results would be obtained in this as in sarcoma.

Since November I have had two cases of epithelioma entirely disappear. One was a very rapidly growing epithelioma, involving the lower jaw and floor of the mouth and chin. The case was sent to me by Dr. George R. Fowler of Brooklyn, in July, 1894, and was treated about three months at the New York Cancer Hospital. She has had no treatment since November; no evidence of the growth can be found, and the woman is now in perfect health. The entire tumor had developed in a space of four months, and the involvement was so extensive that Dr. Fowler regarded it as hopeless from an operative standpoint.

Against this positive evidence, based upon eighty-four cases, extending over a period of four years, Dr. Senn has presented on the other side nine cases, covering a very brief period of observation. If we analyze them, what do we find? We find first, three of the cases were carcinoma, a class of tumors in which I have not advocated the treatment. A fourth case was a melano-sarcoma, a rare form of sarcoma, of which I have treated three cases without success. The fifth and sixth cases were very advanced osteo-sarcoma, which I distinctly stated in my paper were the least influenced by the toxins. There remain but three cases upon which he can justly base an argument against the value of the toxins. With this limited experience, covering so short a period of time, Dr. Senn tells you that the treatment is valueless, and in another year will be entirely abandoned. I can only say that, if I continue to have as many successes in the coming year as I have in the past, I venture to predict that I for one shall be using the treatment, and I do not believe that I shall be the only one.

ON SOME POINTS IN REGARD TO STERILIZATION IN PRIVATE DWELLINGS, WITH THE DEMONSTRATION OF SOME NEW ASEPTIC APPLIANCES.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CARL BECK, M.D.

NEW YORK.

Since the experiments of Petri and Cleves-Symmer have demonstrated that by bacteriologic test, what long before appeared to be probable on the base of clinical observation, namely, that the atmosphere has practically no bearing upon infection, but that the human body is invaded by bacteria by contact; in other words, by the wounding instrument, by the hands of the surgeon, by clothing or by the skin of the patient, the question of operating inside the hospital has entered a new stage.

As besides Lister, the father of modern wound treatment, there is still a considerable number of surgeons who maintain that the atmosphere has at least some bearing upon infection, I thought it to be well worth while to refer to the experiments alluded to from a strictly surgical standpoint.

Petri fixed the special forms of microbes suspended in the atmosphere and ascertained at the same time the number of microbes present in a determined volume of air. He determined the presence of microbes by pumping a measured volume of air through a filter of sterilized sand. This sand, to which all the microbes of the atmosphere adhere, he distributed on Petri's plates containing sterilized gelatin. On this gelatin the microbes multiplied by forming as many

separate colonies as there were microbes, so that the latter could easily be counted. By determining the next question, namely, that of the number of microbes settling within a fixed time upon a wound surface of a certain area, he found that a parallelism could not be assumed between the microbe capacity of the air and the quantity of the deposits. It would naturally be expected, that air containing only a few microbes would deposit but few upon wounds, and *vice versa*. But this parallelism does not always exist, as the microbes are not equally distributed in the air, but some regions are densely and some are sparsely populated. This fact can be shown, if according to Cleves-Symmer several gelatin plates are exposed at the same time and if the different plates are kept in the same part of the room. Then a great difference as regards quantity and quality is found, for neither the same kind nor the same quantity of microbes settle upon the plates.

Cleves-Symmer also exposed gelatin plates for seven days simultaneously in three surgical wards. This exposure was made five times a day; the first at 5 o'clock A.M., while the patients were asleep, and the second at 7 o'clock A.M., after the floors were first washed and then scrubbed. Similar exposures were made at 9 A.M., when operations were generally performed, and the last exposures were made late in the afternoon. The sterile gelatin was contained in round, flat, large-surface Petri dishes. After they had been exposed each time for twenty minutes, they were covered and preserved in a moist incubator in which the temperature was that of the room. The developing colonies, as soon as they could be recognized by the naked eye, were counted daily, and were observed so long as they could be distinguished from one another. Among 4,613 microbes so developed there was found but one pathogenic microbe, which was the bacillus pyocyaneus. At a time when nearly every third case in the hospital suffered from a wound in the secretion of which this bacillus was contained, there were certainly ample opportunities for it to permeate the atmosphere; if, despite this, a pathogenic microbe was found but once, it is proof enough that the air contains necessarily very few pathogenic microbes.

Clinical experience accords with this. The operating rooms of Billroth at the old "Allgemeines Krankenhaus" in Vienna were far from being an anti-infectious ideal. The same remark applies to many other celebrated operating rooms, among which I may only mention the Albert Amphitheater in the same city and the one of the eminent surgeon, Gussenbauer, in Prague. As far as my own experience is concerned, I may state that it is also in accord with these theoretical propositions. So, for instance, were the average results in St. Mark's Hospital, New York, about just as good in its old building (the very poor accommodations in which premised all the elements of atmospheric infection, since the most rigid observations of aseptic principles were carried out in reference to all objects that came into direct contact with the wound), as those obtained in the new building, which merits the designation of a model hospital, particularly with reference to modern aseptic appliances.

If, then, success does not depend upon the marble floor of a modern operating room, and upon more or less complicated apparatus, but upon carrying out the principles of asepsis so far as direct contact with

wounds is concerned, there is no reason, why aseptic operations could not be performed almost anywhere.

If it would really be as Neuber, one of the most distinguished pioneers of aseptic principles, maintains, that the arrangements of the operating rooms are the main requisites for success, it would be no less than a crime to operate outside of the hospital. Neuber lays great stress upon having separate operating rooms (he himself uses five different operating rooms in his own private hospital) and demands at least two different operating rooms for even the smallest hospital; one at least, for septic and one for aseptic cases, each possessing separate furnishings and supplies. There can be no doubt that it is *desirable* to have at least two operating rooms. Their absolute *necessity*, however, is open for discussion. The whole question, after all, seems to converge more and more to the one point, that operations performed in private dwellings entail a great deal more trouble to the surgeon than they would in a hospital, where everything can be carried out with the greatest convenience, so that it is quite natural that a surgeon, when having the choice, would prefer operating in a hospital.

The advocates of atmospheric infection seem to regard every operation performed outside the hospital as a criminal act, more or less. But opinions change quickly nowadays and to quote Schiller: "There is nothing more permanent than constant change." It is only a few years ago since a reputable German surgeon demanded prosecution by law of every surgeon who omitted using carbolic acid during operation. I should not be surprised if the same energetic colleague would demand the arrest of the same unfortunate Æsculapian who did not do the contrary now. It seems to me that there was never a time when operations outside of the hospital were more justifiable than under the present auspices of asepsis. I sincerely hope that this statement will not be mistaken for an endeavor to encourage an inexperienced practitioner to perform major operations. Beside asepsis there are required a great many other points. In the first place, a surgical routine of years' standing; second, there must be at hand well-trained assistance, without which a surgeon is hardly justified in performing major operations.

It is absurd to advise a surgeon to take a bichlorid bath every day, and unnecessary to remove all furniture, paintings, carpets, etc., before operation in a private dwelling, or to wash the walls of the private operating room with bichlorid and scrub them afterward with crumbs of bread. The latter procedures will certainly do no harm if undertaken a few days before the operation, but if done only a few hours before the operation, they will be apt to impregnate the atmosphere with many more microbes, probably also with "pathogenic" microbes, as such maneuvers can not be done without stirring up a considerable quantity of dust, which will settle upon clothing or such other objects, which may afterward come into indirect contact with the wound. It is therefore advisable not to disturb the operating room shortly before operation. But great care should then be taken to keep the tables, chairs, or whatever else should be required for the operation, covered with sterilized, or at least with freshly washed and ironed sheets or towels. If it should have happened that dust was stirred up shortly before operation, floor and walls should be sprinkled, as moisture precipitates the microbes.

For an operating table, a strong kitchen-table may serve, if the surgeon should not prefer to take a portable operating table along. Upon two other tables of medium size the instruments, trays, dressings, sponges, etc., are placed. If such tables are not available, wooden chairs have to answer the purpose. If possible, all such objects as chairs or tables should be scrubbed with soap and hot water and with bichlorid of mercury (1 to 500). Such arrangements can be made under the supervision of an assistant or a nurse, who may be sent to the house of the patient the day before the operation is to take place. They should also see that the patient takes a warm bath and is also shaved in case there should be any hairs present on the field of the operation. Scrubbing with ether and bichlorid should follow these procedures. Then the field of operation should be covered with a large poultice of green soap, which may remain until shortly before operation, except there are signs of susceptibility to dermatitis, in which case a bichlorid solution should be substituted. The nurse must also instruct the family that an abundant supply of boiling water must be ready in large vessels and that there must be at hand a sufficient number of bed sheets and plenty of towels. If tin boilers must be used, they should be scrubbed with sapolio and be covered with sterilized towels. China pitchers and basins may also be prepared in the same manner and afterward washed with a strong bichlorid solution, etc.

As a surgeon must always be prepared for an outside call, he should have a set of asepticized surgical appliances ready in a satchel at his office. I found it convenient to preserve the instruments generally required in linen cases, having a separate one for abdominal sections, one for operations upon the bones, one for the uropoetic system, one for tracheotomy, one for general use, etc. These linen cases may be rolled up and tied in the middle with a cord after being used. The case designated for general use contains such instruments as are required in any operation—that is, scalpels, scissors, forceps, retractors, spoons, probes, needles, etc.,—and is carried along with the one designated for a special operation. For instance, if a herniotomy is to be performed, the "general set" is accompanied by the laparotomy set. These instrument cases can be carried along with the other necessities in a satchel. I use a satchel of rectangular shape about 42 centimeters long, which gives ample space for the instruments required, as well as for the other necessities, consisting of my folding sterilizer, of a sufficient quantity of trays fitting one into another, of gauze, cotton or moss bandages, silk, catgut, rubber gloves, green soap, soda, bichlorid tablets, ether (resp. chloroform, morphin tablets, camphorated oil for hypodermic use, brushes, etc. It will sometimes be convenient, to carry the surgeon's coats, towels, sheets, etc., to the house also. The brushes for scrubbing the skin surface, if sterilized, can be carried in sterilized towels, as well as the gauze and the other dressing material. The ligatures are kept best in one of the metal boxes, devised by Schimmelbusch or Braatz or myself. Iodoform gauze, if required, may be carried conveniently in a "Duehrssen" receptacle. In reference to my sterilizer, I may be allowed to state that its main advantage consists in its compactness, as its separate parts can be easily put together. Its lower division, which is also the smallest one, consists of a reservoir which fits into a larger division. If desirable, a fourth divi-

sion can be set up. The reservoir of the lowest division must be half filled with a solution of soda. A wire net on which the instruments are to be placed fits into this reservoir. Into the projection of the walls of the second or third division, wire sieves to receive the dressings, towels, sponges, etc., have to be inserted. To the lower division are attached two folding supports between which, when in use, is placed the alcohol lamp which is so constructed as to allow of its being carried along with safety when filled with alcohol. Beside the regular attachments—that is, the alcohol lamp, the wire sieves for the instruments, two hooks for pulling out the latter and the thermometer—a few instruments, a silk box, etc., find ample space in the lower division (reservoir). After being folded together, the height of the apparatus amounts to 6 centimeters. This height is less than one-fourth of that of the whole apparatus when ready for use, which amounts to 27 centimeters. The sterilizer can either be put into an instrument satchel or be carried under the arm. Two quarts of water will be so heated (as indicated by the thermometer fitted into an opening in the lid) as to fill the whole sterilizer with steam of a temperature of 212.1 degrees F. Anthrax spores dried on silk ligatures showed no cultures after they had been exposed to the steam for fifteen minutes. The apparatus is made up now in five different sizes.

37 E. 31st Street.

PROPHYLAXIS IN SURGERY.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY GEORGE WILEY BROOME, M.D.

ST. LOUIS.

In briefly discussing the subject of the prophylaxis of infection in operative surgery, it is my intention to speak also of the measures necessary to prevent unnatural union between tissues under the title given to this paper, and I shall first speak of the operation of amputation as it relates to the prophylaxis of infection and, in connection therewith, the prevention of the amalgamation of heterologous structures in the reparative processes of the wound. But before entering upon the subject I may be permitted to preface the discussion with the observation that there is but one author in the world, so far as I am aware, who holds and advocates the theory that the apposition of peritoneum to peritoneum is a surgical error, although I am clearly cognizant of the fact that thousands of operations terminate in the unnatural union of tissues; that is, the union of tissues of a different kind or nature. But I am also quite certain that such results were not intended by the operator. Mr. J. Greig Smith bases his arguments on the doubt of the principle of sero-serous apposition in connection with intestinal operations, and particularly with the means of providing intestinal drainage. "Many of these operations," he says, "had to be repeatedly performed, and in some of them I dared to ignore the time-honored habit of 'shutting off the cavity' by suturing parietal peritoneum to bowel, and both to skin; often, indeed, I omitted to place sutures of any kind. The practical outcome of this has been, that where I want temporary drainage, with loose adhesions and mobile bowel—as in temporary enterostomy—I suture parietal peritoneum, bowel and skin; but where I desire firm, permanent and intimate adhe-

sion, with no mobility of bowel on parieties—as in celio-colostomy—I implant bowel directly on raw surface, and if this raw surface is small, as it is in thin subjects, I increase it by unfolding or peeling from the parieties more peritoneum, and turning its raw, not its serous, surface from the bowel.

"Further evidence in favor of the strength and durability of sero-fibrous adhesions is supplied by the occurrence and persistence of adhesions when surfaces are left after operation uncovered by peritoneum. Adhesions between bowel and raw surface (such as the stump of a pedicle) may, as we know, be strong enough to cause obstruction. A recent hospital case, where I had to re-open the abdomen for obstruction a week after removal of the appendages for myoma, was a striking example of this. The intestinal wall was positively incorporated with the surface of one of the ligated pedicles; it was quite impossible to tear them apart; it was necessary to cut away a piece of the stump and liberate the intestine. Such adhesions remain to give further trouble also.

"Sero-serous adhesions, on the other hand, tend to disappear; often they disappear very quickly. Indeed, as I have said, where loose and temporary fixation is desired, as in temporary drainage of intestines for obstruction, sero-serous apposition I now believe to be better than sero-fibrous. *One prime advantage of sero-serous union is that it takes place very rapidly, that in a few hours it is water- and gas-tight.* But such union is no more rapid than when peritoneum is opposed to a raw surface. If we bear in mind the histologic forces at work, we can readily understand how this should be; the layer of lymph and young cells which lie between the serous surfaces have little cohesion, and being shut off by a double layer of endothelium from vascularization and from ingrowth of plasma cells, are long in being converted into true granulation tissue. Vascularization is slow and fibrillation is slow, and while they are going on, nature is beginning to get rid of the exuded lymph. Such adhesions often disappear; if they remain they nearly always get thinned and elongated. If there is little to choose between the two, as regards prevention of extravasation of fluids for the first few hours, the sero-fibrous has a decided advantage as time goes on. The lowly organized, inert and loosely coherent plug of lymph is easily disturbed and would be easily broken up in the presence of fluid. This we know to our cost; it is on the second or third day that leakage takes place. A sero-fibrous junction that lasts for a day is practically safe forever, for it goes on improving in strength and solidity.

"The practical application of these principles is as wide as abdominal surgery, and includes not only results to be encouraged, but results to be avoided. Where it is desired to secure quick, strong and permanent union, sero-fibrous apposition is better than sero-serous. Where the union sought need not be strong, and is desired to be only temporary, sero-serous apposition may be adopted.

"In ordinary work, the carrying out of these principles involves some such processes as the following: fibro-fibrous as against sero-serous apposition is carried out in the closure of the parietal wound; in operations for the cure of ventral and umbilical hernia and in kolpo-hysterectomy. Closure of the parietal incision is made by apposition of the raw peritoneal flaps outfolded, and not of the intact se-

rous surfaces inturned. This may incidentally be mentioned, that by abolishing the inward dip of the united peritoneal flaps, it helps to prevent ventral hernia."

I have quoted from Mr. Smith's address upon this subject rather extensively, for the purpose of giving a tolerably clear understanding respecting his arguments and data for the benefit of those who may not have read the article, but desire to know the position assumed in the matter by one so capable of making reliable clinical observations. But going back to my subject, as an illustration of the unintentional, as I take it, of the amalgamation of tissues following the operation of amputation, I have here several photographs taken, regardless of any effort to select the cases, from among the membership of a society in St. Louis organized under the name of the "Knights of Willow." Each one of these knights has at one time or another undergone an amputation of a limb, and, I may add, perhaps 90 per cent. of the members of this society suffer to some certain degree from the consequences of either unnatural adhesions between the tissues or in consequence of the vulnerable position of the cicatrix of the stump. The prophylaxis of these, to say the least, unfortunate sequences consists, from my standpoint, in the following steps in the procedure of an amputation:

1. Purification of the instruments, the disinfection of the hands of the operator and of the entire limb of the patient.

2. The production of artificial anemia by elevating the limb and the application of the constrictor several inches above the point at which it is proposed to amputate.

3. Fashion a long anterior flap by extending the incision down to the sheaths of the muscles and tendons. The entire flap is reflected by dissecting closely to the muscle and tendon, a short posterior flap is reflected backward by a like dissection, when the muscles are severed by a clean circular sweep of the knife down to the bone.

4. About one inch of the periosteum is then exposed below the point at which it is proposed to saw the bone. The periosteum now being incised is reflected upward, after the fashion of a cuff.

5. The soft parts are now to be retracted by an assistant by means of iodoform gauze. The bone is then sawed at an oblique angle for about a quarter of its thickness, when the saw is withdrawn and placed at a right angle with the shaft of the bone and the bone is sawed off.

6. The end of the bone is now carefully trimmed and rounded, the periosteum brought down accurately over the sawed surface of the bone and carefully sutured by means of a small needle armed with very fine, perfectly sterilized silk.

7. The sheaths of the artery and vein are now carefully dissected up, these vessels exposed, the artery first ligated, then the vein ligated separately, after which a single ligature is thrown around both and tied. The sheaths with the attached connective tissues are then carefully sutured over the ends of these vessels by the same means as were employed in covering the bone.

8. The nerve is now dissected from its connective tissue attachments and exposed for two or two and a half inches above the divided muscle, then cut off by means of blunt-pointed scissors. The sheaths and remaining connective tissues are now brought

over the ends of the divided muscles and sutured in a similar way to that adopted in covering bone and vessels.

9. A large compress of iodoform gauze is now folded tightly against the stump and the skin flaps brought down over the gauze and held firmly and forcibly against the stump in both hands of the operator, when after the lapse of four or five minutes the constrictor is quickly removed. After the expiration of several minutes more, the operator's hands are relaxed, the iodoform gauze tamponade is removed and the stump carefully inspected, when, if all hemorrhage has ceased and the conditions are favorable for rapid and uninterrupted repair, the flaps are carefully and accurately sutured by means of medium-sized, perfectly sterilized silkworm gut.

10. The wound is now dusted with powdered iodoform, several layers of iodoform gauze brought in contact with the stump, then over this and including the entire leg is placed a heavy layer of absorbent cotton. This is held in position by means of a neatly applied roller bandage.

11. The limb is now placed upon a well-padded posterior splint and another roller made to include this splint and limb.

12. The patient is then put to bed and the limb kept elevated at an angle of about 45 degrees.

I consider the details briefly outlined above, to be absolutely essential in order to secure the prophylaxis of infection, unnatural adhesions and proper position of the cicatrix. These rules will apply to amputations at other points than this.

The chief points to be observed in performing an amputation, according to most of the text-books do not entirely cover what I deem to be wholly essential in order to secure the very best results. For example, if we turn to this subject in the "American System of Surgery," a book which has just passed through the press, we find the subject matter embraces about the following precepts:

"If the conditions essential to a sound and useful stump are constantly kept in view, any of the stereotyped or extemporized methods may with patience and dexterity be made to yield good results. The recognized methods of amputation are circular, the single flap, the double flap, the rectangular flap, the bilateral flap, the periosteal flap.

"The wound must be closed and dressed according to certain principles. The application of hot water by rapid douches to amputation wounds is an excellent method of arresting hemorrhage and preparing the surfaces for prompt union. The hot water must not be allowed to remain in contact with the limb. The vessels having been secured, if the fibrous sheaths are seen, as in amputations at the metacarpal phalangeal articulations, close them with two or three fine sutures, then close the wound with two or three deep and several superficial interrupted sutures. Place in the angles of the wound proper drainage tubes, so as to relieve it of all accumulating fluids. Support the parts in such a manner, by splints, or slings, or pads, that they need not be moved in dressing. Apply such dressings as will support and protect the wound, but admit of easy change."

I do not agree with this teaching, for, in the first place, I think that the indiscriminate use of the drainage tube is unscientific and certainly a prolific source of infection, and hence a practice that is likely to terminate in destroying all the good effects which

would otherwise have been obtained by the scrupulous observance of the steps described above, for when the stump becomes infected, then follow suppurative inflammation and ulceration, with all the baneful sequences. In the repair of inflammation; that is, in the restoration of the tissues to their normal integrity, not only must the inflammatory exudation be removed, but the injury of the tissue caused by the inflammation in the first place must be repaired. In any inflammation there is always a destruction of tissue. Disorganization of the effects of your handicraft on the tissues destroyed must be replaced by a new formation of tissue. Furthermore, by careful and somewhat extensive clinical observation I am clearly convinced that the irrigation of a stump for simple hemostatic purposes is unnecessary, unscientific, and many times a cause of infection. Dry sponging after careful hemostasis by means of the ligature and pressure are productive of far more satisfactory results. Drainage is unnecessary to relieve the accumulation of blood beneath the flaps if the vessels have been properly secured, for the clot which forms to fill up the space underneath the flaps proves to be one of the wisest provisions of nature in hastening permanent and accurate healing. The clot itself being entered by leucocytes in the first instance and subsequently plasma cells penetrate; the latter of which organize into fibrous tissue, while epithelium after a time spreads over its surface.

In the next place, I do not agree that the best results can be obtained by amputating in such a manner as will leave the cicatrix directly over the end of the stump, either transversely, vertically or obliquely. The position of the cicatricial tissue should be remote from the end of the stump. The suggestions of C. W. McCullough, the artificial limb maker of St. Louis, in this respect, I dare say, possess great value, for he tells us that "in all amputations of the leg and thigh, as well as knee disarticulations, the cicatrix should, as far as possible, be placed well away from the extremity of the bone, preferably along the posterior aspect. Contiguity or adhesion of the cicatrix with the extremity of the bone is frequently the cause of suffering. All stumps should be provided with ample flaps, not redundant flaps; a redundancy of tissue on the extremity of a stump is of no advantage. The prime office of a flap is to protect the extremity of the bone, and it should be only ample to effectually perform that function. Whether the flaps are anterior or posterior, exterior or interior, or a combination of any of the four, it matters not so long as the extremities are well protected. Periosteal flaps are desirable, as they give additional protection to the bone and prevent integumentary flaps from becoming adherent to the bone. If an amputation is to be done below the middle third of the leg, bones should be sacrificed in order to obtain a suitable flap. If the amputation is to be made above the middle third, bone should not be sacrificed, even if transplantation is necessary in order to secure a flap. Every inch of healthy bone above the middle third is desirable for leverage purposes. If a thigh amputation is to be done close to the knee, bone can be sacrificed in order to secure a flap. The nearer the amputation is to be done to the body the greater should be the care to save bone."

While our methods to secure aseptic surgical results are almost perfect, it has been conclusively demonstrated, I believe, to the mind of every observ-

ant surgeon, that it is in some instances impossible to render the skin of the abdomen through which a given operation is to be made perfectly free of pathogenic microbes. The circumstance is constantly being forced upon the surgeon's clinical observation that there are pyogenic bacteria living beneath the external layer of the skin which can not be removed from their habitation by measures that will not entail destruction or at least impair the function of the skin of that particular area. We furthermore realize that pathogenic bacteria never migrate beyond the integument unless an avenue is established for their passage. We know also that the integument is the great bulwark against the entrance of pathogenic microorganisms to the underlying tissues, but which when reached there is every requisite for their rapid growth and multiplication and the production of their toxins. So it may be said that the intact skin is invulnerable to these bacteria while, on the other hand, the underlying tissues are positively vulnerable; that is, the former is an absolute hindrance against the pathologic effect of the pus microbe, while the latter furnishes an ideal soil for its growth. These facts must be kept constantly before us if we hope to attain something approaching the ideal in the prophylaxis of infection in operative surgery. I am impressed with the belief that it is absolutely incumbent upon us, in the light of our knowledge respecting this subject, to undertake to revolutionize the unscientific and the unfortunate practice of closing a wound through the abdominal wall by including the skin, fascia, muscle and other tissues by one single suture. It is in dealing with the abdominal cavity that the greatest exploits of surgery have been achieved—exploits surpassing everything that was formerly conceived. The peritoneum which used to be a *noli me tangere* is now entered and closed as fearlessly, especially by the gynecologist, as if it were the playground of surgery.

I have here several photographs intended to illustrate the same idea of prophylaxis in operative surgery that is conveyed in the steps describing an amputation. The flap method and the plan of uniting the underlying tissues should be extended to all of the operations through the surface of the body, particularly in celiotomy, herniotomy, in exposing the stomach, gall bladder and the kidneys. So that it may be understood that my chief aim is that in opening the abdomen, in opening joints, in shortening tendons, in which the skin is non-adherent, in operations upon the patella, skull, or elsewhere, the surgeon should avail himself of the advantages of the prophylactic flap. The chief advantage, as I have already said, consists in placing the wound in the deeper parts at a distance from the skin wound; that is, the skin over the deeper wound is not interfered with, but supports the deeper tissues which have been divided, and rapid healing must take place, hence the risk of infection of the deeper parts from impure skin is reduced to a minimum. In suturing the skin, silkworm gut is always used. The suturing material for the underlying tissues may consist of very fine silk. I need not refer to the necessity of having these suture materials perfectly pure. The former may be boiled five minutes in alcohol, and the latter kept in an Arnold sterilizer for fifteen minutes.

The many advantages of the preliminary flap, recognized by both Horsley and Chiene, are truly of great value, but the scope of general usefulness of

this plan of operating is almost without limitation. I repeat, that as a prophylactic measure against infection, it possesses advantages that can not be equaled by any other known plan, but as a prophylaxis against unnatural adhesions between the skin and subjacent tissue composing the area of a surgical wound, its value can scarcely be estimated. Consider, for example, the remote effects of a straight cut through the skin immediately over the breach of a transverse fracture of the patella, where the fragments have been operated upon for the purpose of securing direct fixation of these fragments. We see a strong unyielding fibrous union between the two cicatrices. The cicatrices becoming amalgamated, the mobility of the patella is lost, and there can be no motion of the patella without dragging the skin with it. This circumstance renders motion of the knee-joint not only painful, but limited. Impairment of function of the entire joint is an unavoidable consequence, and the weight of the person's body can never be supported upon the bended knee, an unfortunate condition that lasts as long as the individual himself, all resulting from defective surgery and not from the actual effects of the original injury, as is too frequently charged.

I have formulated the salient ideas of this paper in the following conclusions, viz.:

1. The value of prophylaxis, in operative surgery as it relates to the formation of the flap and the apposition of homologous tissues, is not apparently fully appreciated by surgeons.

2. In order to derive the greatest benefit from the prophylaxis of infection and the unnatural union of tissue, a flap should be so fashioned in all operations as to carry the cicatrix of the skin away from the incision wound through the underlying structures, and each tissue brought in apposition with its own kind.

3. The particular point at which an amputation is made is not so important with reference to the adaptability of the stump to prosthetic apparatus, as is the execution of the proper technique of the operation.

4. The artificial limb maker of St. Louis appears to be able to adjust artificial limbs to a great variety of stumps and at the same time afford the patient every facility of easy and perfect locomotion by the use of any compensating appliance manufactured, provided the operative procedure outlined in this paper has been completely executed.

5. The flap should be reflected with subsequent suturing of homologous tissues in operations upon all parts of the body, under the same general principles as are above described, of amputations including herniotomy, supra-pubic cystotomy, celiotomy, gastrotomy, cholecystotomy, nephrotomy, etc.

6. If a wound is made and the operation completed in manner outlined, through unbroken skin and not in the vicinity of, or in communication with some mucous canal and suppuration takes place, it indicates that the surgeon has certainly committed some unavoidable error in his methods.

7. Drainage is never necessary, following an operation conducted in this way through unbroken skin, and into an area free from infection. All such wounds should be tightly closed without drainage, for if the surgeon's aseptic measures are perfect there can be no other necessity for drainage.

8. In the light of Muttman's investigations we may draw the inference that the drainage tube ex-

poses the patient at the deep end of the tube to seventy-eight different species of cutaneous bacteria, and Welsh has shown clearly that one pyogenic variety is resident in the epidermis normally and occupies such a position as to render it safe from any known means of cutaneous disinfection but is prone to travel down along the sides of a drainage tube, and in this way to cause the wound to suppurate.

9. Blood in a wound is not dangerous and where, for the obliteration of cavities therein, the choice lies between a blood clot and the introduction of a drainage tube, which is not only a foreign substance but a prolific cause of infection, it is therefore safer to take the chances with the blood clot.

10. Blood furnishes bactericidal properties, and experiments made by three gentlemen of this city who have become justly distinguished in their respective branches (I mean Welsh, Howard and Halstead) show that virulent pyogenic staphylococci injected into blood clots which have been allowed to fill wound cavities did not multiply and occasioned no suppuration. Irritation of an aseptic wound should never be employed, and the irritation of such a wound with chemic antiseptics can only be contemplated as a coarse and unscientific practice.

11. Iodoform is the ideal antiseptic powder for dusting the line of union of a sutured wound, despite all that has been said against it. It must be conceded that no equivalent for iodoform as a prophylaxis in surgery has been found.

12. The chief aims which the surgeon should try to achieve are: the rapid and undisturbed healing of wounds, the prevention of deformities and the resulting suffering of the patient which cause many to become the victims of evil and vicious habits, the prolongation of human life and usefulness, and, for the attainment of these ends the science of prophylaxis demands prominence and careful consideration in the practice of surgery.

THE MEDICO-LEGAL EXAMINATION OF THE RED STAINS FOUND ON THE CLOTHES OF CHARLES FORD, WITH A PLEA FOR THE USE OF THE CAMERA LUCIDA IN THE MICROSCOPIC EXAMINATION OF BLOOD STAINS.

Read before the Denver and Arapahoe County (Colo.) Medical Society.

BY E. R. AXTELL, M.D.

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The following is the newspaper account of the tragedy which made my services necessary to the district attorney. It is taken from the *Denver Republican* of Sept. 16, 1894:

"In a dingy brick shack, where scarcely a ray of sunlight ever warms the interior, the dead body of Sadie Smith, a woman about 45 years of age, was found yesterday afternoon about 1:45 o'clock. All the evidences of foul play were upon the body, and little room for doubt remains that the unfortunate woman was the victim of a foul and atrocious murder.

"The murdered woman had been living for nearly two years with a colored man named Charles Ford. They had occupied three rooms in the little brick building in the rear of 1435 12th Street since they became acquainted. Their lives since then have, it is said, been an almost continual round of quarrels and some of the people resident in the

neighborhood say that the white woman and colored man led an existence full of bitterness and struggle.

"Little of the immediate events which led to the terrible deed of yesterday are known. The most that can be gleaned of the woman's movements is that she was alive about 10 o'clock yesterday morning, when she was seen by Mrs. Kleufer, who lives near by. At that hour she went to the fence of Mrs. Kleufer's home and piteously asked Mrs. K. for a nickel. She did not give any reason for the request but Mrs. Kleufer honored it, thinking it was for some necessity. The dead woman had a cut over her right eye which Mrs. Kleufer noticed as she handed her the coin. Beyond this, she says, she noticed nothing unusual about Mrs. Smith. Another neighbor said that Mrs. Smith passed along the alley way shortly after 10 o'clock with a can in her hand as if she was on an errand for beer. This woman avers that Mrs. Smith said "her old man had beaten her again," but further than this observation she did not pass any comment.

"Subsequent to this, nothing appears to be known of the woman until her dead body was found by Ford and some of his friends at 1:45 o'clock. When found she was lying on the bed clothes in a clean undershirt, and with every indication that the body had been very recently subjected to a washing process. Ford did not betray any unusual excitement when confronted with the spectacle, and was loth to express any opinion.

"On every side in the illy furnished house was evidence of a deliberate and consistent attempt to obliterate all traces of the killing. The floor had been scrubbed, the walls here and there wiped down and the bed rearranged.

"The condition of the body when discovered presented a revolting picture. The back of the skull was beaten in until a large hollow was formed, which was filled with blood and hair. A contused wound was over the right eye, while the face was one discolored piece of flabby flesh. The woman's clothes had been removed and an undershirt of cotton texture had been placed on the body. An examination of the lower portion of the body disclosed deep scars upon both thighs. They were of such character as would be inflicted with some blunt instrument.

"The murder was probably committed in the third room, or that which Ford says he occupied. The floor of this room was covered with blood. Near the bed a large pool, about a foot in diameter had formed. In this pool portions of the woman's hair remained. Between this room and where the woman was found is the kitchen, which was also utilized as a sitting and dining room. Undoubtedly the body was carried from the scene of the murder through the kitchen to the room where it was discovered.

Ford's movements after 9 o'clock are not defined. At 4 o'clock in the morning he left the house, to work in Mike Harris' saloon at 15th and Wazee Streets. His story is that he went to the market to get some meat and returned to his house about 9 o'clock. He knocked for admission and called, "Sadie" several times, but could get no reply. He put his meat on top of the shanty and went away and came back between 11:30 and 12 o'clock and made inquiries for the woman. Not learning anything definite of her, he sought a colored friend named Abe Brown and together they went and broke in the door of the shack. His story is that when they broke in the door they found the woman in the condition she was in when found by the officers, to whom Ford went with the information of the murder.

"Ford's story does not tally exactly with those of reported witnesses to his movements. It is said that he was seen entering the house between 9:30 and 10 o'clock, and that about 10:45 o'clock he left with a bundle of clothes wrapped in a newspaper, outside of which was a coat wound around the whole. He was absent about half an hour and came back then without the bundle and with the coat thrown loosely over his right shoulder. After this his actions appear to be lost in darkness, as no one has been found who saw him later than 11:30 o'clock. When Ford was arrested he had on clothes which he had not worn for any length of time. His underclothing had been recently put on and to all questions concerning the location of the clothing he had worn early in the day, he maintained a stolid silence.

"From a study of the wounds, the murder was evidently committed with a flat iron weighing nearly two pounds. This instrument was found in Ford's room, besmeared with blood and with portions of the woman's hair clinging to it."

This, in detail, was the story as first told. Slowly a net of circumstantial evidence was wound around Ford until the presumption was very strong that he was the murderer. He persisted in his story, how-

ever, and denied that he had killed the woman. His old clothes, the ones which witnesses stated he had on in the morning when he went to work were found in a distant out-house. Here and there over the clothes were a number of red areas and stains which looked like blood. When questioned about it he said that it might be blood, that he had been hunting a few days before and that he had carried his game across his left shoulder. He was asked as to the nature of the game and he replied: "Oh, some rabbits, a few birds and a black snake." He stoutly denied that he had worn his old clothes within a recent date.

On his shoes, which he wore when arrested, there were a few spots of red staining. When asked about this he said it came from a nose bleed which he had had that morning soon after getting up. Later it was proved that he had had his shoes blackened at about 9 o'clock of the morning the murder was committed, yet the staining was clear and outside of the blacking.

In October, 1894, District Attorney Robert W. Steele had worked up a most astounding array of circumstantial facts which tightened about Ford very closely. Finding that Ford had engaged counsel and seemed to be ready to make a determined fight, he asked me to examine the blood stains on Ford's clothing and on his shoes and to determine, if possible, whether they were of human blood. The following articles were accordingly put by him into my possession, Oct. 22, 1894:

One coat labeled, "worn by Charles Ford in the early morning of Sept. 15, 1894."

Shirt, pants and vest, labeled, "worn by Charles Ford in the early morning of Sept. 15, 1894."

One sombrero, without label, but understood to be the hat which Ford had on when arrested.

One pair men's shoes, labeled, "worn by Charles Ford, Sept. 15, 1894."

With these articles were a great number of odds and ends such as buckets, brushes, pillow cases, flat irons, handkerchiefs and a whip stock—all blood stained and all appropriately labeled. After the examination of the coat as labeled above, I dictated the following: "coat old and ragged, a faded blue check. Nothing like a blood stain is found on inner facing or lining or on sleeve lining. There are a number of grease spots on the right side but nothing resembling a blood stain. On the left sleeve, on its outer side, from the elbow down there are a great number of small and large areas of red staining, which are prominent to the naked eye and which look as though they had been brushed over with a cloth." On applying the chemic test for blood, this gave me a brilliant reaction. Of this test I shall speak later. Of the vest, shirt and pants, the following notes were made: "The vest shows no blood, neither on inner nor on outer side. The shirt is a flannel one with no blood on it. A few stains found on inside of the wrist of the right sleeve prove to be not blood on chemical examination. The pants are badly worn, especially in the seat. They are patched in a number of places, are very dusty and are very much wrinkled as though recently washed. On the right leg of the pants, at the bottom on the outer side posteriorly are five areas of reddish staining, varying in size from one-fourth to one inch in diameter, which to the naked eye give but slight appearance of blood, but by chemic test give blood reaction. Other obscure stains on front

of this leg gave blood reaction to a slight extent. The left leg presents a number of areas, some very large, which present all appearances of blood stains and which when tested give the blood reaction."

"The sombrero, of a dull gray color, is old, worn and torn. On the crown are eight or ten small spots and one large one, all of which present appearances of blood and all of which give blood reaction to the chemic test. On the upper surface of the brim there is one streak of blood, one inch in length and one-quarter of an inch in width. This is a very prominent blood streak. The right shoe shows a thin brownish film over the outer side of the upper for a distance of two inches. This film is external to the blacking and can be scraped off without disturbing the blacking. On the instep of the sole of this shoe there is a small blood stain. On the left shoe, on the inner side of the upper, there is seen a small brownish film, external to the blacking."

My first examination was thus purely one of general appearance, plus the use of the chemic test. In my examination of the general appearance, I used a small magnifying glass constantly. The chemic test for blood, for any kind of blood, is a simple one but of great value because of its accuracy. It is called the guaiacum test for blood. When a red substance is thought to be blood, a bit of it can be moistened, if necessary, by distilled water and after it is gotten in solution, placed on a piece of white blotting paper. On the stain thus formed a drop of the tincture of guaiacum is added. This tincture should be fresh and made from the inner portion of the pearls of the gum. If the stain turns blue with no other treatment it is not blood, but if it contains blood it also contains starch, a salt of iron or some other foreign substance. If no change follows the application of the guaiacum, drop upon it a little watery solution of peroxid of hydrogen, when if it is blood, it will quickly assume a beautiful sapphire-blue color. By this test I have detected a particle of blood which was scarcely visible to the naked eye. It has a few fallacies which must be spoken of. Never must the guaiacum and peroxid of hydrogen be mixed before application. Always apply the tincture of guaiacum first and add the peroxid afterward. Any acid containing iron vitiates the guaiacum test. Some kinds of paper sized with alum contain iron and turn blue with guaiacum. Gluten and starch turns guaiacum blue without peroxid. If no blue color is produced by adding tincture of guaiacum and if then hydrogen dioxid is added and a blue color is produced quickly the substance examined is almost certainly blood.

In my examination of the stains in this case, I either scraped a small bit away and got it in solution, or I added to the stain a bit of water and later a drop of tincture of guaiacum, and later still a drop of hydrogen peroxid. Then by pressing white paper against it, paper free from alum and iron, I got the blue color from the stain, printed on the paper.

The chemic test told me positively that I had blood on the clothes examined. But I followed up this test by getting a quantity of the blood stain in solution and boiling it in a test tube. Heating caused a deposit of gray flocculi, a mixture of fibrin and albumin. This flocculi was readily dissolved by liquor potassæ, while chlorin, hydrochloric acid or nitric acid caused it to reappear. This is characteristic of a solution of blood.

Another property that my solution had was that a

small quantity of liquor ammonia did not change its color, but that heat did. There is no other red solution that will present such a characteristic beside blood.

Lastly, I obtained from the stain, the hæmin crystals. There are easily obtained by digesting for twenty-four hours the scraping of a stain in glacial acetic acid to which has been added a trace of chlorid of sodium. By allowing this red acid solution to evaporate slowly, a great number of crystals appear in the form of rhomboidal plates of a yellowish red or brown color. In a systematic examination of blood, my next one should have been a spectrum analysis of it, but I did not own a micro-spectroscope and as yet have not obtained one.

I proceeded next to the microscopic examination. My first consideration in this examination was how best to bring back the dry blood stains to a solution in which the corpuscles would regain their usual size. Many formulae were found, for all of which it was asserted that the solution would not increase nor decrease the dimensions of dry blood corpuscles beyond their normal size. I made use of five fluids.

Robin's distilled water with chlorid of sodium, 1 per cent. and bichlorid of mercury one-half of 1 per cent.

Hayem: distilled water with sulphate of sodium, $2\frac{1}{2}$ per cent., pure salt $\frac{1}{2}$ per cent. and bichlorid of mercury $\frac{1}{4}$ per cent.

Richardson: a three-fourths of 1 per cent. chlorid of sodium solution.

Sherman: a 33 per cent. solution of caustic potash.

Glycerin and water mixed in such proportions as to give a specific gravity of 1028. After an extended trial of the various solutions, I discarded all but the last two. With these, I obtained corpuscles perfectly restored and presenting all the appearance of the fresh living cell. The caustic potash solution gave me quick results and fine corpuscles, but after a short time the field would have a multitude of small air bubbles through it, so that I could not study the fields as I wished. I do not know why these bubbles appeared. Prof. J. A. Sewall, in a medico-legal case in which he investigated some blood stains, found the same objection to its use.

The glycerin solution was slow in getting the stain in solution, but beautiful cells were found after a time. It kept some fields in excellent shape for several days. Usually I added some carbolic acid to the water with which I made my glycerin solution.

In making a cover-glass preparation for study, I took a bit of the blood stain from the clothes by gently scraping the stain with a tracing needle and receiving the dust stain upon a glass slide. I then placed a large cover-glass over it and introduced by capillary attraction the fluid destined to separate the corpuscles and restore them to their normal condition.

I first studied the restored corpuscles to get their general characteristics. I found that they were all circular, that all of the corpuscles which appeared fresh were bi-concave disks, that they had a fairly uniform size and a faint yellowish or brownish color. No nucleus was apparent in any cell and in size the corpuscles with a medium power, approached closely that of human blood.

After examining many different stains, I could positively say that not a single oval nor elliptical

corpuscle was present and that not a nucleated cell was to be found. I could now rule out from consideration that part of Ford's statement in which he asserted that these blood stains were stains from "some birds and a snake," as the red corpuscles of both birds and snakes are elliptical, generally large, with a nucleus; while those of man and all mammalia, except the camel tribe, are circular and small.

His statement that the stain might be rabbit's blood was the one that caused me to earn my fee. I had now to measure the corpuscles found in the stain and to compare this measurement with that of human blood. The diameter of the human red blood corpuscle is given by Gulliver, Wormley and Treadwell as 1-3200 of an inch, and that of the rabbit by Gulliver at 1-3607, by Wormley at 1-3653, by Treadwell at 1-3984 of an inch. Assuming that 1-3600 and 1-3700 of an inch is the ordinary range of the size of a rabbit's corpuscle, we would have between such a corpuscle and that of the human blood a difference of fully 1-450 of an inch. With a medium power such a difference could not be easily detected, but with a high power we could magnify the difference, as it were, and thus could easily detect it. This is the secret in the comparison of blood discs.

In the West we have a rabbit that is not common in the East. I refer to the long-eared jack-rabbit. I could find no measurement of its corpuscle. The defense might insist that the blood stain was that of a jack-rabbit, so it had to be considered.

For the sake of comparison, I proceeded next to make permanent mounts of blood. I made a mount of my own blood and in a similar manner made mounts of the blood of the cotton-tail and jack-rabbit. As my working time was short, I was not able to procure live rabbits but bought rabbits which had been killed a few hours previous and took the blood examined, from the cavities of the heart. My method of making these permanent mounts was as follows: films of the blood were spread on cover-glasses in the usual way, and placed while yet moist in a saturated watery solution of mercuric bichlorid for half an hour. At the end of this time the solution was washed away with a $\frac{3}{4}$ per cent. solution of sodium chlorid. The film was next hardened by immersion for a few minutes in methylated spirit and subsequently in absolute alcohol. Staining with eosine and hematoxylin was then performed in the usual manner. The nuclei of the leucocytes were stained by the logwood, while the red corpuscles were stained entire by the eosine. By this method I made some beautiful mounts which are as good to-day as they were when first made.

I had now gotten to the place where the measurement of the corpuscles of my permanent mounts and their comparison with the corpuscles found on the clothes was all that remained, provided that I could be sure that my permanent mounts lost nothing by the method employed, and that my solutions employed for restoring the blood stains did all that they were supposed to. The method of making my permanent mounts was first recommended by Dr. Muir in the *Journal of Anatomy* and he asserted that the corpuscles retained their exact shape and size. I measured a number of my corpuscles, both in a fresh state and in my permanent mount and they showed no variation, so I could eliminate the first doubt. As regards the second, I found that by taking a known blood stain, that with my solutions

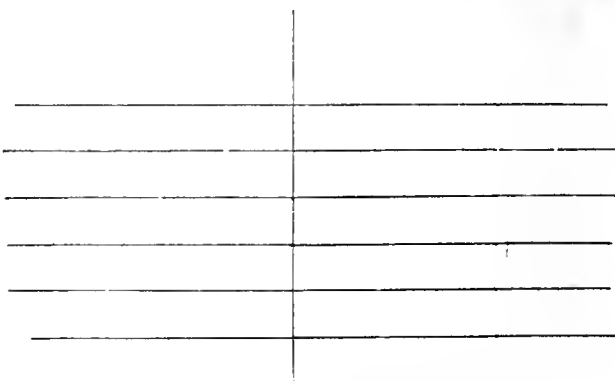
I could restore the corpuscles in it to the exact size that they presented in a fresh state.

The next question was how best to present the matter of measurement of blood corpuscles to an ordinary jury. I decided upon the use of the camera lucida. I was largely guided in this matter by the following extract taken from Carpenter, "The Microscope and Its Revelations," Seventh Edition, page 226:

"It is of the utmost importance to be able with accuracy, and with as much simplicity as possible, to measure the objects or parts of objects that are visible to us through the microscope. The simplest mode of doing this is to project the magnified image of the object by any of the methods described under 'Camera Lucida and Drawing.' If we carefully trace an outline of the image, and then, without disturbing any of the arrangements, remove the object from the stage, and replace it with a 'stage micrometer,' which is simply a slip of thin glass ruled to any desired scale, such as tenths, hundredths, thousandths of an inch and upward. Trace now the projected image of this upon the same paper and the means are at once before us for making a comparison between the object and a known scale, both being magnified to the same extent. The amount of magnification in no way affects the problem. Thus if the drawn picture of a certain object exactly fills the interval between the drawing representing the .01 inch, the object measures the .01 inch, and whether we are employing a magnifying power of a hundred or a thousand diameters is not a factor that enters into our determination of the size of the object.

"In favor of this method of micro-measurement, it will be noted: 1, that no extra apparatus is required; 2, that it is extremely simple; and 3, that it is accurate."

I had at my command an Abbe's camera lucida and with a Faslott stage micrometer graduated in 1-5000 of an inch, I projected upon paper this scale, using my highest power.



The combination of power was as follows: Leitz's Ia stand, oil immersion objective 1-12, No. v eyepiece, draw tube at 160 m.m.

Having this scale carefully and accurately drawn and proved by several careful observers, it was an easy matter to make any number of such scales by simple measurement and the use of my drawing instruments. Each division of the scale represented 1-5000 of an inch as projected by my combination. By dividing each division up into fifths, I was able to measure 1-25000 of an inch, and not only do it accurately but easily, and demonstrate it to any one.

I now measured twenty corpuscles of the permanent mount of my own blood. The following shows these corpuscles in the scale:

In dividing up the scale and by a careful computation, I found the average diameter of these corpuscles to be 1-3175 of an inch, a little less than the measurement usually given.

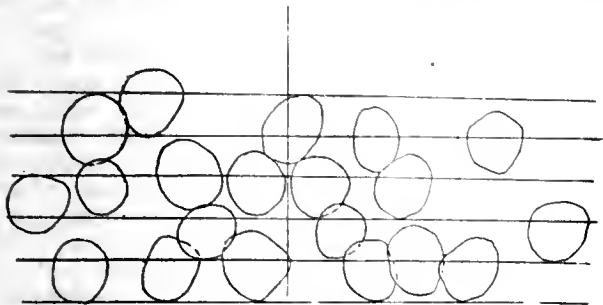
Next I measured the cells found in the blood of the jack-rabbit. These cells proved to be very small

and, as far as I have been able to ascertain, have not been previously measured. Diagram No. 3 shows twenty of these corpuscles. A careful computation of the average size of one hundred of these corpuscles by the camera lucida method gave a diameter of 1-6250 of an inch.

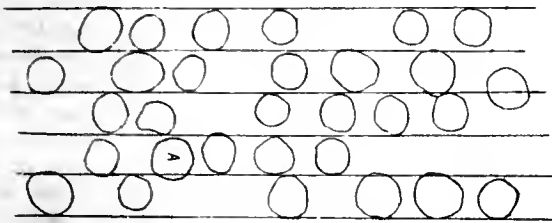
My next step was the measurement of the blood cells found in the blood of the cotton-tail. Diagram No. 4 shows by comparison the size of these cells as compared with those of human blood and blood from the jack-rabbit.

On diagram No. 4, I demonstrate the method of measuring up to 1-70000 of an inch. I do this by simply dividing my 1-5000 scale up into fourteen parts. The corpuscle on this scale occupies eighteen of these parts. It is then 18-70000 of an inch in

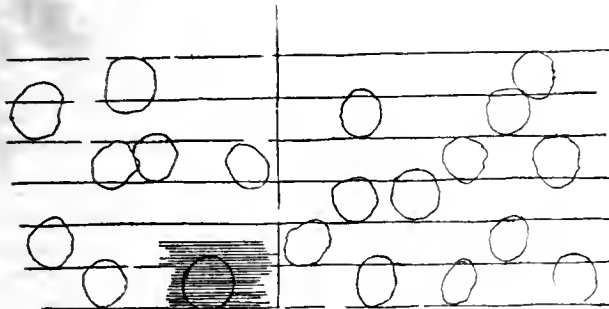
be found in a scraping of a blood stain: bits of cloth-fiber, pieces of fibrin, masses of stain, granular *débris*, broken and twisted cells, bacteria, can be found and must be differentiated from the blood corpuscles. Unless one becomes very familiar with this subject, it is apt to be a perplexing study. Any round flat mass, though it may present irregularities is apt to be a blood disc. If it presents some straw or brown color and a marked different appearance on slight focusing, it is very probably a blood disc. If when the cover-glass is touched with a teasing needle it rolls over and you can get another view of it, you can often be absolutely sure that the mass is a bi-concave disc, a red blood corpuscle. Frequently you



No. 2— Human blood.



No. 3—Fresh jack rabbit's blood.

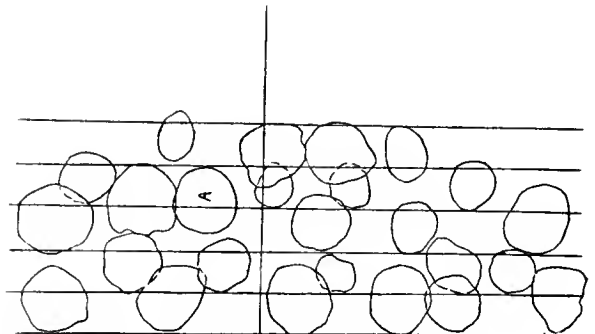


No. 4—Fresh cotton-tail's blood.

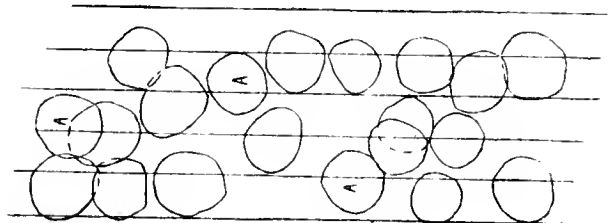
diameter or 1-3888 of an inch. This corresponds closely to the measurement given by Treadwell. This is but the measurement of one corpuscle. My permanent mount of cotton-tail's blood was not the success that my other mounts had been, as many of the corpuscles appeared to shrink by the treatment given them. Having now accurate diagrams of human blood and of rabbit's blood I was ready for the examination of the blood stains. These I prepared as has been detailed.

Diagram No. 5 shows the outline of the restored corpuscles as taken from the sleeve of Ford's coat. Twenty-five corpuscles are pictured of which eighteen correspond in size and measurement with human blood; seven are below this size.

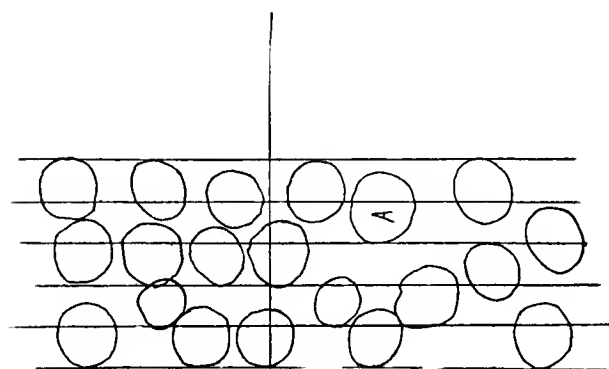
It is surprising what an array of odds and ends can



No. 5—From sleeve of coat.



No. 6—From trousers.



No. 7—From hat.

will find a cell that is just as clear as a fresh one can be. Such cells should be carefully drawn and designated. Cells A in the accompanying diagrams are such cells.

Diagram No. 6 shows the blood cells from the stains on the leg of Ford's trousers. For some reason these cells were the most perfect ones I found. Any tyro could tell that they were bi-concave discs and any one could have drawn their outline as easily as I did. There is hardly a cell shown that has not the outline of a human red blood disc.

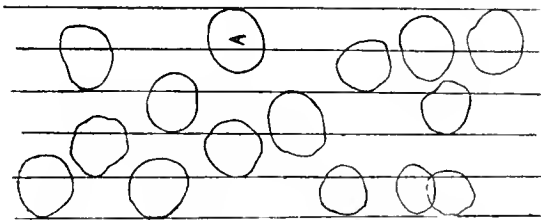
Diagrams Nos. 7, 8 and 9 show the corpuscles found in the stains of the hat, shoe and whipstock, with which he was supposed to have killed the woman.

As can be seen, most of them are of the diameter of the human red blood corpuscles, and but few approach in size those of the rabbit.

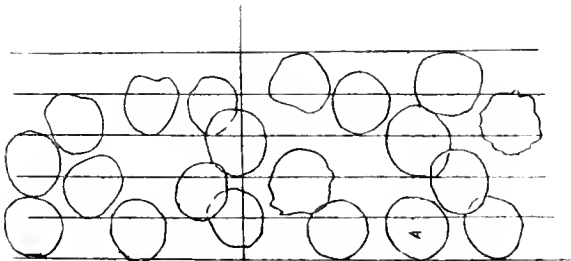
Having my exhibit thus arranged, I reported to the district attorney that the stains found on the clothes were blood stains; that the corpuscles found in those stains were not from the blood of a fish, reptile or bird; that they belonged to the blood of one of the class mammalia and corresponded very closely with those of human blood, and that they did not belong to the blood of the rabbit—neither the cotton-tail nor the jack.

I was summoned to appear before the court two days later. I intended demonstrating my method of work to the jury and showing them in detail how my results were obtained. When ready to visit the court I received word that my services would not be necessary, as Ford had pleaded guilty and that he had been sentenced by the judge to the penitentiary for life.

Thus my results received quick proof of their accuracy and reliability. By the simplest method known to the microscopist for the measurement of objects, I had settled a knotty problem, and had brought into a case of circumstantial evidence some positive evidence, which the prosecution needed.



No. 8.—Blood from shoe.



No. 9.—Blood from whipstock.

The method of micro-measurement by the camera lucida has certainly much to commend it in such cases as the one presented. It brings to the jury's eye your own observations, and it throws on them some of the responsibility which by other methods you must share alone.

It puts on paper for subsequent reference more than simple figures. This makes its value in work of this kind very pronounced. In the case just presented, the diagrams of comparison speak stronger than any array of figures. It can be used with accuracy by those who have had no previous experience in work of this kind, and by those who have not and can not obtain the expensive screw micrometer eyepiece.

The method and apparatus is simple and the calculation of the size of objects is easy. To get the diameter of a corpuscle in any direction, one has only to reverse the paper bearing the reading scale. This scale can be either in millimeters or in inches—according to the stage micrometer in use.

With it, one does not have to designate whether his measurement was taken from the outside or inside of the dark border of the corpuscle. A faint light is used, a flat image is thrown in every case and the corpuscle is drawn without shadowy borders.

The method employed in this case is certainly one to be commended in these examinations.

THE TREATMENT OF SMALLPOX PRINCIPALLY BY MEANS OF THE INTERNAL USE OF THE TINCTURE OF THE CHLORID OF IRON.

BY BEDFORD BROWN, M.D.

ALEXANDRIA, VA.

My personal experience in the observation and treatment of variola comprises about one hundred and fifty cases. About sixty of these were seen in the Confederate Army during the late war. The remainder were seen in an epidemic soon after the close of the war, and in an epidemic in this city about the year 1871. Of these cases, at least one-third were of the confluent form. The remainder were of the discrete type. Only about one-fourth of these cases had been vaccinated. In all those vaccinated the type was mild, what is known as varioloid.

In the year 1863, smallpox appeared in the Confederate Army in the department of North Carolina, extending from Petersburg, Va., to Wilmington, N. C., and threatened to assume dangerous proportions, as an epidemic. As medical director of the department at that time, I received from the General commanding, G. W. Smith, plenary powers to apply every means possible for its extinction. A universal system of vaccination was inaugurated throughout the department and re-vaccination in every soldier, when the epidemic was promptly arrested. This much can be said as evidence in behalf of the efficiency of vaccination as a prophylaxis of smallpox.

Of the ninety cases seen after the close of the war one was pregnant, a married woman with three children, all of whom had the disease. This woman was at about the eighth month of pregnancy when attacked and miscarried of a dead fetus when the secondary fever began. The fetus had incipient variolus eruptions on its body. The mother passed through the most severe case of confluent smallpox that I ever saw and finally recovered. She and her three children had never been vaccinated but all recovered. In the case of the mother, for the first three or four days after confinement there was a distinct effort on the part of the breasts at the secretion of milk, but it was soon suppressed. On the contrary, the lochial discharge continued for a period of two weeks in a normal condition.

Influence of Season on the Type of Smallpox.—I have seen cases of smallpox in all seasons of the year. In the dead of winter when the earth was covered with snow, and the temperature below zero, and again in the soft season of spring, in the torrid heat of July and in autumn and winter. I am really not aware that the type is affected in any way by these influences. I have seen confluent cases in the intense cold of January, and in July when the temperature was 96 degrees, pass through the stages safely. I have attended smallpox in both country and city practice, and I am constrained to believe that in the aggregate the type of smallpox in the unvaccinated

among country residents is milder than in city denizens. That is, there is a decidedly greater proportion of discrete cases among the former than the latter.

In the epidemic alluded to, which occurred in the spring just after the close of the war, in a southern village of some twelve hundred population, smallpox appeared in May; was contracted by the negro population just then liberated and the infection was spread throughout the surrounding country. There were hundreds of cases of the disease among this population, and probably not one in a hundred had ever been vaccinated. Yet not one-third of the cases were confluent, and a fatal termination was a rare occurrence.

This fact would indicate that the type of smallpox is favorably modified by pure fresh country air, free from overcrowding and the septic influences of a city atmosphere.

Inoculation with Smallpox Virus.—During this epidemic there were eight or ten persons who had been exposed to the infection of smallpox, accidentally, several days before they discovered their danger. Neither of these persons had been vaccinated and at that time it was too late for vaccination to afford them protection against infection. As they were very solicitous to be saved from an attack of smallpox, I determined to inoculate them with genuine smallpox virus taken direct from the pustule. They all assembled at the house of the smallpox cases and were inoculated directly from the pustules. They all did remarkably well. Every case proved to be a mild type of the discrete form.

Treatment.—The mild discrete form of smallpox needs but little treatment except cleanliness and careful nursing. An occasional aperient, soap and water to the inflamed skin and proper diet.

On the contrary, the confluent and more malignant forms of the disease, in my experience require active and energetic treatment from an early period, and the treatment in this form may be divided into the local and general, the antiseptic and sustaining. The pathologic condition of the system in the confluent variety would appear to be very analogous to that in which there is an enormous internal abscess filled with infectious matter which is constantly being absorbed into the circulation, causing genuine septicemia or pyemia.

When pus begins to form in the pustules of confluent smallpox, the secondary fever begins and not before. While the pustule contains pus, the primary fever which produces the pustules, or rather accompanies its development, when the pustule is fully developed suddenly subsides, and then ensues a period of apyrexia or rest. But when pus begins to collect, the whole phase of the case is promptly changed, and there are developed symptoms in rapid succession of septicemia or pyemia. This secondary fever must be accepted as a measure of the extent of blood poisoning.

The entire surface in confluent smallpox is denuded of its cuticle and is surrounded with a layer of poisonous pus, is literally bathed in pus for days, from which there is constant absorption of poisonous material.

From my earliest acquaintance with this disease, I was impressed with the fact that to counteract this condition of blood-poisoning, there were two classes of remedial agents necessary; the one sustaining, the other antiseptic.

General Treatment.—I do not know any better general remedy to counteract the effects of septicemia or pyemia than the old-fashioned tincture of the chlorid of iron. I so regarded it more than thirty years ago, when I witnessed the first cases of this disease, and then resorted to it freely. I published soon after the war, my experience with it in an article in the *American Journal of Medical Sciences*, and I have used the remedy in every case of confluent smallpox since, with the best results.

I begin the remedy in every case of the confluent form, from an early stage of the disease, previous to the appearance of the septicemic or secondary fever, and maintain it to the end. Twenty drops of the agent in a little water and glycerin is given every three hours. In addition to this, about 10 grains of quinin are given a day. In all bad cases, I give stimulants in the form of milk punch or egg-nog, and nourishing broths.

Local or Antiseptic Treatment.—My experience with antiseptic treatment convinces me that its value can not be overestimated. This can only be applied locally to the diseased surface.

In my first cases, I used chlorin water, the liq. chlori., diluted with water. The entire surface was bathed every three or four hours. The effect of this antiseptic bath administered at short intervals was excellent. Every pustule on the face should be split open with two incisions, crossing each other, with a delicate knife, the pus gently pressed out and the cavities subjected to an antiseptic, by bathing with either the liq. chlori., or a solution of permanganate of potash, two grains to the ounce.

This local antiseptic treatment will go far to prevent pitting. The case of the woman who aborted with confluent smallpox, alluded to above, was subjected to this chlorin treatment and she escaped without a pit. In addition to the chlorin and permanganate treatment, I should be tempted, now, in cases of this kind, as a further antiseptic measure, to resort to an ointment composed of ichthyol, aristol and euophen, to be applied over the entire surface after bathing with chlorin water. The mortality under this practice has been exceedingly small, not more than 3 per cent.

Believing as I do, that all the indications point to the secondary stage of smallpox as the period of danger, and that the danger of that stage lies in the presence of an enormous quantity of infectious pus being constantly absorbed, and acting on the blood of the patient as an infectious poison, I have, acting on this principle always treated smallpox as I would any other case of septicemia or pyemia arising from infectious causes, and the results have been satisfactory. The pustules on the skin constitute the local lesion which furnishes the septic poison, and while we sustain the vital powers of the general system, we must at the same time, be busily at work in disinfecting the local lesions, the source of the poison.

SERUM-THERAPY—STATISTICS UPON THE USE OF THE DIPHTHERIA ANTITOXIN.

BY G. C. CRANDALL, B.S., M.D.

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In following the abundant literature which has appeared during the past year upon serum-therapy, we find that the interest of the profession has been

gradually aroused, and with the many investigators in the field we may trust that the question will be fairly examined with every means and method at our command.

Before the discovery of the germ causation of disease, it was known that an attack of certain diseases effected a longer or shorter natural immunity against those diseases; and in more recent times since the germs of certain diseases have been isolated and cultivated, those best acquainted with theoretical and practical bacteriology have entertained favorable views concerning the possibility of artificially producing immunity against the diseases caused by certain germs.

In some diseases immunity can be established by the use of a modified, less virulent form of the germ, but this is not sufficient; more desirable is an immunity and therapeutic action which can be effected without the introduction into the human system of even the modified germ. For these purposes various investigators are experimenting with the so-called toxins, antitoxins and nucleins.

The present knowledge of physiologic chemistry is inadequate to fully explain the physiologic origin and action of these new elements, but it suggests the way, and many are now diligently searching for such anti-disease remedies, which may prove to be more worthy the name of specifics than any so-called drugs of the pharmacopœia.

The first of these remedies which has gained at least a temporary recognition by the profession, is Behring's diphtheria antitoxin. Having recently had access to the Library of the Royal College of Surgeons of England, I gathered as fully as possible, statistics upon the use of the anti-diphtheritic serum.

The following table includes most of the serum treated cases which have been reported. The results of some of the most extensive observations are given separately:

		No. Cases treated with serum.	Mortality in per cent.	Previous Mortality in per cent.
Vierordt	Heidelberg	55	14.6	58.0
Gaughofner	Prague	110	12.7	50.0
Wiederhofer	Vienna	100	25.3	42.8
Kossel	Berlin	350	16.7	34.7
Baginsky (quoted by Virchow)	Berlin	308	13.2	47.8
Sonnenburg	Berlin	107	20.6	27.6
Aronson	Berlin	190	14.0	37.0
Ranke	Munich	85	18.8	48.5
Saltman	Leipsic	122	18.0	
Risel	Halle	114	8.0	
Bonx, Martin and Chalilou	Paris	300	26.0	51.7
Lebreton	Paris	258	12.0	
Moizard	Paris	231	14.7	50.0
Washbourn, Goodall, Card and others	London	195	18.6	31.1
White	New York	32	25.0	42.7
Withington	Boston	80	16.0	45.0
Total number of cases		2,632		
Average mortality per cent.			16.8	
Previous average mortality per cent.				42.0
Collective report of other observers in different countries		4,022	17.1	

The above table shows a much lower mortality than has ever been generally attainable under former methods of treatment. Those who have used the remedy most extensively, report that the incidental action of the serum seems to be due to avoidable impurities and to the idiosyncrasy of the patient; also that paralysis, albuminuria, lung complications and necessities for operative procedures occur less frequently than under previous methods.

The relatively inexact method of determining the strength of the serum has been a barrier in the way

of exact dosage. If the chemist can separate the antitoxin element in a stable form, the dosage may be made more accurate, the administration simplified, and incidental action may be less frequently observed.

With the experience of the past year as a guide, the investigators hope to be able to show greater evidences of the value of serum-therapy. At the Pasteur Institute in Paris, experiments analogous to those with diphtheria, are being made with the virulent streptococci which cause certain severe, acute, inflammatory, suppurative conditions. A horse has been rendered immune against virulent cultures of the streptococci, and its serum is being used with suitable patients.

Dr. Paquin of St. Louis, is meeting with favorable results in his systematic experiments with tubercular antitoxin, and we shall anxiously await further reports upon his work.

Whatever may be our prejudices for or against serum-therapy, we should assist or at least encourage the investigators, and patiently await the development of such facts as will prove the question at issue.

PROFESSOR SENN'S NOVEL PLASTIC REPAIR OF CONTRACTURE.

BY MAJOR A. C. GIRARD, SURGEON U. S. ARMY.

FT. SHERIDAN, ILL.

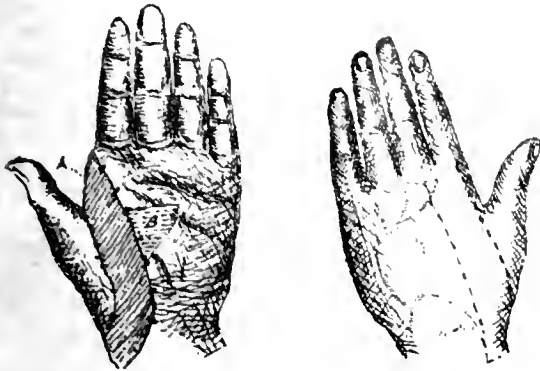
The following ingenious method devised by Professor Senn in his clinic at Rush Medical College, to replace scar tissue by sound skin, is well worthy of general notice. Without going into the history of operations tending to repair defects I will at once proceed to a description of the case:



Contractured fingers.

A child about 3 years old had been burned in the left hand some four months before, to such a degree that the cicatrization bound down and flexed the thumb and little finger in an absolutely useless and immovable position. The little finger was liberated by excision of the tendinous bands with comparative facility. To do the same with the thumb would leave a large raw surface. A flap from the anterior chest wall with fixation of the arm, was not feasible, owing to the tender age and consequent lack of co-operation of the child. A flap from the forearm twisted and turned into the palm of the hand, would probably become necrotic and leave matters in a worse shape. Skin grafting would not prevent contracture, and skin transplantation could not be thought of, on account of the lessened vitality of the tissues adjoining the defect.

After much deliberation, Professor Senn determined on a novel method by dissecting off a flap from the dorsum of the hand, adjoining the thumb, leaving both ends of the flap attached, and slipping it over the thumb into the place vacated by the excised scar.



A.—Volar side with flap in place. Dorsal side with outlines of flap.
B.—Grafted triangle.

An incision was started from the base of the first finger, carried obliquely upward to near the base of the metacarpal of the thumb; the second incision was parallel to this, about one inch toward the middle finger. The flap was carefully dissected off, preserving the subcutaneous veins. The doubt as to the possibility of slipping it over the bent thumb was soon removed by the ease with which it was made to assume its new place, where it was anchored by two rows of interrupted sutures. A small triangular defect between the flap and the base of the little finger was filled by Thiersch's grafts. The dorsal wound was easily united by interrupted sutures and the usual splint and dressings applied.

At the clinic, a week later, the child was exhibited; the flap had united *per primam*, the grafts adhered, the dorsal wound was closed and the thumb in its proper place. The prospect of permanent cure of the contracture was assured.

ENEMATA OF WHITES OF EGGS. MEMORANDUM.

BY JOHN ASHBURTON CUTTER, M.D.
NEW YORK.

Albumen of eggs is valuable to feed patients when other forms of nourishment can not be taken or to reinforce other nourishment. I have known patients to take the whites of eighteen eggs in one day with evident advantage, in some cases the result appearing almost life-saving.

Exhibition by the mouth is made in three ways: 1, raw; 2, raw with milk; 3, dropped in boiling water and slightly cooked.

Enemata of uncooked whites I have lately used with decided benefit. Administration by a Davidson hard rubber syringe No. 494, one ounce. Eggs vary in size and weight and should be sold by weight; the albumen of an egg varies in bulk from one-half to one ounce as eggs run.

Drugs can be administered with the raw albumen; sometimes a little laudanum is needed, but rarely, to quiet bowel. Patients state that an enema relieves the faint gone feeling in stomach, and such relief is longer than when the whites are administered by the stomach.

Equitable Building, New York.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

BY BYRON POSTINSON.

PROFESSOR OF GYNECOLOGY POST-GRADUATE SCHOOL,
CHICAGO.

(Continued from page 110.)

The splenic artery perhaps throws more light on the disposition of the mesogaster than do the gastric and hepatic arteries. The splenic artery arises from the celiac axis and passes at first, slightly downward and then toward the left along the upper border of the pancreas. It is a large spiral artery, but does not project the peritoneum into a very prominent fold, yet the outline of the fold is especially prominent in those animals in which the omentum and transverse colon do not have contact relations, especially at the left end. The prominent feature of the splenic artery in regard to the mesogaster is that the artery in its course lies to the left of the right blade of the mesogaster until it suddenly turns upward to gain access

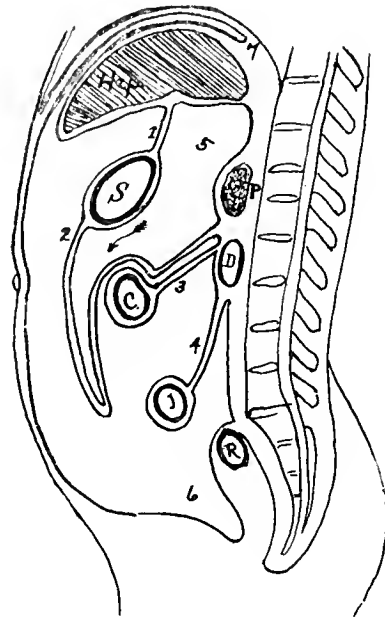


Fig. 22 is copied from the excellent anatomy of Prof. Gegenbaur (1881 German edition). It is chiefly to represent the views of an eminent comparative anatomist as regards the transverse colon and omentum. It may be observed that his idea is that of coalescence, for his mesocolon transversum consists of four layers (No. 3). 1, gastro-hepatic omentum; 5, lesser omental cavity; p, pancreas; 3, mesocolon transversum; 4, mesenterium; d, duodenum; c, colon; 2, anterior layers of great omentum; r, rectum; 6, great omental cavity; 7, reflections of coronary ligament; j, intestine. However, Gegenbaur mentions in his text-book the displacement theory without committing himself to it.

to the space between the blades of the ligamentum gastro-lienalis, but the other equally important feature is that the splenic artery for all its straight horizontal course lies against the posterior abdominal wall, *i. e.*, it does not lie against the left blade of the mesogaster, for that blade has by developmental processes been re-adjusted, displaced, or as some would argue, coalesced. In the process by which the liver forced the stomach to the left and downward and gave origin to the elongated mesogaster and lesser omental bag, the left blade of the mesogaster has been displaced to the left, hence the left and posterior surface of the splenic artery is without a serous cavity for the most of its trunk, or until it turns upward into the gastro-splenic ligament. The splenic artery being devoid of its serous covering for the length of the chief trunk, on the left side reveals

a developmental process in the original process of formation of the mesogastrium posticum or great omentum. This bearing of the splenic artery gives an actual demonstration that the left blade of the mesogaster is displaced to the left by some force. In fact, the left blade is displaced several inches or more to the left of its original insertion.

The process of re-adjustment, displacement (or even coalescence) is in accord with the previous assertion that serous cavities and their walls are nowhere primary, but always a secondary process which

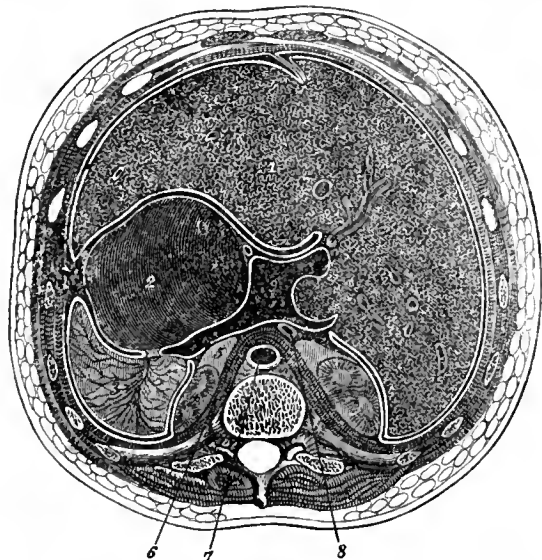


Fig. 25 (after Luschka, 1863) is a beautiful and accurate transverse cut at the level of the twelfth dorsal vertebra. This figure corresponds more exactly with my own dissections as regards the splenic relations of the peritoneum than any known to me. 1, liver; 2, stomach; 3, spleen; 4, kidney; 5, adrenal; 6, diaphragm; 7, thoracic aorta; 8, inferior vena cava; 9, cavity of the lesser omentum. Observe that there are two points where the spleen is uncovered by peritoneum, i.e., a strip at its hilus and a strip at its posterior border, e.g., near the adrenal at No. 5. This elegant and natural cut was also adopted by Dr. Bochdalek, Jr., in 1867, as a natural model.

is very active up to the sixth fetal month. Now, as the developmental process is the only key to the adult condition, we can only expect to understand the origin and formation of the great omentum by sticking close to the evolutionary processes in ani-

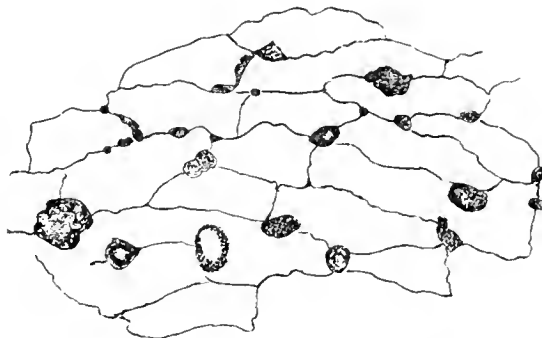


Fig. 26 (after Toldt, 1879) is introduced to show the shape of the epithelium which covers the surfaces of the mesentery. It is taken from the surface of the great omentum of a six weeks old child. It is magnified by Hartnaek's system, x1 ocul. 8.

mals. Man's embryo passes through all lower mammalian stages, but the transitions are so rapid and complicated that it is almost impossible with limited material to establish consecutive and logical facts in regard to such a delicate structure as the great omentum. However, in animals we find the evolutionary stages permanent in some animals, not reached in others and in still a few stages just approaching that

of man. So that the thread of development can be demonstrated by investigations in embryologic and mammalian life, far below man in structure.

In one series of fifty autopsies, I recorded the position of the omentum in regard to the cecum and found the omentum covered the cecum in about eight cases. This is significant, as the omentum is a highly important organ in an inflammatory peritonitic district like the appendicular. The omentum when it lies out of its normal position is apt to be rolled up behind the transverse colon. This, I think, is due to the emptying and filling of the colon with gas and feces. It may also be due to an occasional sudden filling and emptying of the small intestine with gas

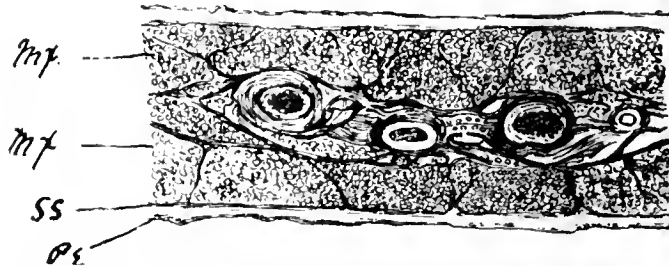


Fig. 27 (after Toldt, 1879) represents the three layers which compose a mesentery: *m p*, membrana propria mesenterii, i.e., the real neurovascular visceral pedicle; *ss*, subserosa; *p p*, peritoneal layers of epithelium. It is drawn from a cross section of the middle portion of the mesentery of a four year old boy. Enlarged seventeen times.

by acute indigestion, from disproportionate secretions and consequent fermentation. In some autopsies it was evident that the great omentum had been rolled up behind the transverse colon for some time, for it was fastened there by peritonitic bands. Also it seemed to become rolled up behind the colon by a slow gradual process. It is not a suddenly acquired position. The omentum was found rolled up over the colon some six to eight times in one hundred cases. The chief rolling is accomplished near the flexura coli lienalis, but in one case in a series of fifty autop-

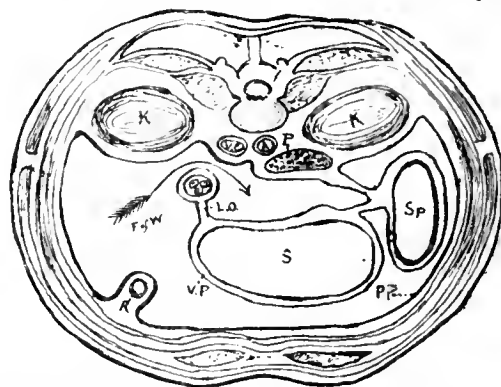


Fig. 28. I present cut to illustrate a cross section of the peritoneal cavity at a level of Winslow's foramen. *P p*, parietal peritoneum; *v p*, visceral peritoneum, stomach; *K*, round ligament of the liver; *L o*, lesser omentum; *P*, pancreas; *V*, vena cava; *A*, aorta; *K*, kidney; *F of W*, foramen of Winslow (the arrow points to lesser cavity of omentum). By this figure it will be noted that the spleen is uncovered in two strips, viz.: hilus and strip on posterior border.

sies, I noticed that it was definitely rolled up over the flexura coli hepatis; however, old peritonitis existed in this case. No doubt the position of the omentum is due to peculiar contractions and dilatations of the bowel, due to gases and feces and also to local peritonitis. In the case of the cecum, whenever very severe inflammations had existed in that region, the omentum was fastened there, but I noted with care that as a rule the omentum did not cover the cecum, but was no doubt displaced from the cecum by its

frequent contraction and distension by gases. It was common to find the lower edge of the omentum in all positions between the floor of the pelvis and the transverse colon, but generally ascending or shortening mainly along the left side. The contraction and distension by gas of a long large sigmoid no doubt aids in forcing the omentum upward. It does not appear from autopsies that repeated pregnancies induce the great omentum to enlarge and roll up.

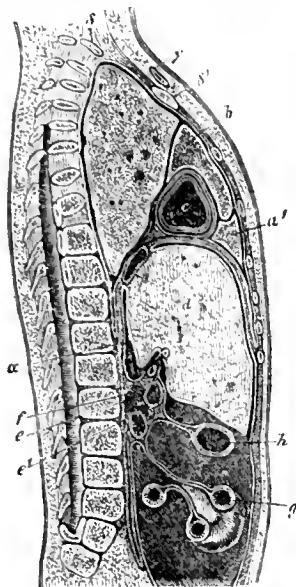


Fig. 29 (after Abey, 1871) represents a sagittal longitudinal section of the body of a new-born near its middle line. It is one-half natural size, and shows the left cut surface. *a*, lung; *c*, heart; *b*, thymus gland; *a1*, lower lobe of right lung; *d*, liver; *b*, inferior vena cava; *g*, lesser omental cavity; *f*, pancreas; *e*, upper and *e1* lower cross section of duodenum; *g*, small intestine; *G*, colon transversum. Observe how its liver and vena cava divide folds of peritoneum. The peritoneal line is white.

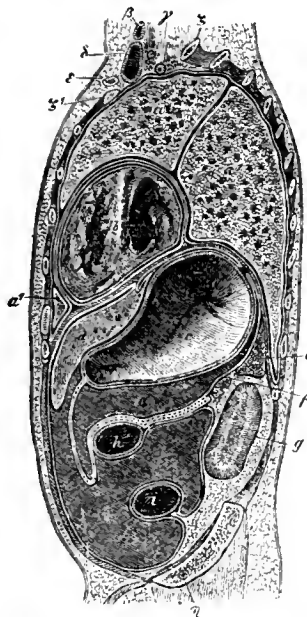


Fig. 30 (after Abey, 1871) is another fine cut from the excellent Swiss anatomist. It is a longitudinal section of a new-born, showing the right cut surface, one-half natural size. *a*, upper and *a1* lower lobe of left lung; *b*, heart; *c*, stomach; *d*, liver, with ligamentum phrenico-hepaticum; *e*, adrenal; *f*, pancreas; *g*, kidney; *h*, colon transversum; *i*, *s*, iliac and bursa omentalis and ilium. Notice Abey accepts the coalescence view of the union of the omentum and transverse mesocolon by the representation of four layers of peritoneum between the colon and dorsal wall.

Neither is it always connected with local inflammation. Yet it is often associated with local peritonitis. No doubt the chief causes which induce the

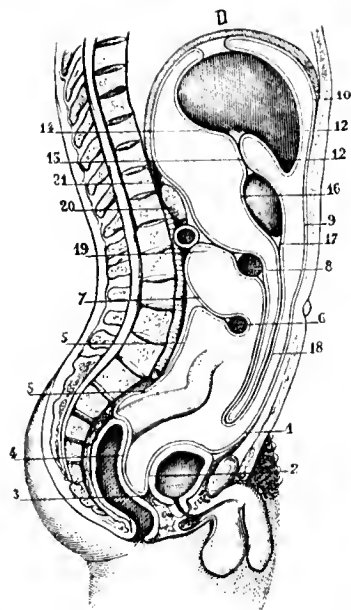


Fig. 31 (after Sappey, 1889) is a cut excellent for its simplicity. It is quite diagrammatic. It shows a vertical section of the serous cavity of the abdomen. 1, parietal peritoneum just before it passes over the bladder; 2, visceral peritoneum covering bladder; 3, recto-vesicle fossa (excavatio recto vesicellis or Douglass' pouch); 4, envelope of the rectum; 5, the beginning of the meso-sigmoid mesenterium; 6, mesenterium surrounding the small intestine; 7, superior blade of mesentery; 8, continuation (into omentum) of superior blade of mesocolon; 9, anterior abdominal parietal peritoneum; 10, peritoneum covering diaphragm; 12, peritoneum covering under surface of liver; 13, peritoneum covering posterior under surface of liver and forming superior lining of lesser omental cavity; 15, gastro-hepatic omentum; 16, superior blade of lesser omentum covering posterior surface of stomach; 17, union of anterior and posterior blades which inclose the stomach (gastro-colic omentum); 18, great omentum (anterior and posterior blades or descending and ascending folds); 19, mesocolon transversum; 20, pancreas; 21, a continuation upward over the pancreas of the superior blade of the transverse mesocolon.

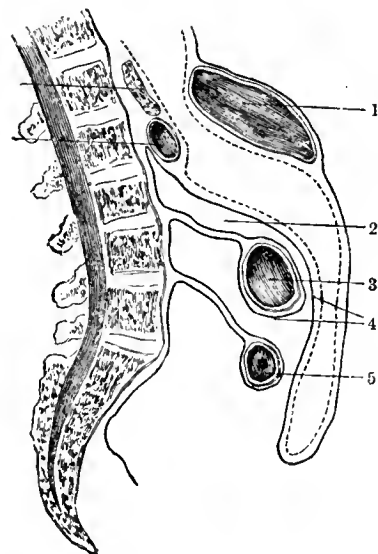


Fig. 32 (after Cruveilhier). This cut represents the method of coalescence of the superior blade of the mesocolon transversum with the posterior (under) ascending blade of the ascending fold of the great omentum. The figure is to illustrate how the cavity 2 (recessus peritonei) becomes obliterated by coalescence, i.e., the two layers of the peritoneum forming the pocket (2) unite their surfaces as far as indicated by the figures 4, 4. The three layers of peritoneum above the inferior blade of the mesocolon transversum coalesce, by loss of endothelium, to one blade, making the superior blade of the mesocolon transversum. This theory of coalescence is approved throughout in the labors of this work. The view I hold is that the membrane or peritoneal layers forming the cavity (2) marked 2 is gradually displaced or dragged out, which would leave the dotted line which ascends over the pancreas as the superior blade of the mesocolon transversum. 1, stomach; 3, colon transversum; 5, intestine; 2, the recessus peritonei, peritoneal pocket; 4, indicates the point to which the two peritoneal blades coalesce. The dog or cat are good examples to observe the displacement or readjustment of the peritoneum. The white lines found along the meso-sigmoid and descending colon are evidences, I think, of displacement of the serous layers, and not of coalescence.

great omentum to ascend and roll up are: (a), distension and contraction of the bowels by gas or feces; (b), local peritonitis. The bowels essentially concerned in displacing the omentum appear to me from autopsies to be (a), transverse colon; (b), cecum; (c), sigmoid flexure; (d), small bowels; and (e), a few cases of peculiar bladder distension. So far as I can see, the chief use of the great omentum is to prevent the invasion of infection, and hence the main effect of its displacement will be to allow inflammation to cause adhesions in localities where its presence would have prevented it. However, the use of the omentum will be discussed in the department of physiology. It does not appear that bodily position particularly induces the displacement of the great omentum, for in dogs whose bodily position is quite different from that of man, I never once found the omentum rolled up toward the diaphragm. But a dog has no real transverse colon, cecum or sigmoid flexure as man has. A displaced great omentum is one abnormally fixed, whether it be by peritonitic adhesions or peritoneal fossa due to loops.

The normal position of the great omentum is outlined by the left border of the esophagus, greater curvature of the stomach, a portion of the duodenum, and occasionally the outline passes down the ascend-

early adolescent life, one can separate the layers of the great omentum. The same view holds in dogs.

Perhaps one of the best methods to make the outline of the insertion of the great omentum clearly visible is to force air through Winslow's foramen, but in such cases it must not be forgotten that old peritonitis may have constricted off considerable of the lesser omental sac, thus disturbing the original anatomic line of insertion.

Now as regards the names which should be applied to the different parts of the great omentum or mesogaster posterior; they should be natural and indicate their office and location. I shall attempt to describe parts of the mesogaster under such appropriate names. It is absolutely necessary to have names for parts and localities of such a long, pendulous, wide fold as the mesogaster or great omentum. In order to follow a simple plan with simple names, we will begin at the left border of the esophagus and follow the great omentum to the right lower border of the omentum colicum Halleri. The first part which we will name is the ligamentum phrenico-esophageus, a thick dense fold of peritoneum reaching from the diaphragm to the left border of the esophagus and as far down as the cardiac end of the

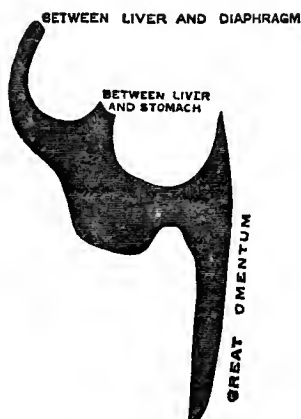


Fig. 33 (Gray, 1877) represents the shape and outline of the lesser omental cavity (bursa omentalis). It is diagrammatic. The lesser omental cavity I have divided into two cavities, greater and smaller. Winslow's foramen leads into the smaller right cavity, which contains Spigel's lobe of the liver (a viscus). Huschke's foramen leads into the great cavity which lies behind the stomach and contains no viscus. I named this foramen after Huschke because he was the first, so far as I am aware, to describe it, and I also consider Huschke's description of the peritoneum in 1844 as the first and most scientific description of the peritoneum. Either or both Winslow's and Huschke's foramen may become closed by inflammation.

ing colon for a variable distance (in some fetuses it extended to the cecum). This constitutes the upper outline of the insertion of the great omentum as seen on opening the abdomen. The lower outline will be the lateral walls of the abdomen, the floor of the two iliac fossa and the pelvic floor. With a large, fat, thick and stiff omentum the above outline may be followed mathematically. The outline of the insertion of the great omentum as regards the colon is from the ligamentum-phrenico-colicum on the left costal wall along the transverse colon to the flexura hepatis, and frequently the omental insertion extends a variable distance down the ascending colon. This part of the great omentum (right lower border) is known as omentum colicum Halleri. This outline can be traced by lifting up the great omentum and following the base line of insertion along the colon transversum. In fetal life, childhood and in some

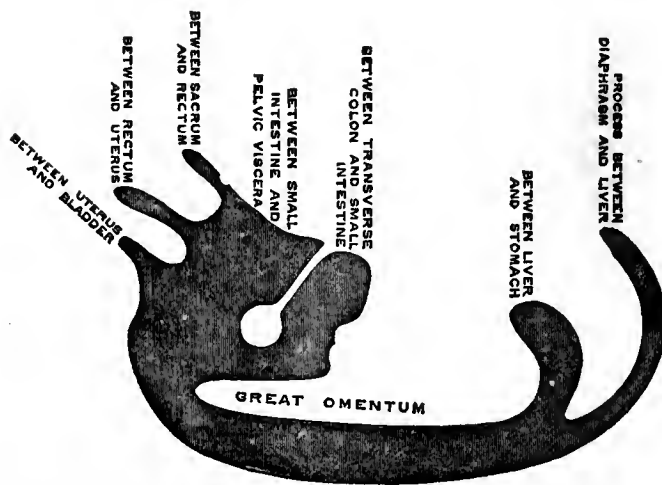


Fig. 34 (Gray, 1887) is to represent the greater cavity of the peritoneum: quite diagrammatic.

stomach. Some of the fibers of this peritoneal duplication pass from the diaphragm to the upper cardiac end of the stomach. This band consists of two fine epithelial or serous layers indorsing a white connective tissue collection which appropriately may be compared to the mesenterii membrana propria. Its milk-white color is due to accumulations of connective tissue. The ligamentum phrenico-esophageus is entirely analogous to what I have termed the pars tendinous ligamentum gastro-hepaticum. The ligamentum phrenico-esophagus is a triangular fold of peritoneum containing considerable white fibrous tissue between its layers. It gives much substantial support to the stomach and esophagus. It generally reaches to the cardiac end of the stomach. It is the most dense part of the whole great omentum. Some authors have named this band ligamentum gastro-phrenicum, but I prefer the name above given. The ligamentum gastro-esophageus is not inclined to fat any more frequently than the pars tendineus of the ligamentum gastro-hepaticum.

The next portion of the great omentum is a double-

bladed band of peritoneum which extends from the greater curvature of the stomach to the hiatus of the spleen, and then intimately surrounds the spleen, blending with its capsule. The band is known as the *ligamentum gastro-lienalis* or *gastro-splenic ligament*. The peculiarity of the splenic ligament is that the part passing to the body of the spleen is intimately and closely blended with the organ. In fact, the peritoneum and splenic capsule coalesce. The *ligamentum gastro-lienalis* has the *vasa brevia* lying between its blades and a short part of the distal part of the arte-

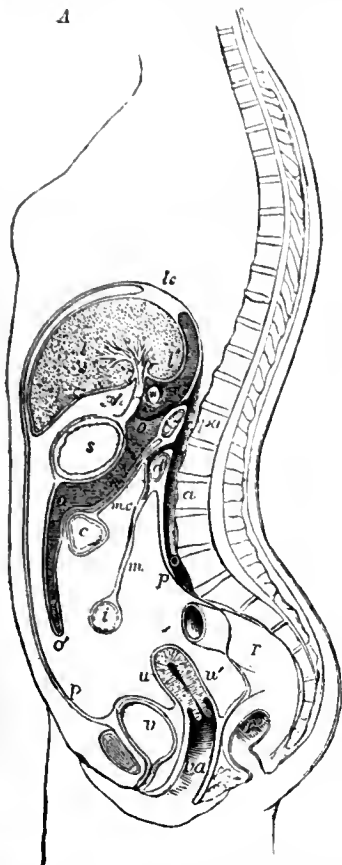


Fig. 35 (after A. Thomson, 1882) represents a sagittal longitudinal section of the peritoneal cavity. It is an excellent figure. The author of the cut adopted the theory of peritoneal coalescence, as may be noted in the four layers of the mesocolon transversum in the drawing. The section is intended to be in the median line of the body. *lc*, is placed above the diaphragm opposite to the coronary ligament of the liver; *l*, liver; *ll*, Spiegel's lobe projecting into the right end of the lesser omental cavity; *s*, stomach; *c*, transverse colon peculiarly drawn to suit the theory of coalescence; *i*, small intestine; *pa*, pancreas covered by serous epithelium only in front; *a*, aorta; *d*, duodenum covered by serous epithelium only in front; *u*, urinary bladder covered only its upper part by serous epithelium, but surrounded by a bed of sub-peritoneal tissue; *u*, uterus; *r*, rectum; *rl*, its lower part, with a portion of its lateral wall cut away; *va*, vagina; *pp*, the parietal peritoneum lining the abdominal wall. The line representing the reflections of the greater sac of the peritoneum can be traced from the coronary ligament at *lc*, where it passes from the diaphragm to the upper surface of the liver, over the upper and under surfaces of that organ to the gastro-hepatic omentum, *gh*; it continues on to the front of the stomach down to *o1*, which is the anterior or descending double-bladed layer of the great omentum; thence it reflects on itself and passes to the vicinity of the pancreas, *pa*, whence by displacement or being drawn out the colon transversum (*c*) becomes located between its blades (not by coalescence as indicated in the drawing). The lower blade of the mesocolon transversum, *mc*, now proceeds to the root of the mesentery, *m*, where it envelops the small intestines, producing the mesentery and curves at the root, again making the left (under) blade of the mesentery. The membrane thence passes over the rectum, *r*, descends into the pelvis and covers a small portion of the posterior wall of the vagina, *va*, the whole of the posterior surface of the uterus, *u*, and the anterior surface of the uterus, *u*, as far down as its internal os, whence the membrane passes over the bladder, covering only the dome of the organ, thence to the anterior abdominal wall, *p*, to the ligamentum coronarium hepatis to the point of beginning. The figure in cut just to the right of the median line, therefore shows the foramen of Winslow, *W*, as an aperture. The lesser omental cavity is shaded dark and shows Spiegel's lobe, *ll*, projecting into its right and upper cavity indicated by *oo*. From *ll*, the layer of peritoneum lining the cavity can be easily traced from *lc* to *ol*. Of course both cavities are really one, and Winslow's foramen is only a constriction of the whole bag placed nearer one extremity than the other, i.e., the constriction represents an unequal hour glass, *l*.

ria lienalis. The reason of this is that the main trunk of the splenic artery, three-fourths, lies behind the posterior blade of the lesser omental sac until a short distance from the spleen, when it suddenly turns upward to gain access to the space between the layers of the gastro-splenic ligament when the *arteria lienalis* is conducted to the spleen. In fetal life the *ligamentum gastro-lienalis* can not be said to possess any length as the spleen develops close against the stomach, but in the progress of development the spleen travels more and more toward the left until it lies in contact with the costal wall. The splenic ligament elongates rapidly after the sixth fetal month. There is considerable connective tissue lying between the blades of the gastro-splenic ligament beside five to seven *arteria lienalis*. This duplicature of peritoneum is of considerable strength, inclined to fat accumulation and frequently subject to local peritonitis.

The next short band belonging to the spleen and a part of the mesogaster is the *ligamentum phrenico-lienalis*. This band of peritoneum extends from the

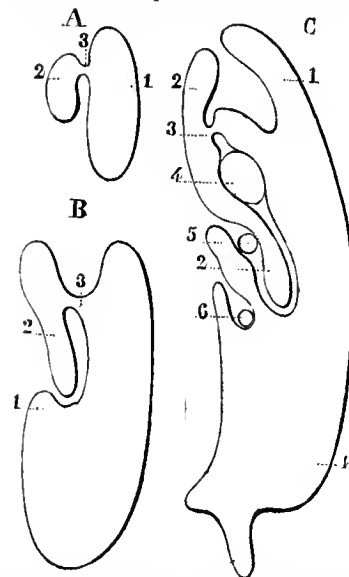


Fig. 36 (after Sappey, 1889) gives a diagrammatic illustration of the development of the peritoneal cavities. *A*, shows the beginning of the two cavities; 1, great omental cavity; 2, lesser omental cavity; 3, Winslow's foramen. *B*, shows the elongation and invagination of the smaller cavity (2); 1, great omental cavity; 2, lesser omental cavity; 3, foramen epiploen. *C*, shows a vertical section of both peritoneal cavities.

diaphragm to the spleen. The part of this ligament which is in contact with the spleen intimately blends with its capsule. As the band passes from the diaphragm to the spleen, it returns from the posterior surface of the spleen in such a manner that it leaves a small strip of the posterior border of the spleen uncovered. So that the gastric, splenic and phrenico-splenic ligaments which both cover the spleen leave a strip of the spleen uncovered at the hilus where the vessels and nerves pass in and out, and also a small strip of spleen uncovered on its posterior border. This I have carefully investigated personally and think, though disputed by some authors, it represents the true state of matters in regard to the splenic ligaments. The *ligamentum phrenico-lienalis* is a strong, whitish, dense fold of peritoneum which reaches from the top of the spleen to nearly its lower pole. It falls short of the full length of the spleen on account of the *ligamentum reno-lienalis*, a short duplicature of peritoneum reaching from the spleen to the kidney. This ligament is not always the same

in every individual on account of the varied position of the spleen and kidney. Hence, authors dispute in regard to its complicated relations, as there is no doubt that in certain bodies occasionally there exists a portion of spleen uncovered between the upper pole of the kidney and the lower pole of the spleen. The cut that accords with my investigations is that of Prof. Hubert Luschka in regard to the splenic relations to its ligaments.

The next lower portion of the mesogaster which deserves a name, and over which volumes have been written, is what I shall term the ligamentum phrenico-colicum. The synonyms of this ligament are, ligamentum costo-colicum, or pleuro-colicum. This ligament is the lower left border of the great omentum, *i. e.*, a continuation of the mesogaster from the flexura coli lienalis on to the surface of the diaphragm. The ligamentum phrenico-colicum serves as a support for the spleen. It is an extension of the last acquired relations of the transverse colon and great omentum. It is composed of four layers, and often in the left recesses of the ligamentum phrenico-colicum there exists constricted off sacs, closed or unclosed, due to local peritonitis. The position of the spleen no doubt frequently depends on the length and strength of this ligament. If the ligament be normal the spleen rests on it in a normal height, but if the ligament elongates it gives origin to wandering of the spleen. The ligamentum phrenico-colicum extends from the greater curvature of the stomach and transverse colon to the surface of the diaphragm on the left costal wall. Its width consists of the distance between the lower border of the splenic pole and the transverse colon. It is a strong ligament composed of four blades of peritoneum containing some connective tissue fibers between its blades. In the region of this ligament nearly all adult bodies show local peritonitis. It produces a sharp angle (flexura coli lienalis) at the junction of the descending and transverse colons, by dragging this portion of the bowel well upward toward the costal wall. No doubt much of the local peritonitis existing around the spleen is due to wandering through the bowel wall of microbes or their products by reason of trauma of the micosa from sharp foreign bodies passing around the acute angle.

The next portion of the mesogaster entitled to a distinct name is the ligamentum gastro-colicum over which men have disputed for centuries. The gastro-colic ligament is a double-bladed fold of peritoneum extending from the greater curvature of the stomach to the transverse colon. The ligament acquired its relations with the transverse colon during fetal life, gradually from right to left, beginning in the second month. Its origin is due to the intimate relation of the right end of the large bowel with the duodenum and mesoduodenum. It consists of two layers which afford a bed for the gastric arteries, epiploica dextra and sinistra. Its posterior blade forms the anterior wall of the lesser omental bag and its anterior blade is next to the parietal peritoneum anterior. Its left end extends to the costal wall and merges into the ligamentum phrenico-colicum.

How does the posterior border of the spleen become uncovered by peritoneum? I examined quite a number of fetuses and adults in order to convince myself of the process. In an early fetus it is easy to trace the posterior mesogaster to its insertion in the mid-dorsal line. In adults one can not do it very

easily, if at all, in most adult cadavers. This is because the left blade of the mesogaster during the leftward shifting of the stomach, is displaced or shifted toward the left of the vertebral column. The fold of peritoneum which forms the left blade of the mesogaster meeting the fold of peritoneum which crosses the dorsal wall at the root of the mesogaster simply withdraws itself toward the left. Considerable of the root of the left mesogastric blade is pushed from its original mid-dorsal insertion by the leftward moving great stomach curve. This leaves only the right root of the blade of the mesogaster inserted in its original mid-dorsal line. This process forces the blades of the mesogaster at the root apart. The separating process of the mesogaster at its origin continually proceeds until a small strip of the spleen becomes uncovered at its posterior border. The force which separates the blades of the mesogaster at its base and exposes a narrow strip of the posterior border of the spleen is analogous to the separation of the blades of the mesogaster in exposing a part of the pancreas in its middle portion, for the tail and head of the pancreas may still remain in the mesoduodenum and gastro-colic omentum, while its body or middle portion may be entirely out of the meso-colon, *i. e.*, a retro-peritoneal organ so far as the epithelial layer of the peritoneum is concerned. This anatomic fact as regards the pancreas being an organ which can be both retro-peritoneal and entirely in a mesentery, I have observed in cadavers.

Hence, we may affirm that the spleen becomes uncovered from the peritoneum on its posterior border by the separation of the blades of the posterior mesogaster at its base, in the same manner as the pancreas become uncovered by peritoneum by the separation of the blades at the base of the mesocolon transversum. The strip of spleen not covered by peritoneum does not reach to the lower pole of the spleen in cadavers examined by me, but stops short one-fourth to one-third the length of the spleen. The process which exposes the spleen retro-peritoneally, includes an apparent oblique insertion of the mesogaster in the adults. It is, however, purely a secondary or acquired change, brought about by the pressure of the liver exercising itself on the stomach, forcing the stomach to the left, and pressing the root of the mesogaster firmly against the left dorsal, resulting in displacement of the left blade leftward, and fixing the right blade as dorsal parietal peritoneum.

(To be continued.)

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 115.)

DR. W. S. HEDLEY also presented a paper on

THE ELECTRIC DOUCHE.

In the electric douche we have a therapeutic expedient of undoubted promise. Yet in the way of accurate experimental investigation, singularly little seems to have been attempted. Sufficient, however, has been done to demonstrate both its electrical power and its therapeutic possibilities. The idea of the present paper is to point to the nature of the inquiry which has led to these conclusions, to supplement that inquiry by some further experiences, and espe-

cially to enter into greater detail as to how the method may be best systematized and applied.

That the electrized water bath possesses many unique advantages as a means of applying electricity to the body has long been recognized. That it is the best form of application for a certain class of cases is very generally admitted. Not only is it the pleasantest, but it is, of all other methods, the one that best deserves the name of "general electrization." Its efficacy, however, depends in most cases on a general and distributed action rather than on any strictly localized effects. The electric douche has been devised as a means of retaining the advantages of the electro-hydratic method and at the same time presenting facilities for strict localization and accurate dosage, and seeing the advantages of a labile as well as of a stabile action.

Attempts have been made to attain the above ends by the use of spray or vapor; but such attempts have failed, because the conducting medium had been so broken up and disintegrated that it ceased to act as a conductor. It is manifest that any stream of conducting fluid can only retain its conductivity so long as it remains whole, continuous, and unbroken. Spray is composed of numerous small globules, sometimes appearing as many fine continuous streams, but actually possessing no real conductivity in the sense that applies to the matter under consideration.

The method of application, apart from certain non-essential details, is much of the nature of what would be known in hydrotherapeutics as the "movable jet douche" (douche mobile), and the nozzle is so arranged that the electrized stream escapes in the form of a more or less condensed jet or jets, which, with a certain minimum of pressure, remain unbroken and continuous for a reasonable distance after emerging from the pipe, and therefore for that distance retain their electric conductivity. (There ought to be a means of regulating temperature and pressure.) With this arrangement one pole may be placed in contact with some indifferent part of the patient's body, while the other is connected to the internal metal of the douche, with the result that when the douche is set in action the second pole is brought to the patient by and in the fluid, and may be concentrated as a single jet, or distributed as many small jets. The fluid is, in fact, the second electrode.

Let us inquire, then, by direct experiment, how much current this water conductor carries, and how much enters the body of the patient. The following experiments are necessarily only a selected few, but a sufficient number of results are quoted to give some general ideas. Details of the apparatus are also as much as possible omitted. It need only be mentioned that, permanent water pressure not being available, a hand pump, drawing from a suitable vessel, was used for the douche, which was fitted with a nozzle or rose (having its outer edge insulated with india rubber) of the size mentioned below. The electric apparatus consisted of a Leclanche battery of 74 cells (with a milliampère meter in circuit) and a fair-sized induction coil. One pole was attached to a large electrode on which the patient sat, and the other connected with the metal of the nozzle or rose, well insulated wire being used for the connections. The following results were obtained:

TABLE A.*

Plain water at 98° F., continuous current.

Nozzle.	E. M. F.	Pole to douche.	Distance of nozzle from body.	Current passing.
1. 1/4 in. jet (single)	75	—	1.5 in.	5 milliampères.
2. Do.	"	"	0.5 in.	15 milliampères.
3. Rose 2-in. dia., forty-nine perforations	"	"	1 in.	5 milliampères.
4. Single jet . .	"	+	18 in.	Deflection (taken on reflecting galvanometer) right off scale. Probably quite 100 microampères.

* Table to show the influence of temperature on the electrical conductivity of water.

R. of bath water taken as it cooled. (By Wheatstone Bridge.)

Temp.	R.
98° F.	165
92° "	194
87° "	264
70° "	440

These figures only show the alterations in R. owing to temperature, and the actual R. in this particular bath. R. varies with volume as well as with temperature.

TABLE B.*

Salt water (3 1/2 lb. to 7 gal.) temperature 98° F., continuous current.

Nozzle.	E. M. F.	Pole to douche.	Distance of nozzle from body.	Current passing.
1. Rose	75	—	1.5 in.	7.5 milliampères.
2. Single jet . . .	10	+	18 in.	20 milliampères.

TABLE C.*

Plain water, temperature 98° F., alternating current.

Nozzle.	E. M. F.	Pole to douche.	Distance of nozzle from body.	Current passing.
1. Rose	x	+	1.5 in.	Subject cried out "Stop." Milliam-père meter (alternating current) in circuit did not register.
2. Single jet . . .	"	+	12 in.	Noise marked in telephone. Subject felt current.

* The above tables and some of the explanatory matter have already been published in the *Lancet*.

Several readings were taken with alternating current and salt water, all showing that the effect was much stronger with salt water than with plain. These experiments seem to show that electricity can be imparted to the human body by means of the electric douche, provided that sufficient electro-motive force be used and the stream of fluid be continuous. Table B shows that when salt water is used strong currents may be passed over considerable distances with a very moderate electro-motive force. Table C shows that by using coil currents, which always possess a comparatively high electro-motive force, as much current as a patient can comfortably bear may be passed over many inches of space. Its current-carrying capacity being thus established, we may glance for a moment at its therapeutic effects.

Though the apparatus necessary for the electric douche need not be elaborate nor complicated, there are certain essential details of construction which must not be lost sight of, and without which not only is its efficiency impaired, but the risk of administering objectionable shocks to operator or patient becomes by no means inconsiderable. The main points are somewhat as follows: a proper mechanical arrangement to secure that the fluid conductor shall pass out in unbroken streams or jets for a sufficient distance to conduct the electric current to the patient's body. Irregularly-shaped orifices will often to such an extent break up the column of fluid, even when issuing at considerable pressure, that its conductivity becomes practically nil, or, as sometimes happens, it is so intermittent that the current passes in a series of jumps, which are worse than useless for the purpose in question. Further, in the case of "rose" nozzles, if the site of the orifices fall below a certain gauge, relatively to pressure, the issuing jets are too fine, there is no continuity of stream, and consequently no electrical conductivity; or, again, if the orifices be not all of the same diameter, irregular conduction will result. Careful attention must be paid to insulation. Want of due care in this point will soon be notified to those concerned by the unpleasant reminder already adverted to. When it is considered that currents of a fairly high electro-motive force have to be used for the douche, and that nothing is more probable than the occurrence of some unexpected, and perhaps for the moment unavoidable, movement of the patient, whereby the instrument comes in contact with his skin, it is evident that unless the metal nozzle be well insulated a violent, perhaps serious, and certainly unnecessary shock will follow. Attention to insulation is also necessary in connection with the metal pipes and taps which control the water supply, in order that electrical leakage may be avoided. The apparatus consists of a short length of flexible rubber tubing, having an inside conducting wire, one end of which is brought out and connected to a terminal about two inches from the brass union which joins on to the supply pipes. The two inches or so of rubber tubing thus interposed between the metal pipes and the conducting wire act as effective insulation at this end of the arrangement. The other end of the internal wire is soldered to the inside of the metal screw, to which different nozzles are attached. The nozzles are two in number, one a single "jet," for current concentration, the other a "rose," for current diffusion. Each nozzle has an inner base of brass covered with a sheath of vulcanite, which projects one-eighth of an inch beyond the brasswork. The orifices are true circles, and their metallic surfaces carefully smoothed, so that

the issuing columns of water are kept intact for a considerable distance. It will be seen that perfect insulation is thus secured at all points, and even if through accident the nozzle does approach too near the patient, it is the insulating vulcanite, and not the conducting metal, that makes the contact.

By the use of such an apparatus it has been found that, with the ordinary domestic water supply, continuous currents of useful strength may be passed with an E.M.F. of 50 to 60 volts (from a battery of 40 Hellen cells) when the nozzle is held several inches from the patient. Alternating currents from a fair sized bath coil pass through a much greater distance. Reference to the foregoing table of experiments shows that if saline or other special conducting fluids be used, the distance through which the current passes is of course much increased.

One drawback to the use of the electric douche is undoubtedly the amount of splashing which it causes. This difficulty, however, is easily overcome by simple expedients; the simplest, and perhaps the most effective, being the use of waterproof curtains, suspended round the ordinary bath. These curtains must be of sufficient width to completely enclose the patient when sitting or standing, and should so hang that their lower ends fall just inside the bath. When in use the curtain will be pulled slightly aside so as to admit the douche nozzle. All splashing is thus kept within the inclosed space, and it drains down into the bath.

There was a time in the days of "brutal hydrotherapeutic empiricism" when both physician and patient had a (not altogether inexplicable) dread of the "hydrostatic douche." This, however, has given way before a more enlightened method of administration, and the douche is acknowledged to possess stimulating and alterative properties of no mean order. It seems not unreasonable, therefore, to suppose that in the combined electric and hydropathic procedure we may have a therapeutic agent of considerable power. It claims that according to variations in temperature, force and duration, it may be resorted to as an agent more gentle and adaptable than even the "electric hand" of the physician, or may be made to become so potent and concentrated as to prove a veritable electro-hydropathic moxa. It presents itself as a means of general electrization by bringing the various parts of the body successively under its influence; it claims an action that may be strictly localized; and, further, offers itself as a means of producing, through various motor inhibitory and secretory reflexes, those influences on nervous centers and glands which can undoubtedly be brought about by other and more painful methods of peripheral electrical excitation. If it can establish claims of this kind, a field of usefulness seems to lie before it in a class of cases which readily suggest themselves.

It can not be attempted here to particularize the multiplicity of cases to which such a very adaptable method may lend itself. There are a few leading features, however, in connection with its possible therapeutic uses which may briefly be adverted to.

The action of the electric douche as a means of electrization by bringing the various parts of the body successively under its influence, and as a local application by bringing it to bear on any special part, have already been referred to. Used in this way we shall not fail to find it in a nerve tonic "heightening cutaneous sensibility and quickening motor excitability." It will influence nutrition and absorption by its control over the distribution and circulation of the blood current. It will act favorably also on local diseases, such as chronic joint affections, and promote absorption through its influence on the circulation. Its usefulness in states of general debility and malnutrition, neurasthenia, spinal debility, exhaustion, and any case in which want of "tone" is the prominent feature, needs no showing. These effects will be brought about in more ways than one, but chiefly, perhaps, by the enormous range of reflexes that, by so effective a method of cutaneous stimulation, are brought into action. Its adaptability to some forms of internal application can not fail to suggest itself. Recent therapeutic experiences leave me in no doubt as to the usefulness of the electric douche. I have lately brought it to bear on a case of pressure-paralysis with rapidly satisfactory results. I have called it into requisition for the peripheral portion of the treatment of an old standing paralysis of central origin. I have found it a most useful adjunct to other electrical methods in the treatment of that ensemble of symptoms known as neurasthenia, and in several cases of anesthesia I have found it of such infinite service that, so far as anesthesia is curable at all, I have come to regard the electric douche as a sovereign remedy.

DR. O. S. PHELPS, of New York, presented a paper on SOME LANDMARKS IN ELECTRO-THERAPEUTICS.

That the wonderful development of electrical appliances within the present decade has not been altogether an unmixed good, may we think be asserted without fear of contradiction. We will not consider its commercial aspect, but confine our remarks to its therapeutic uses. The widespread belief among the laity, that in the latest discoveries in electro-therapeutics, is found a panacea for all their ills, is a rock that should be carefully noted on our charts. It has been a potent influence in putting an electrical outfit in many a doctor's office, with more or less disastrous results to the cause of electro-therapeutics. In this connection an aphorism might be offered—don't use unfamiliar tools. The unsuspecting doctor is too often led into purchasing an "all around outfit" from the enterprising agent for electrical goods—"neat and compact," with which to do all the brilliant work of which he and his patients have read and heard so much—without knowing even the first principles of electro-physiology, or the construction of the simplest form of battery. I can not refrain from relating a recent occurrence which illustrates the demand on the part of the laity for electrical treatment, and incidentally an example quite refreshing of the honor of one of our manufacturers of electro-medical apparatus. Mr. B. had been for some time failing in health and was advised to procure a battery for self-treatment. He accordingly went to a well-known dealer and manufacturer to purchase the instrument that was to restore him to health. Instead of selling one to him, he sent him to the writer for advice as to whether he needed electrical treatment or not. An examination revealed the fact that the man had phthisis approaching the third stage.

I am often asked the question, What kind of a battery shall I buy? and in answer to my query, What do you wish to do with it? the reply usually given is: "One suitable for doing all kinds of work." Gynecologic, from A to Z; neurologic, ditto; epilation, cautery, and the general treatment of tumors and rheumatism thrown in. Gentlemen, this would be ludicrous were it not sad. That the picture is not overdrawn, the writer will here confess that it is not many years since his own ignorance of electricity was just as dense, and the object of this paper is to point out some of the stumbling blocks in the way of progress.

Grand and brilliant as is some of the work already accomplished, there is no royal road to success in the cure of disease by electricity, and it goes without saying that those who have attained success in its use began at the bottom rung. The best advice which could be given to those who are unfamiliar with the subject would be:

1. Make a thorough study of at least elementary electro-physiology.

2. The construction of the more common forms of medical batteries, and the adaptability of each to the different uses for which medical batteries are needed. One should be able to construct, if need be, or repair any of the apparatus he uses. I do not mean that it would be practical to do so, but to be able to do so makes you master of the situation, and you can not be imposed upon by ignorant or designing vendors.

3. Should come the study of electro-therapeutics—a subject at the present moment illusive, seductive, progressive, having garnered some truths from the chaff of speculation and some successes on a road strewn with many failures; a very useful addition to the physician's armamentarium; a vigorous, promising infant; we hope much for its majority.

Important results in even a single case undoubtedly reached by the use of a particular agent are at least a landmark, and may help to establish a principle.

A little over a year ago the writer was consulted by Mrs. W. Her previous history indicated that she had had several attacks of—in common parlance—pelvic cellulitis, with varying intervals between, though they were at the time diagnosed as peritonitis. An examination proved it to be a case of peri-uterine inflammation, with considerable exudation, compressing the left ovary and involving the broad ligament and tube. She complained of pain in the region involved, increased by any attempt at walking, defecation, or voiding of urine. Her temperature was continuously abnormal—from 100 to 102 degrees. The patient was ordered to bed and a high tension faradic current applied *per vaginam* with a bipolar electrode, with the result of relieving the pain and lowering the temperature. This course was pursued with the object of reducing the inflammation to a point where galvanism could be used. Progress was often interrupted by the indiscretions of the patient, till the family

became impatient and upon the advent of a visit from a brother from Boston, and his decision to have "something done," she was taken to one of our prominent hospitals and pronounced to be a case for operation. However, when her husband was told that probably the pelvis would have to be cleared, and that she might not come off the table alive, he weakened—took her home and sent for her former physician. She was found with all her symptoms aggravated, the exudation having extended to the right side and in front, so that the pressure against the bladder made it impossible to retain more than an ounce of urine, which it was agony to void. The pressure around the left ovary kept her vomiting almost constantly. Dr. Goelet was called in consultation and confirmed the diagnosis and the opinion that surgical interference was out of the question. He advised the continuation of the electrical treatment carried out with the utmost vigor, and for a time the high tension faradic current was used three to six times a day, vagino-abdominal and vagino-bipolar, with the result of reducing the inflammation and modifying the other symptoms to such a degree that galvanism could be brought into requisition. A current of 30 milliampères was used every five days, with the cathode in Douglas's cul-de-sac, and anode to abdomen. The electrodes consisting of a pad, 6x6, in one case, and a suitable vaginal electrode in the other; time of application seven to ten minutes, followed by a fifteen minute séance with the bipolar faradic, which relieved all pain and irritation caused by the galvanic treatment. In four weeks the patient was able to come to the office. The case has steadily progressed till now there is only a small nodule the size of a walnut. She can stand upright, walks, rides, and performs household duties, without pain or inconvenience. Has gained in weight from 75 to 145 pounds.

I do not cite this case as an argument against surgical interference when indicated; or a cure-all in all the pelvic diseases common to women. But will submit to you that granting in this case a hysterectomy to have been feasible and followed by the best results that operation can afford, is the patient to be envied because she has not played a part in so brilliant a procedure?

Case 2.—Miss D., aged 17 years, first noticed slight leucorrhea in November, 1893; a little later constipation and slight abdominal pains after defecation, and also some pain when the urine was voided. These symptoms, slight at first, gradually increased, and in January she was taken from school, the bowels regulated and rest enjoined. This was followed for a short time by some improvement; but in March so much anxiety was caused by her condition that the family physician was called, who made an examination and informed her parents that he found a growth in the pelvis to the left of the uterus. He advised a course of medication looking toward absorption, tonics, good feeding, etc. For a time there was some amelioration of the symptoms; but a slow reduction in weight from 120 pounds in November to 104 pounds in April, was not encouraging. In June she became much worse, great pain in the bladder and inability to retain the urine. She was in fact treated for inflammation of that organ. This last exacerbation so alarmed her friends that steps were inaugurated to have something more radical done, and they were advised to bring her to New York for an operation for removal of the growth. She came under the writer's care on July 6. Her condition at that time was very unpromising, pain continuous and increased by the slightest move and more particularly upon evacuating the bowels or bladder or tension of the abdominal muscles, the body being bent forward to quite an angle. She was greatly emaciated, weighing only seventy-three pounds; temperature from 100 to 103 degrees, no appetite, and extremely weak. This, in a general way, was the picture she presented. An examination made under an anesthetic showed a fibrous growth which had pushed the uterus well over to the left, flattened and reaching well up toward the umbilicus. Whether part of this was an exudation from the peri-uterine inflammation could not then be fully established, but subsequent treatment proved that it was. The left ovary was involved in an exudation and the bladder was impinged upon, causing the bladder symptoms which had given so much trouble earlier in the case. After a rest of a few days, Dr. Goelet was called in consultation and under an anesthetic she was again examined, confirming the above and advising a continuation of the treatment already inaugurated, viz., the high tension faradic current vagino-abdominal and sacro-lumbar, with the view of reducing inflammation, pressure and pain, and improvement of her general condition, so that some radical measures could be taken, among which would be galvanism and ligation of the uter-

ine arteries. For some time very little progress was made, but finally all the symptoms began to yield; pressure, pain, temperature and improvement was unmistakable. During the past four weeks the temperature has been normal, entire freedom from pain, weighs eighty pounds, can stand erect, walks about the house, and says she is much more comfortable in every way than she has been for ten months. The next step in the case will be galvanism, the result of which will determine whether the knife will be resorted to or not.

These cases will suffice to illustrate a very interesting field in electro-therapeutics and in gynecology as well. They prove that congestion and inflammation can be successfully treated by electricity under proper conditions with a suitable apparatus discreetly applied, our past instructions notwithstanding. They also indicate that many cases which are at once relegated to the surgeon's knife can be cured without the ordeal of an operation and the unsexing of the patient, and many others prepared for an operation, better I believe than in any other way. I also believe there are many cases where a hysterectomy would at first seem to be the only course to pursue, that with preliminary electrical treatment and the modified operation for ligating the uterine arteries, devised by our worthy ex-President, Dr. Goelet, the patient can be cured with the pelvic organs left intact.

To recapitulate: we would again say to the would-be electro-therapist: there is no royal road to the cure of disease by electricity. Each case is a law unto itself, and must be carefully studied as such. Make yourself master of the situation both by knowledge of electro-physics, construction, character, and quality of apparatus and knowledge, to date, of electro-therapeutics—remembering as well that the best specialist is the best all round doctor—following which, all other means such as appropriate hygienic conditions, diet, rest, and proper medication, will be brought into requisition. As physicians we should seek the glory of a cure, rather than the glory of any agent.

DISCUSSION.

DR. GOELET said he had seen with Dr. Phelps the cases reported in the paper, and the outlook had been certainly very unfavorable in both at first. The results obtained by Dr. Phelps served to convince him that much more could be accomplished with the faradic current than even he had hitherto supposed. In the second case the continuance of the current was suggested simply to improve the patient's general health and prepare her for operation. Dr. Phelps was to be congratulated upon the result he had been able to accomplish in these two cases. He wished to correct the impression which may have been made that he had devised the operation of ligation of uterine arteries. That however, was Dr. Martin's, of Chicago.

DR. ROSS thought that with the mild current employed one would hardly have expected that there would have been the rise of temperature in the case reported.

DR. PHELPS, in closing the discussion, said that he had understood that Dr. Goelet had modified the operation of ligation of the uterine arteries, and it was to this he had intended to refer. In the second case related, the very low condition of the patient and the long continued abnormal temperature without any change, so far as could be detected, would have certainly have discouraged him from continuing its use had it not been because of former successes following the persistent use of the current.

DR. ROBERT NEWMAN, of New York, read a paper on

REICHARDT NEW GALVANIC BATTERY FOR ELECTRIC ILLUMINATION.

This battery consists of four cells each 2 volts, and all four cells will give 6 ampères. Experiments on July 7 and 8.

The battery can scarcely be used as a galvanocautery, and will heat only a small platinum burner. It is intended to illuminate cavities, particularly with a lens used as a head mirror.

Test with a Leiter's cystoscope which needs 7 volts; a bladder (manikin) was well lighted up, with one inch left burning outside of the elements of the fluid. The light was bright for five minutes. Agitation of the fluid kept the light up for five minutes longer, when polarization made the light a little uncertain. Then the elements were lowered into the fluid its full length, and the light was restored to the same capacity as it was when first tried. This kept up five minutes longer. Hence a constant continued light could be kept up for fully fifteen minutes with this battery—after that time more polarization took place, so that the light faded after twenty minutes. However, even then an examination could be made. After twenty-five minutes the light

grew uncertain and the cells were so hot that the elements had to be raised out of the fluid and the test discontinued.

After an intermission of ten minutes the battery gave again an excellent illumination, but the cells were overheated and could not be used. It takes about one hour to cool off the cells respective of the fluid.

It can be stated that this battery will give a good light for examination fully fifteen minutes, whenever 7 or 8 volts are required.

The battery fluid used for these tests was weak, only 1 part sulphuric acid to 9 parts of water with bichromate of potasse, which solution is sufficiently strong. A stronger solution may be used for this battery which, however, is not needed, as the one just described works well enough, and is more economical, saving the zincs of the elements. After each use, the elements should be cleansed by letting water run over it.

Description of the battery: the battery stands on a platform four and three-fourths inches square. The height of the whole instrument is twelve inches and when the elements are immersed in the fluid only seven inches. Four cells, each five inches high by two inches square, each may contain five ounces.

Elements: each cell contains two carbons and one zinc and can be used with either one, two, three or all four cells.

Instead of the rheostat, the potential can be regulated by the distance the elements are immersed in the battery fluid and also by the number of cells used.

Weight is four pounds and thirteen ounces.

SECOND DAY, SEPTEMBER 26—EVENING SESSION.

BUSINESS MEETING.

The meeting was called to order by the President at 8:40 P.M. On motion, the reading of the minutes was dispensed with. The report of the Secretary was then read.

THE PRESIDENT—It has been customary to have these accounts transferred to a committee for auditing. Is this the desire of the Association? On motion, the President was requested to appoint such a committee, consisting of two. Dr. Charles R. Dickson and Dr. Brown were appointed. Upon their suggestion and approval, the report was accepted, as read.

The Secretary's report on matters from the Council was then read.

A report of the meeting of the Executive Council, of Monday, Sept. 24, 1894, and its recommendation was then read.

THE PRESIDENT—It is your duty to confirm this action of the Council. A motion was duly made and carried, confirming the recommendations of the Council.

The Treasurer's report was then read and accepted.

The Secretary announced that the Council had decided that the papers might be published where the authors desired, but that a copy must be placed in the hands of the Secretary before the adjournment of the meeting.

A lengthy discussion was entered into by Drs. MASSEY, CLEAVES, SMITH, DICKSON, NUNN and WALKER, as to the question of having papers, which had been read before the Society published elsewhere before being published by the Association.

DR. KELLOGG moved as an amendment that the members be permitted to publish *abstracts* of their papers. Seconded by Dr. DICKSON, and carried. The original motion as amended was also carried.

THE PRESIDENT—The next thing is the matter of continuing Standing Committees on Instruments. A motion was made and carried, postponing action on this matter.

ELECTION OF OFFICERS.

THE PRESIDENT—The next in order is the election of a President, two Vice-Presidents, a Secretary, and a Treasurer, and five members for the Executive Council.

DR. A. H. GOELET—I take great pleasure in nominating a man who was a pioneer in modern methods of electricity in America. I am sure you will all agree with me that we could procure no better man to fill the high office of President than Dr. A. LAPHORN SMITH, of Montreal.

DR. W. J. MORTON seconded the nomination, and on motion, the nominations were closed.

On motion, the Secretary was instructed to cast one affirmative ballot on behalf of the Association for Dr. A. LAPHORN SMITH as President.

DR. A. LAPHORN SMITH—I thank you very heartily for the honor, which was entirely unexpected. Your confidence in me will lead me to make greater exertions in the interest of the Association, and I promise you I will not allow the work to deteriorate during my term of office. Again, I thank you heartily.

DR. MASSEY—We went to Canada for a President; let us go West for a Vice-President. I take pleasure in nominating Dr. J. H. KELLOGG, of Battle Creek, Mich.

DR. DICKSON seconded the nomination.

DR. GOELET—I take pleasure also in nominating Dr. C. R. DICKSON, of Toronto, for Vice-President.

DR. KELLOGG seconded the nomination.

DR. HOLFORD WALKER, of Toronto, was also nominated, but declined.

On motion, the nominations were closed. Ballots were distributed, and the tellers announced that Dr. KELLOGG had been elected first Vice-President, and Dr. DICKSON second Vice-President.

DR. GOELET—I take pleasure in placing before you in nomination the name of a man well known for his executive ability and to whose energy we are indebted for the very excellent exhibit in the adjoining room, and furthermore he is a New York man. I nominate Dr. EMIL HEUEL for Secretary.

On motion, the nominations were closed.

On motion, the Secretary was instructed to cast an affirmative ballot for Dr. EMIL HEUEL for Secretary.

DR. W. J. MORTON—I take pleasure in nominating for Treasurer the same sunny-faced gentleman we have had heretofore—Dr. NUNN, of Savannah, Ga.

On motion, the nominations were closed, and the Secretary was instructed to cast one affirmative ballot for Dr. NUNN for Treasurer.

The following gentlemen were then nominated and elected to the Executive Council: Drs. W. J. HERDMAN, G. BETTON MASSEY, W. J. MORTON, A. H. GOELET, and O. B. DOUGLAS.

DR. R. J. NUNN—In rising to make this motion I am about to appeal to the sensibilities of every member in the Association. I desire to express the obligations we are under to our retiring Secretary. We appreciate the work she has done, which has been so great as to cause her health to give way in the interests of the Association. I therefore move that by a rising vote the thanks of the Association be now tendered to Dr. MARGARET A. CLEAVES for the able and self-sacrificing manner in which she has performed the duties of Secretary of this Association.

THE PRESIDENT—As retiring President I would say to you that every word of this motion has its full meaning. No one could have done better work than she has done. It is out of regard for her that we do this.

The motion was then put, and carried unanimously.

DR. A. LAPHORN SMITH then expressed the wish that the Association would decide to meet in Montreal next September, and assured them that if they did so they would have a hearty welcome.

On motion, the Association then adjourned to participate in the reception tendered them by the resident members.

THIRD DAY, SEPTEMBER 27—MORNING SESSION.

BUSINESS MEETING.

The meeting was called to order by the President at 10 A.M.

THE PRESIDENT—The suggestion I made at the first part of the meeting has apparently met with general approval. These committees were organized two years ago with the object of having some person responsible for looking after the apparatus which is being prepared for our purposes by the mechanicians. Until recently we have been largely in the hands of the mechanicians who have made up our machines, and have told us how we should use them. Now we have got to the point where we can dictate to them, and tell them just what we want. In this pioneer work, however, it is necessary that some person should be responsible for the construction of our apparatus, and also that we should be able to place ourselves in a representative position before the profession at large. The members of the various committees have not fully understood the scope intended for their work, as I originally suggested it, but they are beginning to understand it now. They should make practical tests of the various apparatus, and also give us an epitome of the work of the year in their respective departments. It is my desire, and that of many others in this Association, that these committees be put upon a more comprehensive basis. If you will turn to the Constitution and By-Laws you will see the list of the various committees. It was our original intention to adopt standard coils, and standard machines of various kinds, but we have since come to the conclusion that by so doing we would become more or less embarrassed, becoming the aiders and abettors of some particular manufacturer. All that we need to do is to state what is required in a particular instrument or apparatus, and to adopt certain stand-

ard principles, and hence I suggest that we should leave out the word "standard," wherever it occurs in connection with the titles of these committees. Lastly, I would suggest that a committee on Electric Light Apparatus for Diagnosis and Therapy be formed. I would also introduce the following sentence: "The following committees are expected to collate information and make careful tests as to the nature and efficiency of all instruments put on the market in the class assigned to them, and to make full reports of their investigations at the annual meeting." I would introduce a sentence of that sort as explanatory of the functions of these committees. You must take action in order that the committees be continued, and I will appoint the members for these different committees. I am ready to entertain such a motion.

DR. GOELET—I make a motion to that effect. Seconded by DR. BEAVER, and carried.

DR. BEAVER—We all know that instrument makers have their own methods of connecting the conducting cords to the battery and with the electrodes—by springs and screws of various sizes. I think we should make an effort to get the instrument makers to adopt some uniformity in this respect. I move therefore that the Committee on Electrodes be instructed to communicate with the manufacturers and endeavor to have them adopt some uniform connections. Seconded and carried.

DR. GOELET announced on behalf of the Council that the Association had been invited to Montreal, and he thought it would be eminently wise that the Association accept this invitation, especially as the next President was from Montreal.

DR. DICKSON—I have been asked by DR. A. LAPHORN SMITH to urge the Association to meet next year in Montreal, as he has found it rather difficult work to excite sufficient interest among the profession there in the subject of electro-therapies. I am assured that you will meet with a hearty welcome, and I am positive that you will not be sorry for choosing this for the next place of meeting. There are many places of interest in the surrounding country, and the city is easy of access.

DR. BEAVER—I move that the next meeting of the Association be held in Montreal, the date being left to the Council. Seconded.

THE PRESIDENT stated that DR. SMITH had told him that he could get the support of the laity in Montreal, but perhaps not of the medical profession.

DR. BEAVER—I would change the motion then so as to read Toronto instead of Montreal.

DR. WALKER assured the Association of a hearty welcome at Toronto.

The motion was then put and carried that the Association should meet in Toronto.

The Secretary moved that the Association pass a vote of thanks to the New York Academy of Medicine, to MR. NIKOLA TESLA, to the Edison Manufacturing Company, to the Resident Fellows, and to the Committee of Arrangements. Seconded and carried.

The Secretary announced that DR. GEHRUNG had sent a letter of regret at his inability to be present at this meeting.

SCIENTIFIC SESSION.

Report of the Committee on Constant Current Generators and Controllers, by DR. W. J. HERDMAN, of Ann Arbor, Mich. (The report was not read, but the main points were briefly stated.)

DR. NEWMAN presented a separate report on this subject. (MS.)

MR. BROWN also presented a report on Secondary Batteries. (MS.)

On motion of DR. WALKER, the report of the Committee was received and referred to the Council for publication.

"Notes on the Effects of High Frequency Electrical Discharges passed through the Body," by PROF. ELIHU THOMSON, M.A.I.E.E., of Lynn, Mass., was read by DR. HERDMAN.

(To be continued.)

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

FIRST DAY—AFTERNOON SESSION.

The Society convened in the Chamber of Representatives, State Capitol Building, Columbus at 2 P.M., the President, D. N. KINSMAN, M.D., occupying the Chair.

DR. W. T. HOWARD, of Cleveland, Ohio, read a paper on

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

After considering the methods of arriving at a standard, giving preference to that of Behring as being the most accurate, and dwelling upon the mode of production of antitoxin in the body and the manner of its action, Dr. Howard continued as follows:

From the beginning of the use of antitoxin in the treatment of diphtheria, there has been a marked lowering of the death rate. Thus the German hospital statistics, with their mortality of from 35 per cent. to 65 per cent. showed under the influence of the new remedy, a mortality rate of from 11 per cent. to 25 per cent. Kossel reported 233 cases with a mortality of 23.2 per cent. Katz reported 128 cases in Baginsky's wards a mortality of 13 per cent. Virchow gave the treatment the weight of his authority when he reported 303 cases treated with antitoxin with a mortality of only 13.2 per cent., and 230 cases treated without antitoxin with a mortality of 47.8 per cent. In Roux's first series of 448 cases there was a mortality of 24.3 per cent. while at the same time the mortality from cases not treated with antitoxin in the Hospital Trousseau was 60 per cent. Later Roux's mortality has fallen to below 10 per cent. In Vienna 100 severe cases were treated with a mortality of 24 per cent. Foster of Washington (*Medical News*, Feb. 2, 1895) has gone to the trouble of tabulating the comparative results of diphtheria cases treated with antitoxin and by the ordinary methods. He found that in 2,740 cases—selected and unselected—collected from literature treated with antitoxin, 509 died, a mortality of 18.54 per cent.; of 4,445 cases selected and unselected, and including as did the other cases upon which tracheotomy and intubation were done, not treated with antitoxin, 2,017 died, a mortality of 45.36 per cent. Probably the most interesting series of cases reported in America is that of Biggs, in which 255 cases of diphtheria were treated in the Willard Parker Hospital and in the tenement houses of New York. There were in these 255 cases, 40 deaths, or a mortality of 15.69 per cent. If 15 cases in which death took place in less than twelve hours after the serum was administered are deducted, the mortality was only 10.4 per cent. During the same period, according to the statistics of the Health Department, the mortality from diphtheria in New York was from 25 per cent. to 35 per cent. At the recent German Congress of Internal Medicine held at Munich, Huebner and Baginsky of Berlin, and Wederhofer of Vienna, among others, indorse the serum-therapy and note striking lowering of the mortality following its use. The experience of the writer in the recent Ashtabula epidemic was gratifying. In 40 cases treated with antitoxin there was a mortality of 7.5 per cent., while of 82 non-selected cases occurring during the same epidemic treated by ordinary means the mortality was 27 per cent. A series of 150 children with diphtheria treated with Roux's antitoxin, have just been published from Paris, with a mortality of 10 per cent. The experiences of individual observers might be multiplied almost indefinitely. The difference in the results obtained according to the day upon which treatment is begun, first emphasized by Kossel, is striking. It is however, what, *a priori*, one would expect. In Kossel's 233 cases, of those treated on the first day of illness 100 per cent. recovered; on the second day 97 per cent.; on the third day 89 per cent.; on the fourth day 77 per cent.; on the fifth day 60 per cent.; on the sixth day 47 per cent.; and between the seventh and fourteenth days 51 per cent. The accumulated experience since Kossel's publication fully bears out his figures. For instance, Foster, analyzing 2,740 cases, of those treated on the first day of the disease none died; on the second day the mortality is 2.83 per cent.; on the third day 9.99 per cent.; on the fourth day 20 per cent.; on the fifth day 33.33 per cent.; after the fifth day 41.38 per cent. The mortality is also always higher in children under 9 years than in children above this age and in adults.

Clinical Observations.—An early and rapid improvement in the general condition of patients treated with antitoxin has been noted by nearly all who have used the remedy. The pallor and blueness of the countenance usual with diphtheria patients quickly disappears, or if the case is treated early in the disease this symptom does not develop. Children with large masses of false membrane in their throats are bright and playful. This improvement in the general condition, in the writer's experience often takes place in from twelve to twenty-four hours. It is not uncommon to see severe and malignant cases sitting up in bed playing, within from twenty-four to forty-eight hours after the beginning of the treatment. The earliest and a very characteristic effect is a marked improvement of the heart's action

and of the pulse. The heart beats are slower and the sounds louder. The pulse falls rapidly in frequency, at the same time increasing in strength and volume. In the writer's experience the pulse rate would fall even in the worst cases twenty beats in the first twenty-four hours. In from twenty-four to forty-eight hours it was not unusual to find the pulse 80 or 90 per minute. Often within fifteen minutes after an injection, a rise in the arterial tension was noted. No change in the respiration due to the remedy itself is described, except in young children, in whom it may be accelerated. The only effect upon the respiration is its improvement incident to the removal of mechanical obstruction, due to the presence of false membranes in the air passages.

According to Roux, if the remedy is given at the very outset, the temperature rises only slightly above the normal. In fully established cases of the disease the temperature falls in a marked manner, often on the day succeeding the first injection. The fall is rapid, the temperature line descending almost vertically. In severe cases the temperature fall is gradual, and it may not reach the normal for several days. When the temperature remains high, in the absence of mixed infection, it is usually to be regarded as an indication for more of the remedy. In the writer's experience the fall in the temperature was usually marked. In mild cases and in cases of medium severity this fall was usually sudden; in severe and malignant cases it was more often gradual.

The changes in the local lesions are marked and striking. In the writer's cases, for the first twelve to twenty-four hours there was no change in the appearance of the false membrane. In severe and malignant cases, it sometimes was increased during this period. But usually its formation ceased within twenty-four hours after the first injection. Generally after the first twenty-four hours the false membrane lost its dry, opaque grayish appearance, and became moist, somewhat translucent and milky white. Slight filmy false membranes would rapidly disappear. The thick false membranes in from twenty-four to forty-eight hours begin to separate both from the surface and from the borders. It is quite characteristic to see the false membrane curling up and separating at the borders, where it joins the mucous membrane of the part. The false membrane disappears in the majority of cases by the third day. It may disappear earlier or later, as late as the seventh day in our experience. The swelling of the cervical glands usually begins to subside before the disappearance of the false membrane. The glands, however, not infrequently remain somewhat enlarged and tender and appreciable to the touch for some time. If the glands are not already swollen at the beginning of the treatment, they do not usually enlarge.

Some observers have held that diphtheria antitoxin causes albuminuria. This is one of the most actively investigated questions now in the antitoxin treatment of diphtheria. Much will depend upon its decision. The question is a very complex one, for it is well known a very large proportion of severe cases of diphtheria, treated by any mode of treatment, have more or less albuminuria. According to v. Jaksch, all severe cases of diphtheria have albumin in the urine. The injection of large amounts of the antitoxin into dogs has failed to produce albuminuria. The presence of the carbolic acid used to preserve the antitoxin has been objected to as a possible cause of nephritis. But it has been found that the injection of carbolic acid in solutions of the same strength used in the Behring antitoxin causes neither albuminuria nor nephritis in dogs. Altogether, the weight of evidence points to the conclusion that diphtheria antitoxin lessens the percentage of cases of albuminuria in diphtheria and does not cause nephritis. It will, however, require the study of a large number of carefully investigated cases to settle this, as well as other mooted points. Roux is positive that albuminuria is less common when antitoxin is used. Most observers hold that albuminuria existing before the antitoxin was given is not only not augmented, but is soon lessened and disappears.

From the beginning, it has been asserted by all, that cases of mixed infection fail to show the rapid improvement under the influence of antitoxin, so striking in cases of pure diphtheria. The antitoxin does not seem to increase the immunity against the organisms of mixed infection (the streptococcus and staphylococcus), in the slightest degree. However, it appears to be established that cases treated early with antitoxin are much more liable to escape mixed infection than cases coming late to treatment or treated by ordinary means. It is also established that cases of mixed infection do better under the antitoxin treatment than under any

other. The explanation here is that if the diphtheria toxemia is eliminated from the case, the body is in a very much better condition to struggle against the microorganisms causing the mixed infection, and the patient's chances are improved by that much. Clinical observation on this point has been substantiated by Roux on animals. It may be said that while antitoxin when given early very much lessens the chances of mixed infection, any considerable lowering of mortality in cases of well-established mixed infection is not to be looked for.

When antitoxin is used, the proportion of cases of "descending croup" is very much diminished. Results show that intubation is very much better adapted to cases of laryngeal diphtheria, whether primary or secondary, than is tracheotomy. The tube is quite sufficient in the large majority of cases to keep the air passage open until the false membrane is thrown off. Intubation is to be looked upon as the "complement of antitoxin." Several cases of recurrence of diphtheria after the use of antitoxin have been recorded. Gaebel reports two such cases. The re-infection occurred in one case on the twenty-seventh and in the other on the twenty-eighth day. Both cases rapidly yielded to injections of antitoxin.

The amount of antitoxin given must depend upon the effect produced in each individual case. The best guides are the effects upon the pulse and the false membrane. According to Ehrlich and Kossel, the amount necessary is from 400 in light cases to 1,000 to 1,500 antitoxin units or more in severe cases. The amount in cubic centimeters will vary with the strength of the preparation. For instance, 1 cc. of the Behring No. 1 contains about 60 antitoxin units; 1 cc. of Roux's from 50 to 60; 1 cc. of the Behring No. 2, 100. The antitoxin used at Ashtabula was found by Dr. Arey, in my laboratory, to have an antitoxic value of 60 units. Janowski has found Aronson's antitoxin about the same strength as Behring's No. 2. Some of the antitoxin obtained from the horses of the Health Department of the city of New York is stronger than Behring's No. 3. Kinyoun, of Washington, has also obtained a very strong antitoxin.

The remedy is to be injected subcutaneously with a large hypodermic syringe, of from 10 to 20 cc. capacity. It is of the utmost importance that the syringe should be kept sterile. Several special syringes with asbestos sponges which will stand steam or hot dry air disinfection have been invented. But probably the one most generally used will continue to be the old style syringe with the leather plunger. This can be quite safely sterilized with a thorough washing with a 5 per cent. carbolic acid solution before and after using. The skin at the point of injection should be cleansed and sterilized. It is probably not necessary to use a dressing after the injection, though it can do no harm. In the experience of the writer, the buttock is at once the most accessible and least painful point for injection. It is usual to give in severe cases 1,000 antitoxin units at once, and to repeat in twenty-four hours. One may, however, divide the dose and give half at first and the rest after ten or twelve hours. Mild cases usually require only from 400 to 600 antitoxin units. Severe and malignant cases often require from 4,000 to 5,000 or more. It does not seem to make much difference whether the antitoxin in solution is concentrated or diluted, provided always the necessary number of antitoxin units are given. Other things being equal, however, it is better to use an antitoxin of a high immunity grade. High temperature, rapid pulse and symptoms of toxemia, unless clearly due to mixed infection, are always indications for more of the remedy.

For the production of immunity, small doses are sufficient. From 60 to 400 or 600 antitoxin units are usually given. The size of the dose will depend upon the body weight and age. The artificial immunity thus produced lasts for a variable time, from a few days to six or more weeks. In a diphtheria-infected household, every one should receive immunizing injections. If others take the disease after a few days the injections should be repeated. Almost invariably individuals contracting diphtheria after these injections have mild cases, which yield readily to small doses of antitoxin.

Nearly all of the dread sequelæ of diphtheria are either entirely absent or very mild in cases treated with antitoxin. The proportion of cases having paralysis is very much reduced. In the forty cases of which the writer has notes there was only one case of paralysis, while in cases in the same epidemic treated by the ordinary measures paralysis was common. Heart lesions, both mural and endocardial, are very much less common in the antitoxin cases. In the writer's forty cases, in only three was there cardiac irregularity following the disease. All of these cases made rapid and perfect recoveries. One case, however, in which treatment was

not begun until the sixth day, died suddenly of acute dilatation of the heart.

With the earlier disappearance of the false membrane in antitoxin-treated cases, it is probable that the diphtheria bacilli disappear earlier from the throat than in cases treated by other means. However, there is not enough evidence at hand to decide this point. The writer's experience has not been sufficiently large to draw positive conclusions. It will take the study of a large number of cases to arrive at a definite solution of the question. Cases should be isolated until they have been proved free from diphtheria bacilli. By immunizing individuals in diphtheria-infected houses, epidemics of diphtheria can be rapidly controlled. Although in cases coming early under treatment, antitoxin may be regarded as a specific against diphtheria, in some cases, especially cases treated late in the disease and in cases of mixed infection, the use of other measures the value of which is well established, should not be neglected. The writer has seen such cases, which in his opinion, would have certainly died but for the timely use of stimulants. An abundance of good food is of the highest importance. It is advised to gargle or to spray the throat at short intervals with some mild non-corrosive antiseptic solution. In the opinion of the writer, copious irrigation of the affected surfaces would be more efficacious. It seems probable that as ordinarily used the local application of antiseptic agents is of little value. In many cases, certainly, they do not reach the source of the trouble, which lies buried in the false membrane. As the latter is thrown off under the influence of the antitoxin, the proper use of antiseptic solutions is of the highest importance, as the diphtheria bacilli can then be reached and acted upon. Although the bacilli may not be killed outright, their virulence is at least very much lessened. After the disappearance of the false membrane, it is important to destroy diphtheria bacilli remaining in the throat, thereby not only lessening the chances of the patient infecting others, but very materially shortening the period of quarantine. The ideal treatment of diphtheria in the future must aim first at the destruction of the infectious agents *in situ*, and secondly at counteracting the poison absorbed into the system. The latter requirement is undoubtedly filled by the antitoxin. The first is apparently accomplished by the early and frequent application of the solution recommended by Löffler. The use of this latter agent is very promising in cases of mixed infection. Recently the streptococcus antitoxin has been successfully used in the treatment of puerperal fever, erysipelas and other streptococcus infections. If these results are confirmed by others, a great step forward will be made in the treatment of mixed infections in diphtheria.

From the first it has been observed that a certain proportion of cases treated with antitoxin, after from three to fifteen or more days developed painful skin eruptions, usually urticaria and erythema multiforme. The occurrence of joint and glandular swellings and severe muscular pains is met with in a certain proportion of cases. These with the skin eruptions appear to depend rather upon the preparation of antitoxin used and the individual susceptibility of the patient than upon the size of the dose. Their occurrence is not to be looked upon as due to the presence of infectious agents in the antitoxin, but to some unknown chemie body in the horse's blood serum which is poisonous for certain human beings. Although the symptoms produced by the poison are distressing, they are not dangerous to life and disappear without treatment in a few days.

In the diphtheria antitoxin we have a specific for the diphtheria poison when applied early in the disease; and the later the use of the remedy the greater the mortality. The agent is antitoxic and not bactericidal in its action, in the sense that it kills diphtheria bacilli present in the affected part.

Dr. F. D. Case of Ashtabula, Ohio, read a paper on

A CLINICAL REPORT ON THE DIPHTHERIA EPIDEMIC AT ASHTABULA.

As the title of this paper implies, it is not my intention to write a systematic essay on diphtheria, but rather to present the salient points of the recent epidemic at Ashtabula, the following distinctive features of which make it worthy of your attention.

1. It is one of the few well authenticated instances of an extensive epidemic of diphtheria due to infected milk.¹

2. It was the first epidemic of the disease in this country in which a general use was made of antitoxin, and an oppor-

tunity afforded to contrast the result with other accepted modes of treatment.

Most of the time, for three years or more, there have been cases of diphtheria in the first and sixth wards which adjoin Lake Erie and contain a large foreign population employed on the coal and iron docks. Among these people the enforcement of quarantine restrictions is extremely difficult. The disease was of a severe type with large mortality. In these wards in 1891 there were three deaths from diphtheria; in 1892 seven deaths; in 1893 nineteen deaths; and in 1894 nineteen deaths. During these years up to September, 1894, the other four wards were entirely free from the disease. In September and October, 1894, there were eight cases confined to a small section of the fourth ward. This was speedily stamped out, no cases being reported from that ward in November.

The first case ushering in the epidemic under discussion, resided on West Street in the fifth ward and was taken ill Dec. 4, 1894. December 5 there were six additional cases located on Bell Street in the third ward; Center and Henry Streets in the fourth ward, and Bond Street in the fifth ward. On the 6th, eight more cases were taken ill on Station Street in the second ward; and on Center, Henry, Gary, Main, Tyler and Chestnut Streets in the fourth ward. On December 8 it was estimated that there were thirty cases in the second, third, fourth and fifth wards of the city. The first death, that of the first person taken ill, a lady 30 years of age, occurred December 9. On the 10th it was estimated that there were forty cases in the four wards mentioned, and the Board of Health declared the disease epidemic in that part of the city south of the main line of the L. S. & M. S. Railway. The public schools in these wards were ordered closed.

The simultaneous occurrence of such a large number of cases excited great alarm on the part of the public, and led to a rigid investigation on the part of the health authorities.

For two weeks previously a model of a Swiss village had been on exhibition, both day and evening, at 235 Main Street. Hundreds of children from the infected first and sixth wards as well as from the other parts of the city had been in attendance and the opinion soon became general that this furnished an explanation of the sudden outbreak of the disease. An investigation showed this theory untenable, as a large number of those taken ill had not visited the exhibition. The sewerage and water supply were each in turn inquired into and found free from suspicion.

When attention was called to the food supply, it was found that all cases up to December 10 were in families that procured milk from a wagon of Smith's milk line, driven by Henry Smith. An inspection of Smith's dairy showed the cows to be in good condition and free from any indication of disease. They were supplied with pure spring water and the barns and yards were in good sanitary condition. Henry Smith, driver of the wagon that supplied the infected families, was suffering from sore throat as early as December 2 and perhaps a day or two earlier. He continued on the wagon, however, except on the 5th and 6th, when his place was taken by another man.

December 12. The Health Officer reports that since December 4 there have been forty-nine cases of diphtheria reported, forty-seven of which were in that part of the city south of the L. S. & M. S. track. Of the forty-seven cases, forty-five are in families that used Smith's milk. By resolution of the Board of Health, Smith was prohibited from delivering milk for fifteen days after December 11. In this connection the following cases are of interest:

Mr. P. and his two sons, aged 6 and 12 years, were taken ill with diphtheria in the early morning of December 5. Mrs. P. had gone from home December 3, and was at this time in Binghamton, N. Y. On the evening of December 2 they all partook freely of milk for supper. The milk was procured of Henry Smith. Other members of the family did not use the milk and did not contract the disease.

Mrs. S. usually procured her supply of milk from another source, but on the morning of December 2 purchased one quart of Henry Smith. December 5 and 6 she was ill in bed with sore throat but did not call a physician. On December 19 her son, aged 14, was taken ill with diphtheria, received the antitoxin and recovered. There had been no known exposure to the disease, except from the mother.

Many instances like the above could be cited. It is true that the evidence pointing to infected milk, as the cause of the epidemic is entirely circumstantial, since after repeated examinations the bacillus of diphtheria was at no time found in cultures from the milk or from the throat of Henry Smith. Yet most of our opinions in clinical medicine and

¹ See Powers report to Local Government Board, *Universal Med. Sci.*, Vol. V, p. 230; also Clark's report in same.

therapeutics, like most decisions in law, are based upon circumstantial evidence. As Chief Justice Gibson has said: "You see a man discharge a gun at another; you see the flash, you hear the report, you see the person fall a lifeless corpse and you infer from all these circumstances that there was a ball discharged from the gun which entered his body and caused his death, because such is the usual and natural cause of such an effect. But you did not see the ball leave the gun, pass through the air and enter the body of the slain; and your testimony to the fact of killing is therefore inferential, in other words circumstantial. It is possible there was no ball in the gun, and we infer that there was, only because we can not account for death on any other supposition."

It is true that many persons used milk from this same wagon who did not contract the disease. It is of course not known whether every can of milk on a given day was infected and if such was the case, the inherent resisting power of many persons to infectious disease would explain the exception. The array of a large number of negative cases—those in which exposure is not followed by disease—is of little importance, unless at the same time an explanation having more elements of probability is at hand. The chances of such a series of admitted coincidences not due to a common cause is too small for calculation.

In Watson's "Practice of Physic," in the chapter on Continued Fevers is the following: "A man might say, 'I was in the battle of Waterloo and saw many men around me fall down and die, and it was said they were struck by musket balls; but I know better than that for I was there all the time and so were many of my friends and we were never hit by any musket balls. Musket balls therefore could not have been the cause of the deaths we witnessed.' And if, like contagion they were not palpable to the senses, such a person might go on to affirm that no proof existed of there being any such thing as musket balls."

December 13. Dr. Miller of the State Board of Health, accompanied by Dr. W. T. Howard Jr., Professor of Bacteriology in the Western Reserve University, arrived for the purpose of investigating the epidemic. December 14. The Board of Health authorized the Health Officer to procure from the Pasteur Institute, New York, a supply of antitoxin. Health Officer reports to date sixty-four cases in forty-two families with eleven deaths. December 16. A quantity of antitoxin was received and administered to three cases. December 17. To date sixty-seven cases; forty-four houses quarantined; thirteen deaths. December 18. Seventy-five cases; forty-seven houses quarantined; fifteen deaths. December 21. Eighty-seven cases; fifty-one houses quarantined; eighteen deaths. December 22. Ninety cases to date; twenty deaths. Forty-seven patients convalescent; twenty-three under treatment. December 28. The Board of Health declare the epidemic at an end. There are still seventeen cases under treatment, most of them for sequelæ.

There were 111 cases and 23 deaths during the month of December, 1894, of which 100 cases with 21 deaths were in families supplied with milk from the wagon driven by Henry Smith. The public schools reopened January 7, after a vacation of four weeks.

From the beginning of the epidemic, a rigid quarantine was enforced against the sick and all coming in contact with them. The convalescent were discharged from quarantine only after four weeks detention, unless a bacteriologic examination showed them to be sooner free from the disease. All infected houses were disinfected under the direction of an employe of the Board of Health. The adequacy of the means employed is evidenced by the fact that with over fifty houses quarantined there was no general spread of the disease, and in twenty-four days from the time the first patient was taken ill and eighteen days after the disease was declared epidemic, the Board of Health were able to declare the epidemic at an end.

Of the total number of cases of diphtheria occurring in that section of the city in which the disease was epidemic, I have received a detailed report of eighty-two cases. Of these fifty-nine cases received the usual treatment with iron, chlorate of potash, quinin and whisky internally; and peroxid of hydrogen or bichlorid of mercury as a spray. Of these forty-four recovered and fifteen died.

Of five cases treated with bichlorid of mercury and whisky internally and peroxid of hydrogen and lime water as a spray, four recovered and one died, or 20 per cent. mortality.

Of eighteen cases treated with antitoxin, sixteen recovered and two died, or 11.1 per cent. mortality.

In order to secure a broader field for comparison, I have obtained a report of 48 additional cases occurring in the city

between Dec. 1, 1894, and April 15, 1895, making a total of 130 cases occurring in the practice of ten physicians. An analysis of these cases gives the following result:

Total number of cases of diphtheria treated, 130.

DETAILS OF TREATMENT.

	Ages of patients.			
	Under 2 years.	Between 2 and 10.	Over 10 years.	
54 treated with serum.				
Recovered	2	26	22	—50
Died	1	1	2	—4
76 treated without serum.				
Recovered	2	15	41	—58
Died	1	9	8	—18
Average age of those treated with antitoxin, 12 years.				
Average age of those treated without antitoxin, 18 years.				
Cases treated:				
Bacteriologically proved to be diphtheria				47
Of these, treated with antitoxin				29
Of these, " " without "				18
Not bacteriologically determined				83
Of these, treated with serum				25
Of these, " " without "				58

Amount of serum used to each patient varied from 12 to 113 cubic centimeters.

All the cases recovered that were treated with antitoxin before the fourth day of illness.

The foregoing statement, while statistically correct, would be to a certain extent misleading without further explanation. In all the fatal cases the antitoxin treatment was begun after several days' illness.

Case No. 1, a boy 12 years of age, had been ill six days, was profoundly septic and had diphtheritic laryngitis which later necessitated intubation. He lived two days after the first dose of antitoxin.

Case No. 2, a young lady, age 28 years, had been ill six days and had received during that time the iron treatment. Like the previous case, she was suffering from both diphtheritic laryngitis and septicemia when she received the first injection of antitoxin. She lived five days after the first dose.

Case No. 3, a child four months old, received the antitoxin on the fourth day. It died of septicemia on the evening of the third day thereafter.

Case No. 4, a child 3½ years old, suffering from diphtheritic laryngitis, received an injection of antitoxin on the fourth day after the development of croupy symptoms. Intubation was done the evening of the same day. She lived three days and died septic. This child had had sore throat with swollen glands for several days previous to the beginning of the laryngitis, but a physician was called only when suffocation was imminent.

In the opinion of the attending physicians, life was prolonged in each of the fatal cases by the use of antitoxin. The two first cases were almost in *articulo mortis* when the remedy was injected, and yet lived two and five days, respectively, and in the latter case with good prospect of recovery.

In cases not treated with antitoxin, heart failure, occurring about the time of or shortly after the disappearance of the membrane, was a frequent cause of death. In one case, death in a patient 40 years of age was due to a piece of membrane being drawn into the larynx during a violent fit of coughing. In another case a violent urticaria developed on the tenth day of illness and was followed two days later by persistent vomiting and threatened heart failure. Patient recovered.

The most frequent sequelæ in cases not treated with antitoxin, were paralytic in character. These varied in degree from slight aphonia or difficulty of deglutition to complete hemiplegia. Difficulty in locomotion, somewhat resembling the gait in ataxia, was observed in two cases. Double vision in two cases. Irregularity or intermittence of heart's action was frequent. In one case the symptoms were so alarming that the recumbent posture in bed was insisted on for a period of two months. Patient made a good recovery. Hemiplegia occurred in the case of a young lady 18 years of age, and was accompanied by aphasia. There was no loss of sensation. Motion of upper extremity is still confined, after five months, to flexion and extension of wrist and fingers and supination of forearm.

The sequelæ following antitoxin treatment were in general quite different in character, but in two instances where it was not given until after the third day, mild paralytic symptoms were developed. Urticaria was reported in seven cases and was probably present in some degree in others.

Rheumatism was reported in five cases and was in some instances quite severe for several days. Both urticaria and rheumatism also followed the use of antitoxin for immunization. Slight inflammation of the joints was reported in two cases. In no instances have abscesses followed the use of antitoxin, nor have there been other local symptoms, save mild erythema and some muscular soreness at the point of injection. Nor in a single instance have the constitutional effects of the antitoxin been such as to cause the slightest anxiety to the attending physician.

In most cases all other treatment has been omitted after the antitoxin was given, but in a few instances whisky was administered and an antiseptic spray used locally. There is no question in therapeutics upon which the local profession are more fully agreed, than upon the efficiency of antitoxin in diphtheria.

All the serum used at Ashtabula was procured of the Pasteur Institute, New York.

I regret that there is occasion to call in question many of the statements in an article entitled "A Dangerous Antitoxin," which appeared in the March number of the *Cleveland Medical Gazette*. Similar statements emanating from the same authority, have appeared from time to time in the public press. In the *Gazette* article the writer says: "Through the courtesy of Dr. A. W. Hopkins, Health Officer at Ashtabula, Ohio, I received a sample of a diphtheria antitoxin which had just been received from New York. This antitoxin was obtained from the same source as the supply which had been employed during the epidemic at Ashtabula a short time previously. Dr. Hopkins informed me that he took the sample from a freshly used bottle and then transferred it inadvertently to an empty bottle which had previously contained some of the same material."

Now, the facts are, and Dr. Hopkins authorizes the statement, that the empty bottle to which the fresh sample was transferred, had lain uncleaned in a warm room from four to six weeks. He further says that he informed the writer of the papers before their publication, of the facts and apologized to him for sending the serum under such conditions, "even to inject guinea pigs." If we recall the fact that blood serum furnishes one of the very best culture media, it will not excite surprise that an examination of other bottles kept under like conditions shows in every instance the adherent serum to have undergone putrefaction. The serum is described by the writer as "a thick slightly yellowish fluid containing a pronounced flocculent white precipitate; and it had a strong odor of camphor." Dr. Hopkins tells me that out of the whole amount of serum used in Ashtabula, about 100 bottles of 25 cubic centimeters each, in not a single instance has there been a precipitate even on keeping six or eight weeks, and in no instance have the results of a dose so long on hand been different from those of a fresh article. I think you will agree with me that the exhibition of serum obtained under such conditions that it could hardly escape infection, scarcely called for such startling head lines in the public press as the following: "Putrid Antitoxin. The Stuff used in Ashtabula. A Doctor's Discovery." Or the following: "Swarms of Bacteria. They are Found in a Sample of Antitoxin Such as Has Been Used at Ashtabula." But I will not weary you by a further discussion of the papers in question (since perhaps the author belongs to a class so pithily described by Dr. Holmes as being "always positive and sometimes inaccurate"). We are still using the same brand of antitoxin in the cases that are of frequent occurrence in the first and sixth wards.

In conclusion, I would summarize our present knowledge of diphtheria as follows:

Diphtheria is an acute specific contagious and infectious disease.

It is primarily a purely local disease, caused by an external parasite—the Klebs-Löffler bacillus.

The condition necessary for the production of the disease is the presence of the bacilli in quantity and activity sufficient to overcome the individual's power of resistance.

Diphtheria always results, either directly or indirectly, from a previous case, but unsanitary conditions have a great influence on the propagation and virulence of the disease.

As a rule, one attack confers immunity for a limited period.

The constitutional symptoms are due to the absorption of the poisonous products of the primary disease from the local lesion.

Changes occurring in the blood and tissues, and the various sequelae, are caused by the direct or indirect action of the toxins or toxalbumins.

And finally, the discovery or rather the development of

the antitoxin treatment of diphtheria is the greatest achievement of modern therapeutics.

DISCUSSION.

DR. H. M. W. MOORE, of Columbus—Beginning with December last, I have examined for the Health Board here in Columbus some eighty-one cultures, made at the bedside with the ordinary outfit. Of these cases, thirty were diphtheria and fifty-one were something else. The system of distribution of test tubes was to leave them in drug stores, and the outfits were collected by the Health Officers as they came in, in the evening. Under the extreme poverty, this was perhaps the best plan that could be adopted. However, the Health Officer was not likely to pass a drug store or call in immediately after test tubes were left, and it was often forty-eight hours before test tubes came into my hands after they were inoculated. That period was too long, but the system was probably the best that could be adopted under the circumstances.

DR. J. S. HALDEMAN, Zanesville, Ohio—I find upon close observation and comparison, that the European and American hospitals do not differ very materially in their percentum rate of mortality. This new method has drawbacks, and great ones, which the old one has not. It has them in the manner of its manufacture, the cost attending its purchase and administration, and in not being able to furnish it in sufficient quantities, and in due time for use in city, town and country. By the old method, all places can be penetrated and all classes reached and satisfied. Now, which should we adhere to, the impracticable or the practicable? Wisdom says, the latter. Let us improve it, if possible. The mortality rate is not high in my own practice, which covers a period of about forty-one years. During that time I have practiced in several diphtheria epidemics. In the year 1878, when I was physician to the John McIntyre Children's Home, Zanesville, Ohio, there were thirty of the inmates down with it at one time, in its most malignant form. All recovered but one, and the matron thought he would have recovered if they could have made him take the medicine. This was a mortality rate of a small fraction over 3 per cent. Furthermore, I never lost but one patient in a family, and never in more than two families in the same epidemic. However, some practitioners in the same epidemics lost whole families.

DR. E. B. FULLERTON, of Columbus—I doubt very much whether we are to have in America the reported fatality of this disease in European countries, 40 to 60 per cent. I doubt whether in Columbus, Ohio, it has ever much exceeded 25 per cent. In some thirty cases there were but four deaths, that is $13\frac{1}{3}$ per cent. In New York, Dr. Jacobi said the epidemic last winter, in his belief, would not, under the ordinary treatment, exceed 25 per cent. mortality. It has been claimed to be but 23 per cent. under the serum-therapy. Reasoning deductively we would take the serum as the least vitalized substance in the body, consisting principally of water and a few salts. How is the effect produced? Does it act as a poison to the microorganisms? Or, do we obtain a good result from it because it feeds the phagocytes? What has been the effect upon statistics, as to mortality, of methods of diagnosis? Have not there been introduced a larger number of cases under the same title? If we, by bacteriologic examination introduce many mild cases, we can easily reduce the percentage of deaths under any treatment. Was Henry Smith, who distributed the milk, among the cases that recovered; or, was he among the mild cases, which ordinarily would be called something else? I know when I was in Columbus even good physicians would reserve their diagnosis until they knew whether the patient would die or not. By introducing these mild cases is there not a chance for fallacy in the statistics? I have long believed the ordinary treatment of diphtheria is fallacious. What good can the tincture of iron do? We know iron is very little assimilated; it requires days, or perhaps weeks. What is the use of giving chlorate of potassium? One man has died under it, and we know that it is an irritant upon the kidneys. The tearing off of the membrane and the application of caustics is, in my opinion, faulty. I have had very little trouble with diphtheria since I have quit using these means, and have not used quinin.

DR. I. S. ENRIGHT, of Akron—Because Smith did not die, but got well, after he distributed diphtheria in Ashtabula, does not argue that you must not give certain remedies. I have been passing through an epidemic of diphtheria, where the antitoxin has been used in some cases, and in some cases it has not been used. I am physician in the Children's Hospital at Akron, and am also Health Officer, and have had an opportunity to study the epidemic since the fourth day of

March. On March 21 I saw a boy with what I believed was diphtheria. Afterward I found him convalescent. Later, I found a boy who had scarlet fever. On the 28th the nurse was aroused by a peculiar cough from this boy. I was called at 5 o'clock and saw him at 6. I diagnosed diphtheria. My prognosis was unfavorable. The boy died March 30. In that hospital there were forty boys occupying a common bedroom; and sixteen girls in another common bedroom; and the children in the nursery in a common bedroom; and all eating in a common dining-room. I went to Cleveland, and Professor Ohlmacher came back with me on Saturday. We began with the antitoxin, and from the time we began using it in that hospital and in my private practice, I have not had a case of diphtheria, except two, that have not been examined bacteriologically, and there has not been a case but cleared up within twenty-four to forty-eight hours. There has not been a child, out of twenty-seven cases I have seen, but could drink from a bowl of water shortly after introducing the antitoxin, as well as any time before the attack. For instance, a colored boy, 7 years old, was seen on Friday when he was so hoarse he couldn't speak above a whisper; temperature 103.20; pulse 140. He looked like ashes. I fully anticipated he would follow the way of the white lad who didn't get any of the antitoxin. I gave him 5 ccm., and afterward 5 ccm. more, and at 4 o'clock the next day he sat up and sang with a clear voice. A German child, 7 years old, who had worn a tracheotomy tube since January 9, was seen by me on Thursday. I believe the tracheotomy was performed for polypi in her throat. When I saw her, her pulse was 140, and she had all the evidences of diphtheria. I gave 10 ccm. of the antitoxin at 4 o'clock in the afternoon. The next morning her throat was clear, and she has not taken a dose of medicine since. I saw her yesterday, sixteen days afterward, and she is well.

DR. J. A. MURPHY, of Cincinnati—There are hardly two cases in any epidemic, or under any circumstances that are alike. Take cholera or scarlet fever, for instance. And I have heard men, years ago, stand up in Cincinnati and say they never lost a case; and lo and behold, there comes an epidemic and they lose every case they have. Now, take this disease, diphtheria. We have a mild epidemic and the diagnosis is made by the good old practitioners who from their experience are able to make a clinical diagnosis. Few cases are lost. Then comes another epidemic and about one-half the cases will be lost. The Doctor has claimed the most remarkable results within forty-eight hours, or even less. Sir, he has had a very rapid action from this antitoxin injection, which is contrary to what I have read from others and what I have been told in the city of Cincinnati.

Dr. Case has laid down a proposition that these children, or a large number of them, contracted the disease from the man who carried milk around. He has given us no results of a bacteriologic examination of that man's throat. If he had diphtheria, how would the bacilli get into the milk? Would he spit them out? (Remark: Perhaps he drank out of the dipper.) Now, our friend says, if you get a Löffler bacillus in the throat you are sure to have the diphtheria. Why, gentlemen, these bacilli are found for six weeks after the clinical manifestations of the disease are gone; and further, they are found in the normal throat. Now, there must be some little phagocyte or worm or bug, very virulent, which afterward destroys this Löffler bacillus weeks after the patient has had diphtheria, or where he has not had diphtheria. Now, if you find two or three, four, five, or six of these bacilli in the mouth, what does it mean? Should the patient have antitoxin? Will he have diphtheria? Will our friend from Akron propose to throw in 5 ccm. of the antitoxin? He says patients with Löffler bacilli in the mouth or nose are in danger. Of what? Of the toxins these bacilli make, and these toxins producing sepsis.

Now, the next point. The bacteriologist with skilled eye and a good microscope fails to find the Löffler bacillus in a good many cases of diphtheria. Such cases are diagnosed by your old-fashioned practitioners from clinical experience and observation. The gentleman who used the microscope to make a bacteriologic examination, will not deny that these are cases of true diphtheria, and yet he will stop and say, "I don't know," which is a very proper answer. Now, this is one of the conundrums. Facts often lie, but the quickest liars are figures. What has taken place in Germany? Hundreds and hundreds of people have rushed with their children to the hospitals, with mild and with malignant cases, greatly lowering the mortality. The same thing takes place without the antitoxin treatment. A hospital in New York has been mentioned. It has been said the statistics of that hospital in the last four or five weeks

have had a doubt thrown upon them. In all these cases nothing is said about the local treatment and about stimulation. Dr. Eichberg said, when I asked him directly: "By no means will I throw aside the local treatment, peroxid of hydrogen, the iron and perhaps the bichlorid of mercury." Now comes the question which Dr. Ohlmacher has stated, about the manufacture of this antitoxin. How long is it safe? Who can explain the death of the woman the other day, in a very short time after the use of the antitoxin? If Dr. Ohlmacher's statement is true, this antitoxin ought to be put in a refrigerator and not kept long, but carried to the place and used immediately. And nothing has been said as to whether these are the sequelæ or the consequences of diphtheria: pneumonia, albuminuria, bronchitis and various other conditions which have immediately followed the antitoxin treatment.

DR. J. NORTH, Toledo—It has been said that figures lie. I believe there is a mistake in that. Figures do not lie, but figurers do lie. There has been a great deal quoted about the statistics of the past and the statistics of the present. I believe the statistics gathered during the last few months are the only ones of any value, because before then everything was reported as diphtheria, and now we know what is diphtheria and what is not diphtheria. Regarding the good results of antitoxin. Virchow, who was at first very skeptical about it, finally admitted the use of the antitoxin in his hospital in Berlin. After a time the supply of antitoxin was exhausted, while he was out of the city, and when he returned, about two weeks afterward, he found the mortality had increased to almost double what it was before; he went back to the use of the antitoxin, and the mortality went down to where it was before, when they used it. With such reports I think we can not go back on the figures. I have had no experience whatever in the use of antitoxin, because in Toledo we have had very little diphtheria since the antitoxin has come into use. But I believe in the use of it. I think the statistics justify it. Some one spoke of a woman who died from it, but for every one who dies from the antitoxin you can find a hundred graves marked diphtheria. And then, in connection with diphtheria we have the staphylococcus, which complicates the cases very much; and only recently we have an antitoxin for such cases. Where this antitoxin has been used, almost every case has recovered. Now, with the combined treatment of the diphtheritic antitoxin and the staphylococcus antitoxin, I think we will be able to save a much larger proportion of these cases. Because, statistics tell us, that where the Klebs-Löffler bacillus is found alone, we have much better results than when complicated, and if we have an antitoxin to counteract the other bacilli, we have something of very great value.

DR. JOSEPH EICHBERG, of Cincinnati—No question can be discussed, except by those who have had experience; and they are almost unanimous in favor of the antitoxin treatment of diphtheria. It is not fair to judge of its success from its effect in cases which would certainly die under any treatment. On the other hand, we should not say that more mild cases are being cited for this plan of treatment than heretofore. Nor does it change the position because the gentlemen who have had recourse to this treatment have retained the local treatment. Even with all these measures of treatment, cases have succumbed. Nevertheless the antitoxin treatment will save many cases. Such beneficial results were cited by the gentleman from Akron. The same results have not been obtained by any other remedy. The change in the appearance of the throat in twenty-four hours is almost magical, and it would be difficult for one not familiar with the plan to believe it, if seeing were not believing. There is no stronger argument, in my mind, as to the efficacy of the treatment than the statement by Professor Virchow, of Berlin. On repeating the facts to the Pathological Society, Professor Virchow says we can not explain the action of the antitoxin on any approved therapeutic plan, but any physician is culpable who does not use it. I would like to know Dr. Murphy's way of gaining information as to the value of treatment in any disease, if not from the computation of statistics from many sources. In the epidemic at Akron, where I believe seven out of twenty-seven cases died before the introduction of the antitoxin treatment, only one case died afterward, and it had not received the treatment until some two weeks after the invasion. The longer we delay the treatment, after the appearance of local symptoms, the greater is the danger to the patient. As to its curative properties, there can be no doubt in the mind of any one who has properly employed it, though its prophylactic value has not been clearly established.

(To be continued.)

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, JULY 27, 1895.

THE ACTION OF DIGITALIS ON THE HEART.

At the session of the Académie de Médecine held July 2, M. FRANCOIS-FRANCK reported a series of experiments in which he had studied the action of digitalis on the heart, and at the same time the effect of different digitalins.

On *mammifera*, administered in a therapeutic dose, digitalis produced uniform definite effects. It showed the beat of the accelerated heart; it regulated the beat of the arrhythmic heart; and it greatly augmented the systolic power and the diastolic resistance.

The author held that these effects were developed equally on the two sides of the heart, contrary to the views of M. GERMAIN SEE, who thought that the action of digitalis was greater on the right heart, and contrary to the German physiologists who held that the drug's power was manifested on the left heart. In a toxic dose he found that digitalis produced first an excessive slowing of the heart movement, but a special arrhythmic beat, which manifested itself by a dicrotic pulse. Afterward, the heart accelerates itself secondarily, becoming irregular: the contractions are precipitated by a sort of semi-tetanic ventricular movement interrupted by prolonged intermissions, finally causing death of the heart. In *mammifera*, as in cold-blooded animals, death is always produced in systole, and not in diastole, as has been affirmed.

The mechanism which produces these effects is described M. FRANCOIS-FRANCK as: 1, "the effects produced by the ventricles are not subordinate to a primary action on the auricles;" 2, "the action produced on the heart is not secondary to a primary

action on the contractile vessels of the aortic system, as the gradual ascension of aortic pressure does not produce the same effects as digitalis, as those persist even when the heart is separated from the aorta;" 3, "the abatement of velocity produced by digitalis resembles neither that which is produced by suspension of the activity of the accelerator nerves of the heart, nor those produced by excitation of the heart moderators." "It seems then," says FRANCOIS-FRANCK, "that the action of digitalis is first manifested on the cardiac muscular fiber."

In regard to digitalin, the author stated that the fatal dose of French chloroformic crystallized digitalin was 0.7 milligrams to the kilogram of animal weight. That of the amorphous digitalin is tenfold greater; and that of German digitoxin is three times less.

One gram of the infusion of the leaves of digitalis produces the same action as five or six grams of digitalin, although one can extract but one milligram of the alkaloid. "It then seems probable," says the author, "that the active principles mostly reside in the leaf."

The infusion of digitalis has been a favorite method of administration in this country, because it has long been known that the digitoxin was the most active principle of digitalis, and it was believed that there were certain principles in the leaf that were not extracted by any of the existing methods. FOUQUET¹ arranged the digitalins of commerce in two groups: 1, those insoluble in water and soluble in chloroform, *i. e.*, crystallized digitalin, amorphous digitalin and digitoxin; 2, German digitalin and digitalein.

The present paper of FRANCOIS-FRANCK will clear up some of the doubtful points in the physiologic chemistry of the action of digitalis.

THE GREATEST OF VIVISECTORS.

The late PROF. KARL LUDWIG is the subject of an earnest editorial in the London *Lancet*, based on a memoir by DR. MOSO of Turin. The writer says that since the publication by MOLESCHOTT of his beautiful monograph on DONDER, there has been given to the medical world no worthier *immortelle* to lay upon the tomb of a professional brother than Mosso's tribute to LUDWIG, his great master in physiology.

The editor, having first considered the scientific achievements of LUDWIG, thus proceeds to comment upon the humane side of his character:

"But on passing from LUDWIG the experimental philosopher to LUDWIG the man and the citizen, PROFESSOR MOSO has much to tell the world of the deepest interest. 'LUDWIG,' he says, 'the greatest of vivisectors, was President of the Leipzig Society for the Protection of Animals, and remained to the last,

¹ Bull. Gén de Thérap, Jan., 1892.

one of its most active members.' Germany owes it to him that her horses and beasts of burden are now humanely treated. To him is due that awakening of the true humanitarian spirit toward the brute creation that culminated in the 'Verband der Thierschutz-Vereine des Deutschen Reichs' (Union of German Societies for the Protection of Animals). It was mainly from her sense of the gentler attitude to be encouraged toward animals on the part of the rising generation, that Leipzig made him an honorary citizen on the fiftieth anniversary of his graduation in medicine. 'No physiologist,' continues PROFESSOR Mosso, 'has ever sought with greater frankness than he to impose just limits on vivisection. The gates of his institute were ever open to all who wished to assure themselves that he, in the midst of his experiments, knew how to spare suffering. The vivisector's art attained such perfection in his hands that, having to sacrifice an animal, he did not let it feel that it was even being tied. He would apply the muzzle and instantly proceed to the exhibition of ether or chloroform, which, in a few seconds, in a dog, for example, made it insensible. It is an error,' adds PROFESSOR Mosso wisely—'it is an error to believe that experiments can be performed on an animal which feels. The perturbation induced by pain in the functions of the organism is so profound as to render useless the experimenter's study. It was LUDWIG who uttered the celebrated *mot* that some physiologists, to study the nervous system, act like him who fires a pistol into a watch to see how the chronometer works. Suffering ought to be entirely eliminated from physiologic experiment, because the instruments we employ to-day are so delicate that they become unserviceable the moment the animal is agitated or moves.'"

The editorial of the *Lancet* closes with this eloquent peroration:

"Illustrative anecdotes without number might be multiplied to prove the real humanity of LUDWIG—of the man who was denounced on anti-vivisection platforms as the 'arch-fiend' of the 'Nine Circles,' and as the keeper of the worst 'torture den' in Europe. Well may the physiologist and the physician cry aloud, 'Humanity! what offenses are perpetrated in thy name!' PROFESSOR Mosso's masterly 'full-length' of a biologist, a teacher, and a philanthropic citizen, surpassed by none of his generation, ought to send a thrill of shame through the promoters of a mischievous propaganda which, mistaking sentimentality for sentiment, and morbid hyperesthesia for sound feeling, would have tied the hands of one of the most beneficent students of nature who ever devoted his life to the healing art."

Blank applications for membership in the Association at the JOURNAL office. Write for them.

DON'T NEGLECT YOUR SUMMER OUTING.

The *Medical Examiner* calls up the timely subject of the summer vacation for medical men. Our profession is quick to deal humanely with its overworked clients, as clergymen, brokers and weary housewives, and ship them off into the country or into the city, as the case may demand, but the physician is too frequently not so kind to himself. The *Examiner* calls up the case of the late DR. GOLDING-BIRD of London, who is reported as saying that he had worked himself into an early grave by economizing six weeks in the summer.

"The physician needs more active exercise and more sleep, too—fully seven hours—and as his sleep is often broken in upon at night, he should form the habit of sleeping at odd moments, even by day. The folly of incessant work is illustrated by the case of the brilliant DR. GOLDING-BIRD, who, a few months before his death, remarked to a medical friend, when his own great popularity was mentioned: 'You see me, at a little over 40, in full practice, making my several thousand pounds per annum. But I am to-day a wreck. I have a fatal disease of the heart, the result of anxiety and hard work. I can not live many months, and my parting advice to you is this: never mind at what loss, take your annual six weeks' holiday. It may delay your success, but it will insure its development. Otherwise you may find yourself at my age a prosperous practitioner, but a dying old man.'"

THE ANNUAL RECKONING.

The Association Treasurer announces that he is ready to send receipts for the annual subscriptions of members, who have not yet paid their yearly dues. The month of July should see the Treasurer's books well settled, but we understand that there are very many delinquents. The JOURNAL has been larger and better than ever before, and there is no valid reason why the annual dues should not be paid promptly. On the contrary, with the very material reduction of the advertising which is now taking place there is every reason why prompt payment should be made.

In response to certain statements made in the columns of some of our esteemed contemporaries, we think proper to inform them that immediately after the Baltimore meeting letters were addressed to every firm advertising medicinal preparations in the JOURNAL, informing them of the action of the Association, and requesting the publication of the formula. Several of them have responded by sending the name and amount of each ingredient in the compound, according to the letter of the Association resolution, some have asked for time to consult absent managers, and some have refused. Of the latter number one contract expired last week and has been

discontinued. Another expires this week, and the remainder will be dropped as fast as their contracts expire. There need be no apprehension that the ASSOCIATION instructions in the matter of advertising will be forgotten or passed over without action.

We once more take advantage of the occasion to urge upon the members the absolute necessity of strenuous efforts to increase the membership of the ASSOCIATION, not only to prevent regression, but to add more and more to the ever growing list. We very much wish to pass the 6,000 mark within the next three months. We are now issuing 5,700 copies every week, but as there are more than 100,000 physicians in the United States it is readily seen that the ASSOCIATION JOURNAL reaches comparatively few of them. In England no physician considers that he is in good standing unless he belongs to the British Medical Association. A similar *esprit du corps* in America would give us a membership of 60,000 at the very least. With such an organization there could be no question of the immense influence that might be wielded by the medical profession in America.

We have made gradual and steady increase for the last three years, but we must do more. Let us once more make a united effort to gather into the grand old ASSOCIATION every eligible medical brother in the United States of America. The doors are always open for the entrance of good men and they will be warmly welcomed by every man having the interest of the ASSOCIATION and of his profession at heart.

AN EXPIRING CRAZE.

The efforts made to bolster up the expiring KEELEY cure by special legislation last winter were in some few cases successful, to the extent of the passage of acts in its favor. As a sequel we have in a neighboring State a county resisting payment of bills of a gold cure establishment for the treatment of pauper drunkards, and it is probable that the constitutionality of at least one of these measures will be fairly tested in the courts. That a special proprietary secret method of treatment should be the recipient of State support, that the public funds should be drawn upon to pay for what is absolutely unknown, and is purposely kept so, lest its use should become extended, to the damage of its proprietor, or as one might naturally suspect, because it is feared that enlightenment as to its nature would damage public confidence in its virtue, seems a poor public policy, to say the least. Looking at it entirely from an extra-medical point of view, this would be the natural conclusion, and nothing but the most overwhelming evidence of its value, it would seem, ought to lead any one to support it. With the legal possibilities in the case we have nothing to do, but it would appear not at all improbable that a higher court

might find flaws in such legislation on constitutional grounds.

One of the most interesting features of the subject, however, is the zeal of the believers in the gold cure for its extension and continuance. Like the female homeopathic devotee, they make it a sort of a *cult*, and would apparently sacrifice anything for its propagation. Of course, this would be naturally encouraged by the management of the cures, but it is in its way a psychologic phenomenon of interest. One noteworthy feature is that the enthusiasm is sometimes most marked in striking instances of the non-success of the treatment, as in the case of the late FELIX OLDROY.

The non-success is revealing itself at the present time in various quarters and is becoming apparent to the laity as well as to the regular medical profession. The painstaking investigation of the REV. DR. BUCKLEY, though to some extent affected by the fact that some of the data obtained by him were evidently from strong partisans of the gold cure, only led him to the conclusion that there was nothing in it more efficacious for the drunkard than is found in the numerous temperance revivals which make no pretenses to secrecy, and which claim to act only through mental influence and the exercise of the will of the subject. DR. BUCKLEY'S study has a decided value as that of a conscientious investigator, who could not possibly be charged with any professional prejudice against the so-called cure, and yet who was compelled to reject its claims in spite of labored evidence in its favor.

As regards medical evidences of its failures, one may say that they are coming to be in the experience of every practicing physician. Out of fifty-eight patients treated in 1894 at DR. CROTHERS' inebriate asylum, at Hartford, twenty-six were KEELEY graduates and eleven more had been under other so-called gold cure treatment.

While we may consider inebriety, or perhaps we should say habitual drunkenness, in some cases and to some extent, a disease or the result of defective organization, the most natural conclusion one can deduce from the success of the gold cure craze, is that its successful treatment is more dependent upon moral and mental influence than upon medication. It is to this undoubtedly that should be credited all the permanent cures that date from the KEELEY treatment.

THE JOURNAL ITSELF.

An old and valued member of the ASSOCIATION, whose opinion is greatly esteemed by the editor, was emphatic in his statement that the JOURNAL of last week was the finest number ever produced by the office. The constant effort is that every number shall be better than its predecessors, and sometimes we think we have fairly succeeded. But what our friend

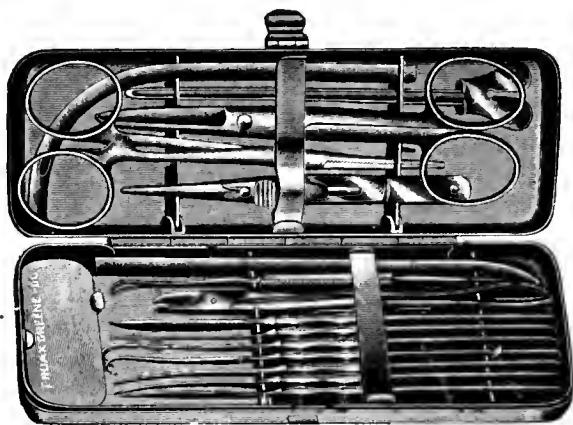
most commended was the plate in three colors printed in the JOURNAL office. He has a set of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from the beginning, bound in uniform binding, and he said further that he was additionally proud of the JOURNAL now, because he as member of the ASSOCIATION is part owner of the great American medical weekly and its plant.

He should, he said, take an additional interest in the ASSOCIATION, and could see what had for years been foretold, had now come to pass, that the ASSOCIATION JOURNAL was second to none in America. This patriotic spirit now glowing brightly in the breasts of the American medical profession will bring organization, strength and power to our noble army of medical toilers, and a great reward. Let us redouble our efforts to increase the membership, by every honorable means, that we may not only become the greatest Association in the world in members, but first in quality of work done, and first in amount of knowledge promulgated for the welfare of humanity.

NEW INSTRUMENTS.

COMPACT POCKET CASE.

The attempt to make the smallest pocket case, on modern lines, has resulted, with the aid of Truax, Greene & Co., in a case as represented in the accompanying sketch.



The new instruments in the case are the angle tenotome, and the short aluminum probe.

The cutting edge of the tenotome being on the inside of the angle, is very advantageous in dividing all tendons, but especially the smaller and deeper seated ones. The case is of metal, and the instruments small and delicate. The racks and partitions are movable, but the whole case can be boiled *in situ* without injury. JOHN B. HAMILTON.

CORRESPONDENCE.

The Woodbridge Treatment of Typhoid Fever.

TOLEDO, OHIO, July 14, 1895.

To the Editor:—One extremely warm day I found upstairs in a one and a half story house a poorly nourished young unmarried woman, with a temperature of 105 degrees. The temperature of the air in the room was unbearable to me. I

had her removed to a room on the ground floor, and thought her trouble due to the intolerable heat to which she had been exposed almost constantly for several days. She soon became delirious which was followed in a few hours by a comatose condition which lasted three days.

The conditions surrounding the patient and the unusually rapid overpowering of the nervous system so masked the real disease that neither the physician who saw her in consultation nor myself diagnosed typhoid fever until the unconsciousness had passed away. Four other persons, two in the same house, and two in the house adjoining were taken sick at about the same time as my patient had been. These cases were diagnosed by their physicians as typhoid fever. One of them died in one week, and all of the others within two weeks from the time of taking sick. The disease in those cases was said to have been exceedingly virulent in character. My patient was removed to the suburbs, when all the conditions were favorable to the treatment of the disease. Of the few cases of typhoid fever which I had treated prior to that time none had died, and I felt comfortably confident that this patient would recover under what may be called the sulpho carbolate of zinc treatment. To my disappointment, however, she continued to grow worse until at the end of the second week of her sickness she was in the following condition:

Temperature 105 degrees, pulse 130, respiration 38. She was entirely unconscious, bowels moving unconsciously in bed. Urine drawn with catheter, tympanites very great, vomiting persistent and stercoraceous, hiccough present the great part of the time. An abscess had formed in external ear and had broken, without causing her to manifest pain. Bed sore over sacrum. Skin cold and clammy, but she would swallow liquids.

I regarded her case as being in the nature of a forlorn hope, but I ordered guaiacol m. v. rubbed over the distended abdomen every two hours, and ordered to be given by the mouth in emulsion, every fifteen minutes:

R. Hyd. chlor. mitis	gr. 1-16
Menthol	gr. 1-16
Guaiacol carbonate	gr. 4-16
Thymol	gr. 5-16
Eucalyptol	gr. 1-16.

I considered the patient's condition so desperate that I did not expect her to take many doses of the prescription.

After a few doses the vomiting and hiccough stopped, temperature fell, consciousness began to return, and in twenty-four hours the case presented an entirely different appearance. I dropped the calomel from the prescription after four or five hours, again introducing it after a day's rest. I tried giving larger doses of the other medicines at longer intervals, but the stomach did not bear the medicines given in that way so well. In a week the patient was sitting up and at the end of another week went to her home out of the city. She is now at work, and well.

I do not believe in ready-made prescriptions, but I most heartily concur in the opinion of my consultant who said "that it was a very creditable recovery." I do not care whether the credit is given me, or the prescription of Dr. Woodbridge, or whether it is said that the patient "must have had a strong constitution." I think it likely that a little more eucalyptol and a little less guaiacol would have done as well as the exact formula given by the Doctor, but I am sure that I did not attend to the details of treatment more faithfully while giving the second prescription than I had done while giving the zinc. I am equally sure that I did not stop the zinc until I was thoroughly convinced that the patient would die under that treatment. "Speak well of a bridge, etc." In the above case, I think the principle underlying Dr. Woodbridge's plan of treatment was such a bridge.

J. L. TRACY, M.D.

The Country Doctor.

EATON, LL.D., July 18, 1895.

To the Editor:—In view of the restlessness that sometimes exists among country doctors, and their desire to remove to the cities; and in view of what has been said recently in the *JOURNAL* in regard to the city doctor, post-graduate schools and teachers, I desire to say a few words about the country doctor and his environments. In the first place, his field of operation is small and the possibility of his becoming famous is almost nil; but his usefulness in his locality is incalculable, and his living sure. He may not become rich in the common acceptation of the term, but he is generally—almost invariably in fact—in comparatively good circumstances. He is also an important member of society and his advice is sought for and generally appreciated, on all questions of general importance, or of public interest. He is the protector of the health of his community, and is always ready, and generally successful in preventing the spread of contagious diseases.

In times of epidemics his work is arduous, and he has many sleepless nights and weary days, yet he is usually cheerful, spreading sunshine among his patients wherever he goes, and is amply rewarded by the glad and appreciative smiles of his many patients and their friends.

He has no time for the blues and gives but little thought to the wolf which he knows full well is not at all liable to come to his door. His responsibilities are great, and none realize their weight more than he; but his almost superhuman efforts as a student of medicine and everything that pertains to his professional career and the welfare of his patients, gives him an assurance that he is doing all that any mortal, with like ability, and under similar circumstances could do, hence he has a clear conscience, is able to enjoy his three meals a day, and sleep well when he gets a chance.

He takes a post-graduate course occasionally, for he realizes that if he would keep in the front ranks he must avail himself of every opportunity for acquiring knowledge, and he knows full well that an occasional visit to a medical center will enlarge his knowledge in many ways, beside furnishing an opportunity to familiarize himself with the most recent methods of treating disease, and enable him to treat many difficult cases which would wend their way to the city, but for the fact that they realize that the progressive home physician can treat them quite as successfully and with much less inconvenience to themselves. The country doctor will never treat all the difficult cases he meets with; but because of his superior knowledge and his realization of the difficulties to be encountered in many hazardous operations, he will send his patient to a medical center where he may receive the benefit of that wide experience which can only be acquired in a populous community.

I believe as a general practitioner the country doctor is the peer of his city brother, but as a specialist he is not; he is nevertheless a wonderful specialist when we consider the innumerable lines of his work. He is a broad-minded and generally a well-posted man, not only in a professional way but in literature, science, art, and even in politics he is not always a novice. He is, in his community, an important factor; he is the common adviser of his clientele, the one man—if such there be—who knows it all; the Great Mogul, the one indispensable entity, who is appreciated and remunerated beyond his fellows, and should be the best contented man on earth, and the one man who, when he ends his earthly labors, should be entitled to an upper seat in the doctors' paradise in the great beyond.

Truly yours,

C. BARLOW, M.D.

The City Doctor.

NEW YORK, July 23, 1895.

To the Editor:—What you wrote recently about the large polyclinics is true. The urban physician has usually a large hustle to keep things going. The subject of hospitals cutting off thousands of dollars of legitimate practice ought to

be more earnestly aired. In this, I am not a sinner for I do no hospital work. I once had charge of a small dispensary of the Medical Missionary Society, and while the work was among the very poor, some frauds would creep in.

Dr. David Webster, the associate of the late Dr. C. R. Agnew, once told me that he would rather examine a case in his office for a dollar, than for nothing in the dispensary. So having sent him cases that have paid his usual fee for examination, \$10, I have also sent him the dollar ones.

The profession has deliberately prostituted itself into a great machine for producing fraud by its immense hospital work. The real poor should be treated by the State, and the medical aid should be rendered by a system of State service similar to the Army, Navy and Marine-Hospital bodies.

Yours respectfully,

JOHN A. CUTTER, M.D.

Sublimate Poisoning.

PHILADELPHIA, July 22, 1895.

To the Editor:—Under Philadelphia Notes in your issue of July 20, you record a case of recovery from 15 grains corrosive sublimate.

Some five or six years ago one of my patients, a young married woman, in a fit of jealousy, swallowed two tablets of corrosive sublimate, grs. 7.7 each, with suicidal intent. Fortunately I was promptly called, was in the house within twenty minutes, and by the use of emetics followed by egg albumen, succeeded in saving the patient.

There was no salivation, but a subacute gastritis lasting about ten days resulted.

Respectfully yours,

E. W. HOLMES, M.D.

PUBLIC HEALTH.

State Board of Health of Pennsylvania.—At an annual meeting of this Board, held July 11, at Marietta, Dr. S. T. Davis, of Lancaster, who for three years has been the President of the Board, was succeeded by Dr. Pemberton Dudley, of Philadelphia.

Women Medical Inspectors.—Three women doctors have been appointed in the summer corps of medical inspectors by the New York City Board of Health. All of them are spinsters: Miss Mitchell, M.D., Miss Deane, M.D., and Miss Weiss, M.D. The other doctors of the body offered no objection to the selection of these three inspectors, all of whom are said to be fully qualified to perform the duties of their office. Their salary is \$100 a month, and the *Sun* has no doubt they will earn it by faithful service.

Water Supply of Cleveland.—The Ohio State Board of Health has refused the petition of the city of Cleveland to be allowed to discharge sewage from a new district into Lake Erie near the intake of the city water supply. Mr. Allen Hazen of Boston was employed by the Board as consulting engineer. Investigation showed that the water supply is already polluted and statistics revealed that the typhoid death rate for the past seven years has been higher in Cleveland than in any other large city of the State. Plans for extending the intake into the lake are under consideration; but Secretary Probst is of opinion that, while this may afford a temporary remedy, all the lake cities will eventually be compelled to resort to filtration for the purification of their water supplies. A better way would seem to be to prevent pollution by a proper disposal of sewage.

Board of Health of New York State.—Dr. Florence O'Donohue's term of office as a member of the State Board of Health ceased, and Governor Morton appointed Dr. Frederick W. Smith, of Syracuse as his successor. Dr. Smith is an alumnus of the New York University, in 1880. The Board

of Health appointed Dr. O'Donohue a short time ago a member of a committee to carry out the provisions of the Public Health law relating to tuberculosis in cattle. In the appointment of Dr. O'Donohue's successor it was understood in the Executive Chamber that Dr. O'Donohue would continue as tuberculosis commissioner at a salary of \$250 a month and necessary expenses. Both of these physicians reside at Syracuse. Dr. Smith has not any great amount of sanitary achievement to his credit thus far, but he is spoken of as an energetic and alert man.

Anti-Tetanic Serum.—Professor Vaillard is very sanguine that the preventive use of the serum of animals rendered immune against tetanus is likely to prove of signal service in the tropical regions where tetanus is so common after slight wounds as to be one of the most frequent causes of death. He also predicts a wide field of usefulness for the serum in preventing tetanus among new-born infants in some countries of Northern Europe, where trismus sometimes carries off 60 per cent.; also in military surgery and, generally, in the restricted area in which the specific bacillus of tetanus is indigenous; and, finally, in veterinary surgery where tetanus often follows wounds of the feet or castration. It is in the preventive field that it is most valuable; as a curative agent it is effective only in the rare cases in which the poison acts slowly; applied in the treatment of man or animals stricken with acute tetanus it is of no more avail than other remedies.

Diplomas for Disinfectors.—The government of the Grand Duchy of Mecklenburg-Schwerin by a decree dated May 29 has decided to grant a diploma for "Disinfectors of Apartments." The candidates will have to undergo a special examination before a medical commission at Rostock, and only those who pass will be allowed to call themselves "Licensed Disinfectors of Houses." They will have to swear always to faithfully observe the rules for disinfection and to execute carefully and conscientiously all sanitary works confided to them. In the exercise of their duties they will be placed under the surveillance of the Rector-Physikus and the local police.¹

Comparative Marriage and Birth Rates of Europe.—M. Cherrin has collected the following statistics concerning the percentages of marriages and births in the principal countries of Europe.² In 1,000 inhabitants of both sexes over 15 years of age the following percentages are married: Hungary, 91.6; Germany, 53.0 England and Wales, 52.6; Denmark, 52; Austria, 51.3; Italy, 50.1; Finland, 49.2; Holland, 49.0; France, 48.8; Belgium, 41.9; Greece, 41.6; Scotland, 40.9; Switzerland, 40.8; Ireland, 23.0. But the number of marriages is only one of the elements in the problem of increased population. The important thing is the fecundity of these unions. The following table shows this:

	Legitimate live births for 1,000 women (married) 15 to 50 years of age.	Illegitimate live births for 1,000 unmarried women 15 to 50 years of age.
Germany	270	26.5
Scotland	269	19.9
Belgium	265	19.8
Italy	251	24.6
England and Wales	250	12.1
Austria	250	44.4
Sweden	240	
Ireland	240	4.1
Switzerland	236	10.2
France	163	16.7

Sanitary Importance of Clean Streets.—Commenting upon the action of the New York City Board of Estimate and Apportionment, in authorizing an issue of bonds sufficient to meet the greatly increased expense of the more efficient

street cleaning under Mayor Strong, the *New York Medical Journal* indulges in the following remarks, which have a special pertinence to another large American city, where not only clean streets but some other problems of sanitary administration are just now attracting an unusual amount of attention: "It is the duty of the medical profession to take an active part in furthering all plans calculated to improve the public health, and we feel justified in directing attention to the sanitary importance of clean streets, and in asking members of the profession at large to do all in their power to aid the city authorities in their good work. The power of the profession to influence public opinion is enormous, and the power of public opinion to help or hurt public officers in their work is still greater. Public opinion is really the one irresistible force in our government. Backed by it, an officer can do almost anything; opposed by it, he can do nothing; while if it is indifferent in regard to some course decided upon by an officer, he may succeed in doing much, but his success will depend entirely upon his personal ability to work under a heavy strain."

A Typhoid Fever Panic.—The *Medical Press and Circular*, June 5, relates an incident of fever prevalence, in an isolated part of the western Highlands of Scotland, which created a decided panic. The following is a part of the narrative in the *Press*:

"A curious incident has lately been reported from Mingalay, a remote island off the northwest of Scotland. It is given on the authority of Dr. Ogilvie Grant, medical officer for Inverness-shire, to which county the island in question is attached for administrative purposes. Some time since a girl brought back the infection of enteric fever to Mingalay. After a while the rest of her family, six in number, contracted the disease. In the meantime a panic seized the neighbors, who one and all deserted the place. The father was then attacked and died, but no one would help to bury him. A priest, however, at length came to the rescue, put the body in a coffin and dragged it out of the house to a distance of ten yards. A similar scene occurred two days later upon the death of the mother. It appears that the district is too poor to pay for proper medical attendance for the poor. But surely, if a medical officer of health be provided, it should be possible to furnish a small staff to cope with the emergencies that are bound to arise from time to time in connection with infectious fevers."

Neglect of Vaccination in North Carolina.—The *Bulletin* of the North Carolina State Board of Health, for June, contains liberal selections from an address, on sanitary progress in that State, delivered by President Tucker at the recent meeting of the State Medical Society. The medical officers of both State Board and State Society note with regret a too general apathy in respect of the prevention of smallpox by the use of vaccination. Dr. Richard H. Lewis of Raleigh, Secretary of the State Board, has given much attention to the subject without being able to effect a change for the better. The remarks of Dr. Tucker on this subject were, in part, as follows:

"Let us for a moment consider the question of vaccination. For many years past the worthy Secretary of the Board of Health has reported to this Society an increased indifference on the part of the profession and the people to this great preventive measure, and in a recent session he announced from the floor of this Society that, in his belief, nothing short of a visitation of an epidemic of this dread disease, smallpox, in our borders will arouse the people to the sense of their danger and impress upon them the necessity for vaccination. We have no statistical data upon which to base an opinion, but a conservative estimate would leave more than half of our people, ages and classes considered, without the benefit of this great prophylaxis, and when we consider the increasing number of epidemics of smallpox occurring in the more populous Eastern States, the increased facilities for travel and the changed habits of our people with regard to travel, many thousands going and returning from the great centers of population, thereby subjecting themselves to the danger of contracting a disease which, once set on foot in our State, will grow into a conflagration

¹ La Semaine Medicale, No. 32, 1895.

² Les Nouveaux Remedes, No. 12, 1895.

more appalling, if possible, and more difficult of suppression than a prairie fire in mid-summer, we may well counsel together about matters of prevention. In the sparsely populated condition of our State it would be impracticable to enforce compulsory vaccination, the law would be cumbrous, expensive and difficult of execution; but we can and should secure the enactment of a law making it compulsory in our public schools; indeed, we might go a step farther, and make a certificate of vaccination a pre-requisite to entrance in any school whose doors are opened for public patronage, and we, as physicians, who are charged with the sacred duty of maintaining the health and promoting the well-being of the people, should resort more frequently to vaccination in our own private practice, remembering that the best 'starting point' is at the physician's own household; through these combined agencies, in a few years, we may hope to have the larger portion of our people brought under the influence of this great prophylactic measure, and thus aid our Board in the accomplishment of a work which has occasioned so much anxiety."

Mismanagement of New York's Water Supply.—New York is not the only city that has been called upon to suffer from corrupt trickery. It has recently come to light that a false scarcity of water has been purposely produced in order to favor the designs of contractors and their friends. The *Independent* refers to this trickery in its issue for July 11. It says:

"We have all been getting gradually wonted to this scanty supply, after the characteristically American way we have of submitting to, as inevitable, abominations which could be thrown off were we not too easy-going and unorganized. The trouble has been generally attributed to insufficient supply at the sources, which we have been induced to believe have been outpaced by the growth of population. But as one of the results of the uprising of last November there comes now the astonishing discovery that the trouble is of the opposite character, to-wit, closed gates, the conclusion from which is that although the Croton sources may not be so ample as desirable, it is uncertain whether they are not adequate to present needs, under a free flow, because that flow does not exist. How many gates are closed and virtually abandoned seems to be a matter of slow discovery and, at present, of conjecture, but some estimate the number as high as a thousand. Opinion is divided as to the cause. Some think the chief cause the neglect of employees to reopen gates which have been closed for convenience while working near them; others, that the mischief has been done in course of a deliberate plan to force the taxpayers to consent to construction of new aqueducts, which would mean large opportunity for stealings. However, the closed gates are ligatures, and the flow is suffering under stricture. How many gates are in this condition and how many are rusted out and spoiled, nobody appears to know. The narrative tells us that there is no trustworthy map anywhere by which to find either the location or the number of gates, and apparently the only way to find out is to search for them. When we reflect that New York underground, like New York aboveground, has developed without any consistent plan, and when we remember that its municipal operations have for many years been devoid of system and responsibility, managed only by jobbery and plunder, it is not hard to understand how this condition came about or to believe that it may be even worse than is suggested. Naturally, the underwriters are aroused after having long been uneasy. Our great fire has not come, but the concentration of values down-town is enormous, and only the requisite conditions are awaited. A great fire makes its own wind. The old suggestion of a supply comes from the inexhaustible bay comes up again. In connection with it the scheme, also old, for a system of roof pipes in the mercantile district is appropriate. Salt water is suitable for many purposes, and the cost of stand pipes and pumping will probably compare favorably with that of new aqueducts."

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Russia: Batoum, June 25 to July 2, 4 cases, 1 death; Moscow, June 22 to 29, 1 case; Odessa, June 22 to 29, 8 cases; St. Petersburg, June 15 to 22, 4 cases, 2 deaths.

Hungary: Buda-Pesth, June 17 to July 1, 7 cases and 2 deaths.

Holland: Rotterdam, June 30 to July 6, 6 cases.

Egypt: Cairo, June 10 to 17, 2 deaths.
England: London, June 30 to July 6, 42 cases, 3 deaths;
Manchester, June 22 to 29, 2 cases.
India: Calcutta, June 1 to 8, 27 deaths.
Ireland: Dublin, June 30 to July 6, 11 cases.
Gibraltar: June 23 to 30, 1 case.
China: Hong Kong, June 1 to 8, 1 death.
Brazil: Rio de Janeiro, June 15 to 22, 21 deaths.
Germany: Prague, June 22 to 29, 4 cases.
Mexico: Nogales, June 30 to July 13, 12 cases.
Scotland: Glasgow, June 30 to July 6, 1 death.
Uruguay: Montevideo, June 8 to 15, 1 case.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, June 18 to 22, 7 deaths; July 6 to 13, 4 cases, 2 deaths.

Michigan: Smallpox reported, 13 at Battle Creek, Detroit and Olivet.

Missouri: St. Louis, July 6 to 13, 6 cases.

CHOLERA—FOREIGN.

India: Calcutta, June 1 to 8, 16 deaths.
Japan: Hiogo, June 13 to 22, 39 cases, 26 deaths.
Turkey in Asia: Adana, May 25 to June 1, 50 cases, 30 deaths; June 1 to 15, 550 cases, 300 deaths; Mersyna, May 28 to June 1, 3 cases, 1 death; June 1 to 15, 2 cases, 2 deaths; Tarsus, May 18 to June 1, 470 cases, 315 deaths; June 1 to 15, 750 cases, 530 deaths.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, June 15 to 22, 12 deaths.
Cuba: Cienfuegos, July 7 to 14, 3 cases, 1 death.
Mexico: Vera Cruz, July 4 to 11, 3 deaths.

CONSULATE GENERAL OF THE UNITED STATES OF AMERICA.
RIO DE JANEIRO, June 25, 1895.

Sir:—I have the honor to remit report for week ended June 25, 1895:

There were 9 deaths from *accessio pernicioso*, a decrease of 3; 12 from yellow fever, a decrease of 4; 21 from smallpox, an increase of 12; 3 from enteric fever, a decrease of 2, and 1 from measles. From all causes there were 345 deaths, an increase of 29 over the foregoing week.

Cholera.—I think we may safely leave this disease out of account, as it appears to have entirely disappeared from the city; not even are the cases of diarrhea and enteritis any longer called cholericiform.

Yellow Fever.—This disease is declining gradually as it always does at this season of the year, and causes no alarm at present.

Smallpox.—This disease is slowly increasing as the winter advances. I have heard of no cases among the shipping, though I would advise additional caution and warn the shipmasters I see to protect their crews by vaccination. Good lymph can be obtained here from the Municipal Institution. On the whole, the health of the port may be considered good, the higher mortality being due to diseases of the air passages which are prevalent always during the fall and winter months.

Respectfully yours,
R. CLEARY, M.D.,
Sanitary Inspector, M.-H. S.
NOGALES, ARIZ., July 15, 1895.

Dear Sir:—I have the honor to report one new case of smallpox in Nogales, Ariz., and three new cases in Nogales, Mexico.

I have received what I believe reliable information that yellow fever is prevalent in the following cities, viz.: Sonsonate and Santa Ana, Salvador; Champerico, Guatemala; Tapachula and Ocosingo, State of Chiapas, Mexico. All these cities being on the Pacific Coast, passengers pass through here from there via Guaymas frequently, and from them I have received this intelligence.

Very respectfully,
W. F. CHENOWETH,
Sanitary Inspector, M.-H. S.

NECROLOGY.

JACOB P. COWAN, M.D., of Ashland, Ohio, died July 8, aged 72 years. He was a graduate from the Starling Medical College in 1855. He had been prominent in political affairs in his section, having served as a member of the Ohio Legislature about forty years ago. He was also an ex-member of Congress from the Fourteenth District of his State.

EZRA GRAVES, M.D., of Amsterdam, New York, died July 1, aged 56 years. He was a graduate of the Medical Department of Buffalo University, in the year 1865. He was coro-

ner of Montgomery County for several years, beginning in 1880, and the city physician of Amsterdam in 1894. He was Secretary of the Northern Branch of the New York State Medical Association.

STEPHEN E. FULLER, M.D.—The following resolution was adopted by the Kings County Medical Association at its regular meeting June 11, 1895:

WHEREAS, Dr. Stephen Edward Fuller, an old and highly esteemed member of this Association, has been removed from our membership by death;

Resolved, That this Association, while bowing to the inevitable and mourning its own great loss, tender to the widow and family our sincere and heartfelt sympathy in their affliction.

GEO. A. OSTRANDER, M.D., } Committee.
THOS. M. ROCHESTER, M.D., }

PROF. FRANZ VON RIED, at Jena, Germany, aged 85. He was professor of surgery in the University of Jena from 1846 to 1884, when he retired.

JAMES CALEB JACKSON, M.D., who, nearly forty years ago, founded the Jackson Sanitarium, at Dansville, N. Y., died in New York City, July 11, in his eighty-fifth year. He was formerly an editor of the *Liberty Press*, of Utica, and was a co-worker with Gerrit Smith, Garrison and other antislavery leaders. He was primarily a water curist and vegetarian, but in later years he was less of an extremist.

WILLIAM S. HOUSINGER, M.D., of Chazy, N. Y., July 15, aged 74.—G. M. Thompson, M.D., of Boston, Mass., July 13, aged 82.—George H. Saltsman, M.D., Alliance, Ohio, July 12, aged 76.—George K. Smith, M.D., of New York, July 15, aged 67.—A. W. Crawford, M.D., of Emlenton, Pa., July 14, aged 81.—Edward Loomis, M.D., of Dodgeville, N. Y., July 7, aged 89.—G. W. Griggs, M.D., of Evant, Texas, July 20, aged 76.—J. W. Morris, M.D., of Leavenworth, Kan., July 20, aged 73.—J. W. Christopher, M.D., of Texarkana, July 17, aged 70.—S. R. Mitchell, M. D., of Hampton, Iowa, July 8, aged 69.—N. S. Halterman, M. D., of Glenwood, Minn., July 18.—James C. Jackson, M.D., of Le Roy, N. Y., July 10, aged 84.—L. D. Putnam, M. D., of Grand Rapids, Mich., July 22, aged 72.

BOOK NOTICES.

System of Surgery. Edited by FREDERICK S. DENNIS, M.D., Professor of the Principles and Practice of Surgery Bellevue Hospital Medical College, etc., etc., assisted by JOHN S. BILLINGS, M.D., LL.D., Deputy Surgeon-General U. S. A. Vol. II. Profusely illustrated. Cl., 8vo., pp. 918. Philadelphia; Lea Brothers & Co. 1895.

We have already recorded our favorable opinion of this excellent system, as set forth in the first volume, and we are pleased to notice that the second volume fully merits the warm praise given the first.

The contributors to this volume are Dr. Frederick S. Dennis, W. H. Forwood, George R. Fowler, Frederick H. Gerrish, Virgil P. Gibney, William W. Keen, Roswell Park, John B. Roberts, Nicholas Senn, Lewis A. Stimpson and Henry R. Wharton.

The topics discussed in the volume are Minor, Plastic and Military Surgery, Diseases of the Bones, Orthopedic Surgery, Aneurysm, Surgery of the Arteries, Veins and Lymphatics, Diseases and Injuries of the Head, Surgery of the Spine, and Surgery of the Nerves. The "System" so far as it has progressed, is a credit to American surgery.

Early Scoliosis or Curable Curvatures of the Spine. By PERCY G. LEWIS, M.D., M.R.C.S., etc. etc. 16 mo., pp. 49. Price 2s 6d. London: John Bale & Sons. 1895.

This little book is the result of the author's study of the cases which came under his notice at the Victoria Hospital, St. Andrews' Convalescent Hospital and in private practice. One of the principal points made by the author is on the effect of the twisting of the spine owing to weakness or atrophy of

certain muscles, and as the muscles are weak, he considers that "the practice of gymnastics properly carried out, is the natural cure of scoliosis." The illustrations showing the method of applying gymnastic exercises are well executed and instructive. Every practical orthopedist will agree that there are many cases of early scoliosis that may be cured by gymnastic training.

The Amateur Sportsman. New York: Published by M. T. Richardson Co.

The July number of this publication contains a great amount of interesting matter relating to all phases of sport. The disciples of Izaak Walton and the Nimrods of the medical profession will take pleasure in the perusal of its pages.

MISCELLANY.

Disinfection of Tubercle-infected Houses.—Delepine and Ransome (*British Medical Journal*, Feb. 16, 1895) reported that the disinfection of apartments contaminated by the tuberculous could not be accomplished by the usual means of fumigation. Sulphurous acid is insufficient. The only efficacious method according to these authors is the application of a solution of chlorinated lime on the walls of the chambers. Sublimate has not proved efficacious. Exposure to sunlight is an important factor, and wherever possible the sunlight should be freely admitted for some weeks.

"The Medical Corpse of the Navy."—An odd misprinting of a paragraph in one of our most serious cotemporaries makes it perpetrate a sly dig at the medical branch of the United States Navy. The paragraph is:

"A number of deaths and retirements have made twelve vacancies in the medical *corpse* of the Navy, and the singular fact that these places are difficult to fill still exists."

Although the Naval surgeon's position does not compare favorably, in the minds of our profession, with that of the Army or Marine-Hospital surgeon, it must be said that the "corpse" is a lively one.

A New Biographical Sketch.—Oliver W. Nixon, M.D., is the author of a book entitled "How Marcus Whitman Saved Oregon," from the press of the Star Publishing Company of Chicago. A review of the book has appeared in the *New York Herald*, written in enthusiastic terms by Rev. George Heworth. He says: "It is refreshing, like a southeast wind in August. It is stimulating, like some newly discovered tonic. I even went so far as to forget all about Whitman himself, in the interest of whose memory it is written, and gave myself with delight to the pictures of life on the plains and the devil-may-care ventures and adventures of the rugged fellows who can not live anywhere near the borders of civilization. When I finished this volume I felt as though a sort of blizzard had blown through me, and, I assure you, it was not an unpleasant sensation. The West is getting tame, but in the '40s, oh, in the '40s it was worth visiting. And this volume carries you back to those old times, with many a racy incident and many a deed of prowess. I have spent some pleasant hours with it."

Electricity in the Treatment of the Vomiting of Pregnancy.—Larat and Gautier, *Revue de Thérap. Méd. Chirurgicale*, VIII, p. 242, 1895, recommend galvanic electrization as the best remedy in the vomiting of pregnancy. The method is important; the positive pole should be applied under the clavicle between the insertion of the two tendons of the sterno-cleido-mastoid muscle; this positive electrode should be about the size of a silver half dollar, covered with a piece of wet chamois skin. The negative electrode should be placed over the epigastric pit. The current may be feeble; 8 to 10 milliampères are nearly always sufficient, but the precaution should be taken

to open and close the current slowly. The sittings should last from a quarter to half an hour, and repeated several times a day in case of obstinate vomiting. From twenty-four to forty-eight hours are required to effect a cure or marked relief. Ribes has also obtained equally good results by the use of electricity in the vomiting of pregnancy.—*Revue des Sciences Medicales*, 15 July, 1895.

Cæsarean Section, Symphyseotomy and Version in the same Female in Six Years.—The *British Medical Journal* quotes Chrobak concerning a case prolific in obstetric surgery. Chrobak has communicated to the *Centralblatt für Gynäkologie* his notes of a case of deformed pelvis, for whose relief Breisky had performed Cæsarean section in 1888, Chrobak himself delivering after symphyseotomy in 1891. The patient was recommended to see him from time to time, but she never presented herself till the autumn of 1894, when she was in labor. Circumstances led Chrobak to rely on turning alone; the child died during delivery. Version and extraction proved easy; the maternal soft parts were not damaged. The Cæsarean cicatrix in the uterus was found to have become considerably stretched; it was rigid and felt like a tough pad of muscular tissue. The symphysis pubis felt perfectly firm; the bones were united by a fibrous bridge not a third of an inch broad. The bones had not been sutured. The symphysis was not damaged during this third labor. The patient can now walk with ease. On rotation of the femur, slight mobility of the symphysis is noted.

A Chinese Doctor with an American Degree.—Miss Dr. Hu King Eng, the first of her race to acquire an American diploma in order to practice medicine in China, and the second woman of her race to take an occidental medical degree, is now on her way across the Pacific to her native land to inaugurate there a new era in woman's work among women. She is Dr. Hu King Eng, a charming, modest little woman, characteristically Celestial in every way, despite her nine years' residence in the United States. She has never discarded her quaint, rich native dress, and loves her own land best. She received her doctor's degree in Philadelphia a year ago, has spent the past twelve months in taking a post-graduate course and in obtaining actual experience in her profession, and a week ago she sailed from San Francisco for Foo Chow, where she will take up her life work as physician and missionary at the Woman's Hospital, an institution supported by the Woman's Foreign Missionary Society. While she is a pure-blooded Chinese, and proud of the fact, Dr. Hu King Eng was never a heathen, her family having been Christians for two generations. Her grandfather was one of the first natives converted in Foo Chow, and her father one of the first Christian ministers ordained in China. She has a brother in the Methodist ministry and a sister a teacher in a Methodist school in China.

Russian Meats for Export.—In the *U. S. Consular Reports*, for June, 1895, Consul-General Karel makes the following supplementary report on foreign markets for Russian cattle and meat. He stated in a former report that a commission had been appointed to work out a project for the development of cattle and meat exports and that said commission was divided into four categories. Since then, one branch of the commission has held a meeting and recommended the following measures:

1. To avoid the bringing of contagious cattle diseases from the northern Caucasus into the interior governments, it is ordered that sick cattle shall be killed wherever found.
2. The quarantine districts to comprise as small territories as possible.
3. To suspend the quarantine measures regarding the transportation of wool, because it has been established that wool does not spread contagion.
4. For the export of meat to England, to build special fast

boats, which will carry no other freights that would taint the meats. These boats must sail under the Russian flag, and until they are built, an agreement is to be entered into with the Company of Sea Communications, to arrange its boats for carrying the meats.

5. To establish special agencies in England for the sale of Russian meats.

6. To build at Libau, the principal seaport for exporting meats, large ice houses and other arrangements to keep the meats in good condition.

7. Cattle to be transported on the Russian railways with speed.

The Last Contribution of E. R. Palmer, M.D.—The following is an item in the *American Practitioner and News*, June 29, written by the late Dr. Palmer, of Louisville. A few hours after receiving the journal containing the item, the telegraph flashed to us the sad information that the bright career of its writer had suddenly been cut short, and that, too, through the instrumentality of the favorite wheel, of which he wrote so jocundly in the paragraph here repeated:

"A Convention Episode.—At a recent meeting of the American Genito-Urinary Association at Niagara Falls, two staid married members from the City of Brotherly Love, by their manner and conversation gave the writer a mild sensation on the afternoon of the last day of the meeting. They were standing on the balcony of the Clifton House in a state of nervous expectation, when the following conversation took place: "Have you heard anything from them?" asked one. "No," said the other; "and they were to come down from Buffalo on this afternoon's train, sure." "Wonder if the train is in yet?" said No. 1. "Yes, half an hour ago," said the hotel porter standing by. "Well," continued No. 1, "it's plagued strange. They ought to be here at the hotel by this time, sure. One thing is certain, if they don't come I sha'n't stay the several extra days I had intended to spend here." "Nor I, either," said No. 2. To say that I was worked up, inflamed with a burning desire to see these charmers who were coming down, and that, too, right to the convention headquarters, is putting it mildly, and so, as a moment later, one of my friends exclaimed with delight, "Ah! here they come!" I quite naturally looked quickly in the direction of Suspension Bridge, only to see two messenger boys each trundling a *bicycle*. What a craze bicyclocomania is indeed!
E. R. P."

Forward Dislocation of the Fifth Cervical Vertebra.—(Ghyssels *Arch. Méd. Belges*, 1894, August.) Although the post-mortem showed a complete dislocation forward, together with a revolution of the vertebra on its transverse axis, so that the upper surface was directed forward, the vertebra itself was in front of the sixth cervical, and the spinal cord was, as it were guillotined, yet during life the differential diagnosis could not be made between fracture and dislocation. The patient, a soldier, age 23, was on duty as hostler. A fractious horse threw him under the crib, where he was found. His countenance was pallid; skin cold; legs, abdomen and lower half of thorax paralyzed; arms paretic, their strength, particularly the right hand, almost lost. Sense of feeling absent from below as high as the third intercostal space, markedly diminished in the arms, but normal on the head. The patient had severe pain in the neck. The skin was uninjured; there was a slight depression at the location of the fifth vertebra. Great pain on pressure over the first five spinous processes. Crepitus absent. The patient could voluntarily make slight motions of the neck. Respiration shallow, 30 to the minute, diaphragmatic. Palate and pharynx unaffected. Nothing abnormal could be felt in the pharynx. Retention of urine, moderate priapism, patella reflex wanting. Temperature in the axilla 36 degrees C. Skin everywhere painful, especially when touched. Patient anxious. Treatment consisted of the application of leeches to the neck, stimulants, injections of ether. At night it was necessary to use morphin. On the following day, hands and forearms were completely paralyzed, the latter elevated to the second intercostal space. Rectum paralyzed. Severe pains shooting from the neck. Gradually tympanites came on, coma and death on the fourth day.—*Centralblatt für Chirurgie*, No. v, Feb. 2, 1895.

Alcoholism in France.—France is just now considerably exercised over the question of alcoholism. Societies are being formed on all sides under the supervision of the "National League against Alcoholism." One of the largest of these promises to be the "Society against the Use of Alcoholic Drinks," started in Paris under the Presidency of Dr. Legrain, Physician-in-Chief to the insane asylums of the Seine. In a manifesto, which is to be scattered broadcast over France, the founders of the new society declare that "the time has come for all good citizens to enter on a campaign against a scourge which dishonors and ruins us." They add that they propose to propagate a knowledge of this evil in all walks of life, to agitate against it, to give an example in themselves in temperance by abstaining from the use of alcoholic drinks, to teach the principles of temperance in schools, and to organize school children into temperance societies. The dues are to be 1 franc, which is only to be collected from those over 16 years of age. They have also decided to distribute cards on one side of which is printed—"1. I promise to abstain entirely from brandy and liqueurs, save on a physician's prescription. 2. To make only a moderate use of wine, beer or cider." On the other side is the following: "The strength of a nation resides in the intellectual, moral and physical vigor of its children. Alcoholism enfeebles a nation and leads it to ruin." "To be temperate is to be a patriot." "Do not enter saloons except in cases of absolute necessity." The need for such societies seems to be urgent, judging from the following figures:¹

Quantities of pure alcohol consumed in France:

	Absinth, Bitters, etc. Hectoliters.	Other Spirits. Hect.	Total. Hect.
1881	25,904	64,081	89,985
1882	33,385	84,348	118,183
1883	38,497	94,998	133,405
1884	50,235	107,548	159,783
1885	57,732	106,078	163,810
1886	65,268	104,673	169,941
1887	74,178	110,436	184,614
1888	81,342	108,954	190,296
1889	90,428	113,708	204,208
1890	105,258	122,462	227,720
1891	110,598	127,327	237,920
1892	129,670	128,773	258,443

Hospital Notes.

HOSPITALS MUST BE PROVIDED WITH FIRE ESCAPES.—New York has the advantage of some new laws for the greater protection of the inmates of hospitals, asylums, etc. The district attorneys of the various counties have received from the Secretary of the State Commission in Lunacy a letter in which attention is called to chapter 381 of the laws of 1895. This enactment provides for the erection of suitable fire escapes on all hospital buildings used for general hospital purposes, or hospitals or asylums for the insane, or any hospital buildings which are more than two stories high. The letter in question charges the district attorney with a strict enforcement of this law, which, however, excepts hospitals and asylums maintained by the State, city or county. The law becomes operative on Oct. 1, 1895. A year is given in which to comply, but after that time the fire escapes may be erected by the authorities and the cost charged against the hospital or asylum.

ERIE COUNTY HOSPITAL.—Considerable warmth of feeling has materialized in Buffalo, N. Y., between the staff of the Erie County Hospital and a Committee on Management who are appointed by the Board of Supervisors. A delectable little farce by the faction held in power by the political anthropophagi of that city is the result. This committee, with a Holman-like propensity to reduce all expenses regardless of public safety, has rendered itself a stumbling block to the success of the hospital in question, and smarting under

the publication of an article in the Buffalo Times which called attention to the faulty hospital system, held a meeting and recommended the dismissal of the hospital staff which consists of some of the best known medical men in Buffalo among others, Drs. W. S. Tremaine, Herman Hayd and John H. Prior. Three days later the committee experienced change of heart, reconsidered their hasty action and the staff still remains.—A site has been purchased by the Hospital Association of Evanston, Ill., for the purpose of erecting a hospital in that city.—Plans have been prepared to enlarge the hospital at Rutland, Vt.—The contract for the new Woods Run, Pa., hospital has been let. The cost of the building will be \$12,000.—The Southern Pacific Railroad will build a railroad hospital in Oakland, Cal.—The Niagara Falls Memorial Hospital to be located at Niagara Falls, N. Y., was incorporated July 18.

An Acute Coryza in Winter.—The *Chemist and Druggist* gives us the following: Little boy (with bad cold in the head): "Water is runnin' out of my nose all the time." Mamma: "That's because you went out in the cold with no hat on." Little boy: "I didn't know it was cold enough to burst my pipes."

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 13, 1895, to July 19, 1895.

Col. CHARLES T. ALEXANDER, Asst. Surgeon-General, is granted leave of absence for two months, to take effect on or about July 13, 1895.
Capt. WILLIAM H. CORBUSIER, Asst. Surgeon, will, in addition to his present duties, take charge of the Medical Supply Depot in New York City, during the absence on leave of Col. ALEXANDER.
Capt. ADRIAN S. POLHEMUS, Asst. Surgeon, is granted leave of absence for two months, to take effect after his return to his proper station (Ft. Douglas, Utah), and at such time thereafter as his services can be spared by his post commander.
Capt. JULIAN M. CARELL, Asst. Surgeon, is granted leave of absence for four months, on surgeon's certificate of disability.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended July 15, 1895.

Surgeon P. H. BAILLACHE, to assume command of Camp Low Quarantine, July 5, 1895.
Surgeon W. H. H. HUTTON, to report at Bureau for temporary duty, July 12, 1895.
Surgeon W. H. WHEELER, relieved from command of Camp Low Quarantine, July 5, 1895.
P. A. Surgeon C. E. BANKS, to proceed to Detroit, Mich., on special temporary duty, July 5, 1895.
P. A. Surgeon H. T. GOODWIN, granted leave of absence for thirty days, July 12, 1895.
P. A. Surgeon G. T. VAUGHAN, granted leave of absence for seven days, July 6, 1895.
P. A. Surgeon J. B. STONER, to proceed to Detroit, Mich., for temporary duty, July 12, 1895.
P. A. Surgeon J. M. EAGER, to proceed to Southport, N. C., and assume command of quarantine station, July 6, 1895.
Asst. Surgeon W. J. S. STEWART, granted leave of absence for nine days, July 5, 1895.
Asst. Surgeon H. W. WICKES, granted leave of absence for twenty-three days, July 5, 1895.

LETTERS RECEIVED.

Asdale, W. J., Pittsburg, Pa.
Brill, Wm., Los Angeles, Cal.
Couner, J. J., Pana, Ill.; Carpenter, J. W., Omena, Cal.; Cleaves, M. A., New York, N. Y.
Dye, E. C., Fly Creek, N. Y.; De Garmo, W. B., New York, N. Y.; Davis, John L., Cincinnati, Ohio.
Fairchild Bros. & Foster, New York, N. Y.
Gardner, R. W., New York, N. Y.; Goss, E. L., Sheffield, Iowa; Gould, F. B., Kent, N. Y.; Gromberg, M. B., Providence, R. I.; Greenbaum, S. J., Louisville, Ky.; Gaston, McFadden J., Atlanta, Ga.
Hoadley, A. E., Chicago, Ill.; Hammond Sanitarium Co.; Hummel, A. L., Philadelphia, Pa.; Harymore, W. S., Hickory Grove, Ky.; Hollingsworth & Mathie, St. Louis, Mo.
Imperial Graum Co., New Haven, Conn.
Jenks, E. P., New York, N. Y.; Joseph, S. E., Portland, Ore.
Ketchum, G. W. A., Mobile, Ala.; Kober, Geo. M., Washington, D. C.; Kolb, M. G., Cleveland, Ohio.
Lentz, Charles, & Sons, Philadelphia, Pa.
Mill, C. K., Philadelphia, Pa.; Mansfield, F. L., Watertown, N. Y.; Mail-tine Mfg. Co., New York, N. Y.; Martin, J. A., Palestine, Ill.
Newman, H. P. (2), Chicago, Ill.
O'Gorman, James, Baltimore, Md.
Parke, Davis & Co., Detroit, Mich.
Riggs, Geo. H., Ijamsville, Md.
Simpson, John, Philadelphia, Pa.; Smith, Q. C., Austin, Tex.; The Sanitarium, Battle Creek, Mich.
Thayer, O. V., San Diego, Cal.
Upshaw, J. W., St. Louis, Mo.
Valentine, F. C., New York, N. Y.
Waters, J. W., Bachelor, Mo.; Wyeth, John, & Brother, Philadelphia, Pa.; Waite & Bartlett Mfg. Co., New York, N. Y.

¹ La Province Medicale, No. 25, 1895.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, AUGUST 3, 1895.

No. 5.

ADDRESSES.

THE NECESSITIES OF A MODERN MEDICAL COLLEGE.

President's Address read at the Meeting of the American Medical College Association, Baltimore, May, 1895.

BY E. FLETCHER INGALS, A.M., M.D.

PROFESSOR OF LARYNGOLOGY AND DISEASES OF THE CHEST, RUSH MEDICAL COLLEGE, CHICAGO.

In the early history of this country, and as late as fifty or perhaps even twenty-five years ago, large tracts of sparsely settled portions of the United States presented conditions in which it was impossible for the thoroughly educated medical man to obtain a just recompense for the time and money necessarily expended in acquiring his medical education, yet these communities required the services of physicians, and it therefore happened that persons with very slight qualifications took up the practice of physic and endeavored to supply the demands of the community that was unable to obtain anything better.

With increase in population, wealth and civilization the people became more discriminating in their choice of doctors, the communication with distant points was more rapid, the advent of railroads made it easier to secure competent medical men, and consequently the poorly qualified doctors have gradually decreased until at present there are few places in the United States where the citizens do not demand skillful aid for the sick. Fifty years ago there were many thoroughly qualified physicians in the country, and the professors in medical colleges were generally men of excellent attainments, but new and ambitious medical colleges began to confer degrees on students with but little preliminary education, and who had attended but two short courses of medical lectures, with little or no laboratory or clinical instruction, which necessarily gave a low rank to the profession as a whole. It was realized by many, even at that time, that the product of such methods of education was not what it should be, but the necessities of the sparsely settled communities seemed to warrant the course that was adopted, and there can be no doubt that the men thus licensed to practice medicine were far superior to many others who without any qualifications were practicing in various parts of the country. From these conditions it can be readily understood that the medical college of fifty or even thirty years ago was not necessarily a very pretentious institution. A few small rooms over a store, or in an humble improvised building; or in the more pretentious colleges a lecture room arranged in the form of an amphitheater for a hundred or more students, with a small chemic laboratory, an articulated skeleton and a few anatomic plates constituted the whole equipment that was thought necessary for teaching medicine. With the changed conditions that have come about during the last quarter of a century, the col-

lege that starts to-day with the equipment that was satisfactory fifty or twenty-five years ago, is held in derision by the profession and secures for its students only the poorest of the low grade men who hope to acquire some dignity through their medical title. Within the past few years medical men have felt more keenly the necessity for proper equipment, and the great body of the profession has risen to a plane where it is ready to support the colleges that require much better qualifications of their students before they can go out with a diploma entitling them to the confidence of the public.

The few back rooms over a store which were adequate fifty years ago to train the prospective doctor; the single amphitheater and little chemic laboratory are no longer sufficient to furnish the accommodations necessary for the better educated men who are seeking a knowledge of the healing art.

In my effort to ascertain what the proper equipment of a medical college should be, I have not relied wholly upon my own opinions, but have availed myself of the ripe experience of others so far as practicable, and I have endeavored to present a consensus of their views.

To-day it is realized that a first-class medical college must have a large and commodious building with beautiful lecture rooms and ample laboratories. The fully equipped medical college of to-day should have two or three amphitheatres, one of which should be large enough to seat the four classes and allow room for a few visitors. The others should be large enough to seat at least two of the classes, since there are many times during the course when it is desirable to bring together the students of the various years. In connection with these, there should be a number of smaller rooms for clinical purposes or demonstrations. Instead of the single skeleton which was used a few years ago by the professor of anatomy, the well-equipped colleges now furnish a large number of skeletons so that each student may be able to study every bone from the specimen in his hand, therefore an osteologic room has to be provided capable of seating, about tables, half of the first or second year classes, with skeletons sufficient in number to provide one to every two students. A well-lighted dissecting room capable of accommodating at least half of the first or second year classes must also be provided, and it is needless to add that ample material is absolutely necessary. The little chemic laboratory which in former years served for the professor to arrange a few experiments, that would now be thought inadequate in the teaching of a grammar school, has given place to a large, well-equipped laboratory capable of accommodating at least half of the first or second year classes. Histologic and pathologic laboratories capable of accommodating at least one-fourth of either of these classes must also be provided, and a bacteriologic laboratory of similar size has come to

be a necessity. Even larger rooms than these would better serve the convenience of the teachers, but they are not necessary if the class is properly divided, and the teacher will accommodate himself to the various sections. With only four years at our disposal, with the vast field to be covered, it is impossible to make skilled specialists of our students, or even to complete their general education; but it is necessary that every one should be well grounded in the rudiments of medical science and taught how to study, and how to utilize his information in general practice for the best interests of his patients. The best medical colleges now realize the necessity of manual training by which their students are taught the practical use of the test tube, the sterilizer and the incubator, and by which they acquire facility with the microscope, the ophthalmoscope, the laryngoscope and whereby they individually learn the proper methods of applying bandages and splints; indeed, training whereby they may learn every mechanical process with which the fully equipped physician must be familiar. For this work additional rooms are needed, each about half the size of the laboratories already referred to.

The recitation system adopted for a considerable part of the work by many colleges is a great improvement upon the old plan of having the class listen to lectures, or read medicine. Where this system has been tried its value is more apparent each year in the better qualified classes that are turned out. It is found that this training of the class which requires them to learn the precepts of some good text-book, even though the instructors may be comparatively young men, produces much better results than when the whole class assembles in a large room to hear even the most eloquent of lectures. It seems to me that the best results are obtained by a combination of recitations with didactic and clinical lectures. The first year about three-fourths of the work should be done in laboratories and class room, the class being divided into small sections. These sections are assigned lessons which they recite to instructors, but about eight or ten times a week they assemble to hear didactic lectures from the professors. In cities of sufficient size to support medical colleges, there are always located a number of ambitious young men fully competent to give the class room instruction when a suitable text-book is provided. These instructors supplement the labors of the regular professors, and in many departments may be called upon to do about two-thirds of the work. This practice gives young men experience and enables them to demonstrate their capacity for teaching and later may become of great value to the college, when its trustees are called upon to fill vacancies in the regular faculty.

In such a course the professor confines himself to the consideration of the more important subjects of his particular department, which are thus impressed upon the class by his individuality and personal experience. At the beginning of the term he should lay out his entire course, assigning beforehand the lessons for each day. This schedule should be placed in the hands of his instructors so as to form a harmonious course. The recitations should embrace not only those subjects which have been assigned from the text-book, but also all those which the professor has considered in his didactic lectures. The necessity for clinical teaching has been so repeatedly impressed, not only upon the teaching corps in our colleges, but also upon physicians and students, that every college

does its utmost to furnish suitable clinics, and it is a matter of great importance to this Association to decide what constitutes proper clinical facilities for medical teaching. The advantages that were considered ample until recently can not now be accepted; every college must, therefore, be provided with dispensary rooms and hospital accommodations. I am familiar with the fact that fifty years ago a first-class medical college could be conducted with very little clinical material, but it does not seem practicable to give the instruction requisite at the present time with less than four or five thousand out-door patients annually, and hospital facilities of less than seventy-five to one hundred beds. Where there are few patients some slight advantage may be derived from the more careful study of each case by the students, but unless there is sufficient variety the clinical experience which the student obtains is necessarily limited; therefore, the larger the clinical material at the command of a college, other things being equal, the better will be the instruction that is given to its students. I am aware that these statements may be questioned by professors in some schools where clinical material is scant, but the experience of teachers, both in this country and abroad, will support my views. Without in any way desiring to limit the usefulness of the schools in small cities, I must still maintain that clinical experience is of the greatest possible importance to advanced students. The argument that good physicians were made fifty years ago when clinical advantages were very small is not apposite to the case, when we consider the great advancement in medical science and in the methods of training that have been made within a quarter of a century. I do not desire to discourage professors in small schools from doing good thorough work in training medical men, for I believe there is a field that could be well occupied by colleges, even where adequate clinical advantages can not be obtained, if they would confine themselves to what might be considered the junior department of medical teaching. They could by recitations and didactic lectures ground their students thoroughly in the fundamental principles of medicine; they could teach many of the things that must be learned in the laboratory; indeed, they could fit their students thoroughly to enter the third year of the most advanced medical colleges. In this way they might do a laudable and important work for some of the young men in their vicinity who desire a medical education.

In addition to the requisites that have already been mentioned for a first-class modern medical college, a gymnasium for the cultivation of the physical strength and health would undoubtedly be advantageous in aiding the highest mental training. It would also be very desirable if a large examination hall could be added to each of the medical colleges, where the progress of the student might from time to time be ascertained, that he might the more efficiently apply his subsequent work, and where final examinations could be held under the most favorable conditions for preventing cheating by incompetent students. I wish to urge upon teachers of medicine throughout the country the importance of several review examinations during the course. I am fully convinced, by experience, that such examinations every five or six weeks impress upon the students many things that would otherwise be lost, and as a result such students are infinitely better qualified at

the close of the term than they would be otherwise. I believe these review examinations would be found most beneficial in all departments, not only in showing the student in what he was lacking and upon what he must put the hardest work, but also in giving the professor a better knowledge of his qualifications when he comes for the term or final examination.

The plan I adopt has given much satisfaction. In this plan students are strictly marked on every recitation and an absence counts zero against them. At the close of the term the average obtained in the recitations counts one-third, the average of the review examinations counts one-third and the mark obtained on the final examination counts one-third in establishing the grade. This I believe is most equitable to the students, and enables the professor to estimate correctly whether the student is qualified to pass the term or final examination, providing due care is always taken, as it should be, to secure an honest examination.

Within the past few years, I have had frequent occasion to consider the cost of a thoroughly equipped medical college. From these estimates and from the advice I have obtained from others, I have to submit the following figures as a fair estimate of the cost of a medical college properly equipped for teaching medicine in this country at this time.

The buildings for a medical college complete, containing the amphitheatres, clinical rooms, laboratories, and recitation rooms that I have already mentioned (excepting the gymnasium and examination hall) would at this time in most places cost for a total class of 200, from \$75,000 to \$125,000, if all under one roof; or for a total class of 500 about \$150,000 to \$200,000.

The price of land would necessarily vary, but in any city capable of furnishing proper clinical advantages it would probably be between \$30,000 and \$50,000. The fitting up of a chemic laboratory suitable for a total of 200 students in all its classes would be about \$3,000 or for one of 500 students would be about \$5,000. The fitting up of the histologic and pathologic laboratories would be about \$3,000 for the smaller class, or about \$5,000 for the larger class. The fitting of a bacteriologic laboratory would be about \$3,000 for the smaller class, or about \$5,000 for the larger class; making a total of \$114,000 to \$184,000 for the smaller, or \$195,000 to \$265,000 for the larger school.

The cost of maintenance of all of these laboratories for the smaller classes would be about \$4,000 and for the larger class, about \$6,000, exclusive of salaries to the professor or director. The running expenses of the college as a whole, comprising the maintenance of the laboratories would be for the smaller class about \$20,000 and for the larger, about \$35,000 per annum.

In addition to these expenses, small fixed salaries should be provided, as far as possible, for the young men occupying the positions of instructors, demonstrators, etc. For the professors of what might be termed the non-practical departments, such as chemistry, physiology, anatomy and materia medica, salaries should be allowed adequate to enable them to give a large portion of their time exclusively to their duties as teachers. For the professors occupying the practical departments, it is not so essential that similar salaries should be provided, as there is always more or less indirect return for their services;

yet, it can not be questioned that in most cases the best work is accomplished where proper remuneration is received. It is probable that the expense of maintaining the college and paying the professors suitable salaries would not fall short of \$45,000 for the smaller or \$75,000 for the larger annually. In this connection, I will not attempt to estimate the cost of construction and maintenance of dispensaries and hospitals for the accommodation of patients that must be used in the clinical demonstrations, for these can generally, and should always be secured from charitable persons or the public in return for the services of the physicians to the indigent sick. I may state briefly, however, that the original cost of these would be much greater than that of the college buildings and the running expenses would be correspondingly large.

If the colleges were required to bear these expenses, not one of them could afford the other necessary equipment. In consideration of the question, How the money should be obtained for the necessary expenses of a medical college, I know that I reflect the opinion of the profession when I state that such institutions should be amply and liberally endowed; and no opportunity should be lost to impress upon the laity the peculiar beneficence of charitable bequests to this end and the advantages to be obtained by individuals, families and the community at large from a thoroughly educated medical profession. Until the time when our schools shall be endowed they must depend upon the income from the students for their running expenses.

In this connection I wish to suggest that a professional education should be paid for, and that the average fees charged to-day in the medical colleges throughout the country, are only about 50 per cent. of what they should be to provide the money necessary for furnishing the most complete equipment, and giving the best practical instruction to students; but I do not wish to be understood as advocating uniform prices by all colleges. I believe, however, that if all the colleges in the country would raise their fees 25 or 50 per cent. as might be agreed upon, it would enable them to furnish much better facilities than are now enjoyed by medical students, and the students themselves would be correspondingly benefited.

Administration: As most of the medical colleges in this country are supported and owned by their respective faculties, it has been the custom for their management to be left entirely with these bodies, but since a few of the colleges have received endowments, or have become connected with universities, the question has arisen as to the best plan to be adopted in their administration.

It is urged by some that as the faculty know more of the needs of students than others, the management should be left entirely with them. It is urged again that under such an administration, it is very difficult and sometimes impossible to correct evils that are liable to creep in, because of the relations of members of the faculty to each other. For example, a good professor may be appointed, but in the course of time, growth of intemperate habits or something else may occur to render his further connection with the institution undesirable. In the meantime, he has formed personal relations with the other professors, which prevent them from taking any active part in his removal, consequently he remains, much to the

detriment of the school. In such a case, were the administration in the hands of a board of trustees, it would be a comparatively easy matter to make the necessary change. So long as medical colleges are supported by the individual efforts of the faculty, so long, they must almost of necessity, remain under the control of this body; but when they pass into possession of a university or college, whether as an endowed institution or a State school, the administration will necessarily change. It has been frequently urged, that if our colleges were under the charge of boards of trustees distinct from the faculties, it would be much easier to secure bequests for their endowment. This seems to be a true statement, but the experience of four or five colleges shows that it can not be accepted as an invariable rule.

Many instances might be cited where the faculty control has permitted abuses which the personal relations of the professors has rendered them unable to correct; yet, on the whole I think it must be conceded that the faculty control in the case of an institution that must in some way be supported by its members is the best plan. Under other circumstances the board of regents or trustees of the university, must assume in great part the administration, and the responsibility for the conduct of the college; but even then to what extent the administration should be left in the hands of the trustees or of the faculty is an open question, upon both sides of which many arguments may be made.

Certain institutions assume the whole control of all their departments, allowing the faculty little or no voice in management; others give the faculty greater or less privileges in the general and financial management of the school.

It appears to me the better plan would be, in State schools or in endowed institutions having medical departments, for the board of regents or trustees to have control of the financial management, aided by the advice of a committee from the faculty; while the general management of the school, as to its curriculum, time and duration of terms, discipline, etc., could better be left mainly to the faculty.

In the appointment of professors or instructors, the faculty should have the nominating power but only the trustees should appoint. In the discharge of professors, for incompetence or other cause, the trustees alone should act in accordance with the contract made at the time the professor was engaged, and such information as they might desire from the faculty.

In the general management of the school, I believe it would be well for the faculty as a whole, including not only the regular professors but all the assistants, to consider all matters of importance, but the final action upon these should be left to a limited number of the more experienced members of the faculty who should be an executive committee, with power to act, with the consent of the board of trustees or regents.

Although many good arguments may be advanced for absolute control by the board of regents or trustees of any department under its care, yet I feel satisfied that either a nominating or a vetoing power should be left in the hands of the faculty, or the executive committee of the faculty, in order to promote harmony and the best interests of the institution.

The American Medical College Association has already done much to advance the cause of medical

education in this country. If our action is wise, we may in the future, shape the course of the better medical colleges, and is so doing we will sooner or later compel those of lower grade to fall into line, if they wish to receive the support of the profession.

It would be unwise for this Association to take any receding step in the requirements laid down for graduation, and when we consider the effect which increased requirements have had upon the colleges adopting them, there is certainly no reason why any individual member of this Association should wish to take a lower grade than that which we have adopted. The judgment of the profession in this matter is shown in the fact that every advance by a college in the way of requirements of students has been followed by an increase in the size of its classes.

I feel that we have already accomplished all that is necessary, at least for some years to come, as to the duration of the course of study before graduation, although it is of the utmost importance to fix upon the minimum amount of work to be done in this time, and to lay out, as your committee has attempted to do, a suitable curriculum.

Much remains to be done in fixing a high standard of preliminary education. The work of your committee in framing a curriculum that may be adopted by the various members of this Association, I hope will receive your cordial support, at least in so far that its general features may be adopted, in order that uniformity and excellent courses may be secured in all colleges, that desire recognition as first class institutions. The difficulties in the way of deciding upon the preliminary education to be required are many, and I feel that great wisdom is necessary in this body in order to solve the question.

The time has passed with the colleges in this Association, when ignorant young men will be encouraged to study medicine, for their fees, and when schools will maintain scant requirements for the sake of attracting incompetent students to their classes.

In the former Association of Medical Colleges an attempt was made to regulate the fee which should be charged by each; this, I do not believe is wise and I hope the subject may not come up to disturb our councils; or if it does, that no attempt will be made to do more than change the fees by a certain percentage. I believe that the colleges should be left to compete with each other solely upon the merits of their instruction. If a certain body of men choose to give their services gratuitously and to pay from their own pockets the expense of running a medical college, it does not seem to be the affair of any one else, provided others are treated with common courtesy and all adhere strictly to the high requirements adopted by this Association.

In closing, I wish to thank this Association for the honor it has conferred through me upon the college which I represent. I am led to believe that this honor was not a personal matter, either to myself or the college, but that it was an expression of appreciation for the stand this institution has taken upon advanced medical education. My colleagues are firmly opposed to any retrograde step, and I can assure you of their support in a policy of steady and constant improvement, in preliminary requirements of students, and in the methods of medical education.

Send for sample copy of the JOURNAL for a friend.

THE NU SIGMA NU FRATERNITY—ITS MISSION IN THE MEDICAL PROFESSION.

Delivered by the President, at the Thirteenth Biennial Convention of Grand Council at Minneapolis, Minn., June 3, 4 and 5, 1895.

BY JOHN L. IRWIN, PH. C., M.D.
DETROIT, MICH.

Next in organization and domain to that great institution whose power and influence are felt in every hamlet, on every shore, by every river of the habitable globe—the stupendous brotherhood of Masonry—is the secret order confined to the medical profession, the largest medical organization of its kind extant, the Grand Council of which, convening biennially, holds its thirteenth convention to-day with the University of Minnesota Chapter and fraters in the city of Minneapolis, to enact its laws as a central governing body having chapters in the leading medical universities.

Laying claim to an origin at least coeval with the ancient Egyptian priesthood, and deriving its authority from an antiquity that was hoary when Christianity was born, it has nevertheless adapted itself to the needs of modern medicine; and at the close of this, the civilized nineteenth century, it was never so numerous or powerful as it is to-day in this country.

The question of this hour is, What is the Nu Sigma Nu? What its mission in the medical profession?

As man first became civilized on the banks of the Nile, we naturally look there for the first evidences of the existence of a knowledge of medicine. We find that the traditions of the ancients, outside of Egypt, refer the origin of their connection with medicine to that country. Some hold, however, that the Assyrians and even the Phenicians, at an equally early date, had made medical progress. Ancient traditions tell us that Chiron brought medical knowledge from Egypt to Greece, and became the first Greek physician. His pupil was Æsculapius, about whose history there is some doubt and uncertainty, but he is believed to have lived about 1500 B.C., and whose eminence as a physician caused him upon his death to be deified, and he became the Greek god of medicine, under whose auspices all further researches were made.

The sons of Æsculapius became physicians, and two of them were surgeons in the army of Greece. History tells us that during the Trojan war, a son of Æsculapius, having received a serious wound, was being carried from the battle-field to the ships by Nestor, who is recorded as having exclaimed:

“A wise physician, skilled our wounds to heal,
Is more than armies in the public weal!”

The descendants of Æsculapius, continuing the practice of medicine, gave rise to an order of priests devoted to the service of the god of medicine, who were called Æsculapidae. Aristotle, the greatest philosopher of all antiquity, was a member; and Hippocrates was eighteenth in the line of descent. Thus arose the ancient order of the Æsculapidae, which came to view in the new world as the Nu Sigma Nu Fraternity, in the establishing of the Alpha Chapter by prominent members of the medical faculty and others at the University of Michigan, Ann Arbor, many years ago. The ancient order, as originally founded in the mysteries of religion and science in Greece, was revived at Ann Arbor, with its rituals and ceremonies.

The ritual, as then accepted, has since been entirely revised—made to meet the present wants of medicine; and was accepted at the convention held by our order during the World's Fair in Chicago in 1893.

Though scoffers challenge its lineage with the medical order of the ancients; and deny its ancestry as far back as Herophilus, the present usefulness of the Nu Sigma Nu Fraternity and its service to the medical profession can not be denied. Its widening influence is its own excuse for existence. It serves the needs of the true physician, appeals to his tastes and to his sense of solemn and obligatory pledges with a largeness and freedom which can not be overlooked by one who fairly and broadly studies medical phenomena.

Medicine has ever been considered the most noble of arts. The essentials for a competent knowledge of medicine were early laid down in the tenets of our order. Only pure souls could enter the temple of ancient medicine.

It is our duty to assist one another in the attainment of all knowledge pertaining to our profession; to be good citizens and conscientious physicians—avoiding contention and strife. To ask nothing but what is right—submit to nothing that is wrong.

We are taught that to be true physicians and loyal fraters we must practice brotherly love, ambition, temperance, honesty, purity, justice and charity. The best principles and character are required of true and loyal members. Our ancient brothers found knowledge and wisdom less common than do we of modern times—but the character and principles inherent to just and good men are found alike in all times.

Our members are obligated to employ their hands only in good work. Our order teaches us that a life of integrity is better than the most famous or successful career lacking that element.

The highest compact we can make with our fellows is: “Let there be truth between us forevermore.” We know that noble persons meet on the grounds of sincerity and uprightness.

We are told that physicians take each other's measure when they meet for the first time; and when they meet one upon whom the degree of this order has been conferred, he should need no auxiliaries to his personal presence. His aims should be generous and universal. A scholar may be a well-bred man, or he may not, but a true physician must be. Manners have been somewhat generally defined to be a contrivance of wise men to keep fools at a distance. Emerson says: “Society is very swift in its instincts; and if you do not belong to it, resists and sneers at you, or quietly drops you.”

The Nu Sigma Nu presents truth in a certain form. All along our pathway as true physicians, our ritual is useful to us. Most of the true physician's deeds are not recorded, his best acts are seldom chronicled. The true member of our order is he whose actions are the best; and he will live the longest with us. No true physician ever lived without influence somewhere.

Our living principle is the recognition that we are a medical brotherhood. Improvement, diligence and duty are our watchwords. We know that good sense, industry, good principles and a good heart will make a well-constituted mind achieve success in any calling.

We are an association of physicians having common rights and privileges; but we are more—we must have ever with us the symbols of divine presence.

The pot of incense is always found burning at our altar. The Nu Sigma Nu Fraternity seeks to make medical men true physicians—the world makes the so-called “successful practitioners of medicine.”

It is said that on all the shores of all the seas there are not two grains of sand formed alike—our order takes the best material from the ranks of the medical students and practicing physicians, and offers them our standard. What air is to the lungs, blood is to the heart, light is to the eye, liberty is to the heart of man—the beautiful precepts of our ritual are to the true physician.

“He only is rich who owns the day.” The true physician’s time is not his own.

Melody in music is produced because the different sound waves reach the ear at the same time. If sound, whether high or low, loud or soft, were to travel at different rates, confusion and not melody would be the result. The tenets of our order teach us as members to work hand in hand, to achieve the greatest good for the greatest number.

The order of Nu Sigma Nu is not a pastime—a mere diversion—it is an ever living principle. Our ritual exemplifies important truths, one of which is that of a medical brotherhood. It teaches us that there is a purpose in our being; and this purpose we are to apply to the duties of our profession. Emerson says: “The crowning fortune of a man is to be born with a bias to some pursuit which finds him in employment and happiness.” Candidates for the degree of Nu Sigma Nu are selected as to their fitness and natural talent for the work of our profession; and as the disciples of our ancient Grand Master they must show a bias to their chosen calling, which is of all callings the most humane and honorable.

The requirements for admission into our order are those which are possessed by the true physician of nature. We believe the true physician is he who best studies nature and her laws. We know that if we are what nature intended us to be we shall succeed—if we are anything else we shall be worse than nothing.

Our ritual tell us it is our duty to stand well in the *front* rank among the progressive physicians of the day. It bids us never to desert our true sphere; our own line of talent. Candidates for our degree must study their aptitudes—to see if naturally bent to medicine as a calling. There is hardly any person who is not qualified to shine in some profession, and it is far better to be at the head of an inferior calling than at the foot of one which the world calls respectable. Although some men, and men of sagacity, deny the doctrine of natural tendencies, and hold that any one by dint of energy may become what he chooses, yet it would seem that while the natural bent may be hard to discern, still—as the boy is father to the man—he generally gives some indication of what sort of man he is likely to become. The fact that one has an original bias, a fondness and predilection for a certain pursuit, is the best possible guaranty that he will follow it faithfully; hence our ritual causes us to select candidates for our degree, whether they come from among the medical students or medical practitioners, by the standard of natural aptitudes, as well as the moral and intellectual conduct required by our order.

Our ritual teaches that it is not the calling or station in life which gives dignity or nobility to the

man; but the man who dignifies the station or calling. An humble avocation may be ennobled by the manner in which its duties are discharged; and one may challenge the respect of all whose good opinion is worth having.

Nothing can be achieved without tenacity of purpose. Fraters who are just entering their medical career should remember that the greatest weakness of our young men is fickleness, and where one of them perseveres in a calling which he ought to abandon, a dozen abandon their callings who ought to stick to them. The better the profession the more likely they are to do this, for all kinds of business which are surest in the end—which pay best in the long run—are slowest in the beginning to yield a return.

After a young man has adopted a profession, he should be slow to believe himself to have made a wrong choice, especially after he has acquired much valuable experience; and should try another only after repeated failures in the most desperate attempts to succeed. When we reflect that the man remains the same whatever his avocation—that a mere change of calling will neither add to his strength of mind nor diminish its weakness, we may conclude that in many cases what he is in one vocation he would be substantially in any other, and that he might gain little or nothing by the change. In hours of despondency, or when smarting under some disappointment, a young man is apt to fancy that in some other calling he might have been more nearly successful. It is so easy, while regarding it at a distance, to look at its bright side only, shutting the eyes to what is ugly or disagreeable, that it is not strange that men abandon their professions for others for which they are perhaps less fitted.

Our purpose carries a moral truth with every professional obligation. It says that to be true and loyal members of our order we must carry justice, fair dealing and truth into our consulting room. We must be noble, just and true in the presence of our patients.

Our ritual insists that our professional work will be all that the true physician could desire—not less preaching, but more practice. It is true that our organization is a secret one, but as members we are not bound by obligation to any unworthy member—we are not bound to each other whether we are right or wrong. The pin or badge we wear upon our breasts is not an index to the life behind it, but it should be.

We are taught not to despise the man of only ordinary intellect. There is, perhaps, no mistake of our young men more common than that of supposing that in the pursuits of life extraordinary talents are necessary to one who would achieve more than ordinary success. The average man can not believe that those persons who have made themselves a place in history by connection with striking events, whose influence has been felt through ages in changing the destiny of nations, have been men of ordinary intellectual caliber. Men who can do the little things well are they who go to the front.

Our ritual disapproves of all things unprofessional. Its shining light is character. A French writer on agriculture observes that it is impossible, profitably, to improve land by trying favorably to change its natural character—as by bringing sand to clay, or clay to sand. The only true method is to adapt the cultivation to the nature of the soil; so with the moral and intellectual qualities required to make true phy-

sicians. Exhortation or self-determination may do much to stimulate and prick a man on in a wrong career against his natural bent, but when the crisis comes this artificial character thus laboriously induced will break down, failing at the very time it is most wanted.

Persons who have been at pains to collect statistics in mercantile pursuits in our large cities have found that only three out of a hundred merchants are successful, all the others becoming bankrupt or retiring in disgust. Why is this? Is it not because they have gone into business without business aptitude? The ritual of the Nu Sigma Nu requires of all candidates the moral and intellectual essentials with which to achieve success, not as *medical practitioners*, but as *true physicians*. We know that successful medical practitioners so-called are not always true physicians.

The bane of the medical profession is the tendency of members to prey upon one another. Our ritual condemns this. It teaches us to practice its precepts in the quiet of our consulting room, and at the bedside of our patients as well. It respects honest convictions, but it directs us to give allegiance to no sect, school or 'pathy in medicine. We are to make use of the teachings of accumulated experience, and avail ourselves fully of every aid offered to us by advancing medical science. We are to be true physicians in a broad and liberal sense, and are to practice anything wherever found, which will contribute to an honest effort to heal the sick and prolong life. We are to be rational in our methods, and to assist nature in her efforts to cure disease.

We are taught to go forward in our methods of practice, keeping pace with the advancement of medical science, because we know that the medicine of yesterday is not the medicine of to-day; and that of to-day will tomorrow represent the historic and dead past.

"We believe that the laws of nature are not things evolved by any speculative method; but we must discover them in the facts. Before we accept them as methods of practice we have to try them by repeated observation and experiment. In proportion only as they hold good under constantly increasing change of conditions, in a constantly increasing number of cases, and in the greater delicacy in the means of observation, does our confidence in their trustworthiness arise."

What is most needed, in the medical profession of to-day is not schools, sects, or 'pathies, but the elevation of character and intellect, and the improvement of the conduct of the medical adviser. To this task the moral agencies of our profession must apply themselves; ethical considerations must enter into all phases of professional work. As members of the Nu Sigma Nu, it is our duty to carry the grand principles of our ritual into every detail of our daily labors—honesty, truth and commiseration should ever be present in our relations with our patients. It is said that cheerfulness and repose are the badge of the gentleman. Our ritual requires a candidate to be a true gentleman ere he receives the degree and badge of Nu Sigma Nu.

Our duties as members do not interfere with the exalted duties we owe to God, our country, our family or ourselves. Who of our members will ever forget his initiatory ceremony? Our institution elevates the character of the physician by placing before

him incentives to goodness—keeping in view the great Golden Rule for our maxim. Our ritual teaches elevating and inspiring ideas of higher life and stricter duty, and if our beautiful precepts were practiced, not only by all our members, but by all the members of the medical profession everywhere, humanity would proclaim the goodness of our plans, the utility of our triumphs.

Fear of disease and dread of death cause mankind everywhere to employ physicians—wherever sick and suffering mankind is it turns to us for relief. This reliance of humanity on our profession to heal its wounds and cure its diseases, naturally brings us in contact on the one side with mankind's greatest, most vital interests, and on the other with the great science and glorious art of medicine, and gives us power in our legitimate sphere almost like that of the monarch. We are intrusted with secrets that would be confided to no other person; and are as honorary members and guardians to every family we attend. No other men can do the good that can be done by true physicians; others may have the will, but they have not the power and opportunity.

Ours is a calling capable of developing all the good qualities of one's heart, hand and brain. Our ritual would have us keep our lamps trimmed and our oil ready, to do the greatest possible good for all who trust to our skill for relief, that we may be in very truth called true and good physicians.

Wordsworth says: "Blend not your pleasure or your pride with sorrow to the meanest thing that feels." Our ritual bids our undergraduate member treat with kindness, consideration and courtesy all his fellow classmates—the one who wears the faded coat alike with the wealthy and more fortunate. It insists that the one who wears our golden badge should be one to whom the world can point with esteem and honor; and whose conduct in his profession is such as to be truly worthy of such recognition. Such, then, being the mission and effects of our organization, can any one doubt there is an excuse for our being? Has not the medical profession given us a hearty welcome? The answer is found in the fact that some of the brightest minds in the medical world to-day are members of Nu Sigma Nu. In the leading medical faculties everywhere are found our fraters; our badge is being worn by some of the brightest students in our leading medical universities. Let the good work go onward until we have a chapter in every leading medical university and center of the world.

As the gem can not be polished without friction, neither can the physician be perfected without trials. Troubles give sinew and tone to life; fortitude and courage to the true physician. That would be a dull sea and the sailor would never become skilled, where there was nothing to disturb the surface of the ocean. What though things look a little dark, the lane will have a turning, and night will end in broad day. Trouble will disappear before the ever-cheerful heart, as the mist before the brightness of the sun's darting rays.

Let the trials of life come fiercely, if God thus wills—it may be for the best. Gold from half-heated crucibles with dross is found. Each one of us in this life is feeding fuel to his own future, each one tending the crucible in which his own destiny is being molded. If sin and wrong are mingled therein, not thereout can come the elixir of life, but only poison-

ous drugs of suffering and death. Could we but teach the people that not alone in steaming crucibles from precious herbs, but from out the pure air, the glad sunshine, the sweet waters from rivulet and fountain, simple food and temperate habits, an upright walk before God and man, a good conscience—that from these is distilled the real elixir of health, happiness and life—could teach the people such simple truths, we, as physicians, would find our work less arduous; but it is perhaps one of the impossible things.

In vile indulgence every known law of health is defied, and the drunkard and the glutton and the licentious expect to find in some pill or powder that health for both body and mind which can best be found in the God-given medicines of pure principles and a virtuous life, in which alone are distilled the elixirs of the other life which is immortal.

Every institution is an outgrowth of the condition of humanity. Our institution supplies a long-felt want in the medical profession. Our great principles hang, as clusters of fruit, our ritual being the great trunk, whose leaflets permeate the medical profession, and whose attributes do so much to make the true physician. No association ever had a more noble mission than has ours to-day.

The ritual of Nu Sigma Nu, incorporated with the elements of the Christian code, is the unerring rule by which the conduct of its members is tried, laying the broad foundation of that sentiment which bids us to do unto others as we would that others should do unto us. Our institution receives each successful candidate as a brother, and asks him to cultivate the true fraternal relations designed by Providence.

As physicians we know that the greatness of benefits enjoyed by humanity come, not through mighty deeds of valor, but through little acts of kindness. Our profession is not yet perfect; much remains to be done. There is yet much work to be accomplished.

In all lands and among all classes of people, the maternal love is regarded as the most touching of human sentiments. We, as physicians and students of medicine, love our Alma Mater, the institution at which were fostered the higher powers of our intellects and hearts. We love to recall in sweetest memory the events of our college life; but as we grow old in our chosen calling and time will have recorded the flight of years, I verily believe, even more proudly than now, shall we refer to our connection with this great organization.

It is now many years since were revived at the Athens of Michigan the ancient tenets of our institution. I received the degree of Nu Sigma Nu while a medical undergraduate at Ann Arbor. For the past five years I have held positions of responsibility in our Grand Council, and I have observed in that short time the marvelous growth of our order, chapters and members having multiplied until to-day we are represented in almost every part of the civilized world. The work will go onward and upward, until our mission as a fraternity, the elevation of the moral and intellectual standing of medical practitioners in all lands has been accomplished.

I think I ought not to let this occasion pass without addressing some remarks to the memory of those who, having entered into rest, are joined to our Omega Chapter. Their going from among us has seemed like the golden departure of the setting sun. It belongs to the amenities of our profession, to the respect, the esteem, the love and attachment that we have for

one another, that the opportunity is given at this time of testifying to their eminent worth, and above all to their loyalty and devotion to the precepts of our ritual.

It remains for our younger members, stimulated by their high attainments, to lend their energies in the direction of the best thought, the best study and the best learning, that they may become qualified to fill the places and follow the footsteps of our departed fraters; and it becomes us all, touched by the loss of our brothers, to soften the asperities of our chosen calling, making our friendship for one another more calm, constant and cordial; that we may, when life is over, leave behind us a memory which, like a sweet perfume, will make pleasant through all time the places in which we have moved.

In conclusion I wish to say: in accepting, two years ago, at our World's Fair convention in Chicago, the exalted position of your Grand President, to which my fraters called me, my first thought was that while I must yield to their wishes to discharge the responsible duties of this, the highest honor in their gift to bestow, yet to none did I yield the measure of my appreciation of the high honor so liberally conferred. Not to my own fitness or worthiness, but to the high regard in which I have ever held this exalted station, did I trust in some slight way to prove a worthy successor to my brilliant predecessors who have, with unsullied honor and unerring devotion, fulfilled the best hopes of our fraters who raised them to the honored position I to-day relinquish.

They need no words of favorable mention from my lips. For the work they did—noble, humane—they live forever in our fraternity's history. Their faithful services and loyalty to our order are written in letters of living light in the hearts of a grateful brotherhood.

I leave the work with you, my brothers, and believe that my successor and his new staff of grand officers will carry our noble order onward and upward in its march of triumph toward a higher and better life.

"The sweetest lives are those to duty wed,
Whose deeds both great and small
Are close-knit strands of an unbroken thread,
While love ennobles all.
The world may sound no trumpets, ring no bells,
The Book of Life the shining record tells."

230 Third Avenue, Detroit, Mich.

ORIGINAL ARTICLES.

AN ORIGINAL OSTEO-PLASTIC OPERATION FOR THE REMOVAL OF LARGE VASCULAR TUMORS GROWING IN THE VAULT OF THE PHARYNX, ANTRUM OF HIGHMORE, SPHENO-MAXIL- LARY AND PTERYGO-MAX- ILLARY FISSURES.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOHN A. WYETH, M.D.

NEW YORK.

Mr. Charles Bull came under my notice early in December, 1894, with the following history: In December, 1892, the patient, a student, then 18 years of age, began to complain of some difficulty in breathing through the nose. In March, 1893, he began to suffer from severe pains in his head, was very nerv-

ous, could not sleep, began to lose his appetite, and had to discontinue his studies. In June of that year he was examined by a specialist, a well-known rhinologist, who discovered a growth in the naso-pharynx and pronounced it a naso-pharyngeal polypus. From June 30 to Nov. 18, 1893, treatment was discontinued, as the young man went on a sailing voyage. On November 21 he again visited the specialist. By this time the tumor had grown considerably, and by December 14 the patient was suffering intense pain in the head, complaining that it was a pressure on the brain which caused him great agony. On June 12, 1894, the growth was removed by Dr. R. P. Lincoln with the galvano-cautery, and the patient was immediately relieved. Ten days after this operation he was able to go out of doors, and went regularly to receive special treatment, which consisted in the application of the galvano-cautery to the base of the tumor which had been removed.

In July, 1894, the left cheek began to swell and protrude and the left eye to be more prominent than usual and in the middle of November he began to break down rapidly; became restless, nervous, could not sleep, and suffered from great exhaustion after each application of the galvano-cautery. About this time he was examined as to the condition of his left eye by Dr. J. B. Emerson and Dr. Henry D. Noyes, of New York. The pain was so great that he began to take codeia for its relief. He was now suffering considerably from loss of memory and seemed completely indifferent to every one and everything about him, talked incoherently at times and was evidently fast giving way under loss of sleep, lack of nourishment and the anemia from hemorrhages which had occurred on several occasions. The last operation by the galvano-cautery was made on Dec. 8, 1894. A day or two after this he came under my care. His condition then was not at all satisfactory for a formidable surgical procedure. He was pale, waxy, evidently very anemic, and suffered from double vision; the left eye was wide open and could be closed only with great difficulty; it was protruded and pressed inward, resting partly upon the nose. The left cheek was swollen as if it were occupied by a tumor as large as a hen's egg, and the tissues which occupied the pterygo-maxillary and zygomatic fossæ were pushed outward.

It was evident to me that he was suffering from a tumor which, beginning in the naso-pharynx, had grown into the antrum of Highmore, breaking through the posterior inner wall of this cavity and into the spheno-maxillary fissure and the zygomatic fossa far enough to press upon the blood vessels of the eyeball and produce the venous congestion of the cheek and side of the face.

Considering every point of the case, it seemed to me that nothing was left but to try the hazard of a very formidable operation. A careful study of all the methods usually employed to reach these tumors, convinced me that none of them would suffice for the conditions with which I had to deal in this case. I therefore determined upon the following procedure, which is original and I believe, novel. On account of the vascularity of the parts involved and the hemorrhage which must inevitably occur, and also on account of his anemic condition, the first step was to insert a pipette into the median cephalic vein at the elbow and have ready a good quantity of normal salt solution to fill the blood vessels whenever it might

become necessary as the operation progressed. The anesthetic used was chloroform, which was preceded by a hypodermic injection of one-eighth of a grain of morphin, half an hour before the operation, followed by another hypodermic of one-sixteenth of a grain of morphin, ten minutes before the anesthesia. There were present, in addition to Dr. J. A. Bodine, my assistant, and my private hospital staff, Professors Henry D. Noyes, J. B. Emerson, Robert C. Myles, R. H. M. Dawbarn, Dr. Rufus P. Lincoln, of New York City and others.

The operation occurred on December 12. An incision was made beginning along the temporal arch two inches back of the outer angle of the orbit, following the temporal arch to the edge of the orbital cavity, along the frontal process of the malar bone, curving parallel with, and one-eighth of an inch from, the orbital margin, until the point of the knife reached the infra-orbital foramen; then downward to the level of the ala nasæ and outward through the cheek until the point of the knife neared the opening of Steno's duct. This incision was down to the bone from the point of beginning to the lower part of the superior maxilla, where the antrum of Highmore rests upon the alveolar process of the upper maxilla opposite the first molar tooth. Hemorrhage was carefully stopped throughout the entire incision by pressure and by ligating with catgut the larger vessels which were divided, but the soft tissues were in no way dissected up from the bone, except when it became necessary to enter the orbital cavity in its outer half, where the tissues were carefully dissected away from the bone and the eye displaced to the right, (taking care not to press or injure this organ,) until the anterior commissure of the spheno-maxillary fissure came into view. I then hurriedly passed in this a key-hole saw with the teeth turned upward, and rapidly sawed through the junction of the malar with the frontal bone. The saw was then turned over with the teeth directed downward and beginning at the same point, I rapidly sawed through the floor of the orbital cavity, traversing the infra-orbital foramen until I had sawed through the antrum of Highmore at the level of the alveolar process of the upper maxilla. A hook was then placed in the outer angle of the orbit and a quick sharp jerk fractured the zygomatic process of the temporal bone, displacing the side of the face; completely exposing the antrum of Highmore, the zygomatic fossa and the pterygoid and spheno-maxillary fissures. The hemorrhage was tremendous, but was easily controlled by rapidly packing sponges into the wound and making firm compression. So great and so sudden was the hemorrhage that the pulse jumped from about 80 or 85 up to 140, and the patient seemed about to expire in collapse. At this juncture the faucet was turned on and one pint of the saline solution, already prepared and kept so hot that the hand could scarcely be borne in it with comfort (temp. 110° to 120° F), allowed to run into the vein immediately. Under the pressure of this solution the heart immediately rallied and came down to 85 beats to the minute. The tumor was again exposed and with a periosteal elevator lifted out of the antrum of Highmore and its attachments to the pterygoid process of the sphenoid bone were severed. By opening the patient's mouth which action depressed the coronoid process of the inferior maxilla, the pterygo-maxillary fissure and the zygomatic fossa

were well exposed. The whole antrum was well packed with a long wick of iodoform gauze, which was allowed to project at the anterior inferior angle of the wound, from which it was drawn on the third day after the operation. The bone which had been temporarily displaced with the soft parts adherent, was then brought back into position and held there by stitching the soft parts along the line of incision. A bandage and compress were applied in order to maintain approximation. No sutures were inserted in the bones. The patient made an uninterrupted recovery. He is now entirely well and was to have been present at this meeting to be exhibited, but for an unfortunate accident which occurred to him a week ago; he having been by accident struck upon the glass of his spectacles, driving several particles into the conjunctiva and globe, inflicting a very painful and dangerous wound of the right eye. The bones have all united in their normal position; he has perfect use of the eye and, although the filaments of the facial nerve were divided, he still has motion of the orbicularis palpebrarum muscle. Disfigurement from the scar is insignificant.

Beside the novelty of this procedure, there are three important points which I desire to bring out. First of all, is the character of the anesthetic, morphin being almost entirely relied upon. The amount of chloroform taken was only 2 drachms in one hour and forty minutes of narcosis. I have done a number of major operations with this combination of morphin and chloroform, or morphin and ether, in operations about the respiratory tract, and in one instance in removal of the larynx I used nothing but morphin and obtained complete narcosis and anesthesia, the operation lasting an hour and thirty-two minutes, without a drop of chloroform or ether, the patient remaining perfectly quiescent during the operation, suffering no shock, and with no memory of it.

The second important point is the value of transfusion with a salt solution (one teaspoonful to a pint), to prevent collapse and shock under great and sudden loss of blood. During this operation, five pints in all were allowed to run into the veins, and the blood became so thin that practically salt water ran from out the vessels in the line of the incision, showing the red corpuscles were almost exhausted, and yet we were able to make the patient's pulse drop from 130 and 140, the rapid pulse of collapse, to 80 or 90 beats per minute, full and strong, showing that the heart had plenty of volume to act upon and so did well. Prof. R. H. M. Dawbarn, who has done so much to establish this method of transfusion, attended to this feature of the operation for me and rendered, in other ways, most efficient help.

Finally, the persistence of motion in the orbicular muscle of the lids after division of the branches of the seventh nerve.

For the following study of the nervous distribution of the orbicularis palpebrarum I am indebted to Dr. J. A. Bodine, of the New York Polyclinic.

The orbicular portion of the muscle is supplied solely by the facial nerve. This portion, however, is not necessary to the act of closing the eye. In fact, the palpebral portion is quite distinct from the orbicular, and its action is habitually involuntary. It receives nerve impulse from the sympathetic plexus around the cavernous sinus. In addition to the nerve fibers from the seventh, the upper lid may and does get motor impulse thus; the ophthalmic or first divi-

sion of the fifth receives fibers from the fourth and third, and frequently from the sixth, prior to its division into nasal, frontal and lacrymal. Some or all of these motor fibers may go with the lacrymal branch of the ophthalmic. After the lacrymal supplies the tear gland, it sends fibers to the upper lid. (Gray, page 760.)

Again, the lacrymal not infrequently arises by two filaments, one from the ophthalmic and one from the sixth nerve, thus the upper lid would get motor impulse from the abducens (sixth).

Again, if the ophthalmic has received motor fibers from the fourth, third and sixth as already stated, the supraorbital branch of the frontal nerve which goes partly to the upper lid would carry motor influence, and from this same (frontal) nerve the lower lid could be supplied through the infra-trochlear.

Of course the act of lifting the lid depends upon the levator palpebrae supplied by the third nerve.

ERASION, EXCISION AND AMPUTATION IN JOINT DISEASE.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, May 7-10, 1895.

BY DE FOREST WILLARD, M.D.

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From failure of early diagnosis, from lack of early treatment, and from the neglect of early protection and fixation of inflamed joint surfaces, or on account of the intensity of the tubercular process, a large number of cases of tubercular joint disease still require operative procedures for the safety of the limb or the life of the affected individual. Fortunately, owing to a better appreciation of the conditions, these cases are becoming rare; it being more generally recognized that destructive results are preventable by early treatment; that is, by long-continued protection secured by rest and by effective mechanical devices. Proper management of these cases will result in the saving of a large number of these joints, even if the tubercular bacillus has secured a foothold in the osseous structures adjacent to the joint itself.

Much will depend upon the joint invaded; but the same principles of treatment will apply to all. The treatment may be summed up in the one word *rest*. This condition may be induced either by fixation, by extension, or by both. As a result, however, of the causes first enumerated many joints become so thoroughly implicated by the tubercular process that removal of the offending and dangerous foci becomes imperative.

Erasion (improperly termed arthrectomy) aims to remove by gouge and spoon and scissors the diseased hard and soft parts only; excision or resection goes a step further and takes away not only the implicated structures, but also an outlying area of bone; it is, therefore, still more radical, and aims to keep well outside of the disease. Amputation sacrifices a large portion of healthy tissue lying on the distal side of the diseased joint and is therefore still more mutilatory.

The proper application of these several operations to individual cases, therefore, demands a discriminating and judicious consideration. The decision will vary with the joint involved, the extent and character of the disease, the age and condition of the patient, the dangers of systemic infection, the risk to life,

and the ultimate results to be obtained as regards locomotion.

As *erosion* is the least mutilating and is both theoretically and clinically so effective an operation, it has steadily grown in favor, especially as it renders possible the continuance of function in a considerable proportion of cases. It is also, as a rule, a less severe procedure; while it leaves excision and amputation, the two more radical operations, still in reserve. Even should the more serious operation follow, the loss of time especially in children, will be more than compensated for by the increased growth of the limb.

WRIST AND ANKLE.

Erosion.—The ankle, wrist, tarsus and carpus may be considered in a single group, as the course of the disease in these joints is closely allied. The complicated character of the articulations involved makes extensive infection of the area very probable, and conservatism is almost universally recognized as the proper course of procedure.

The exclusion of all operative methods, as advocated by some authors, is unwise, and radicalism as to early amputation is equally wrong. A large number of these cases can be saved, and a useful walking member with movable joint can be obtained by the proper application of simple *erosion*; that is, the removal of diseased structures only and the continuance of proper mechanical appliances. Subsequent progression depends largely upon the situation of the foci. In an extra-articular osteitis that has involved cancellous tissue chiefly, the chances of securing good results by *erosion* without joint infection are excellent. By thorough removal and subsequent injection of anti-bacillary substances, arrest of the tubercular process is common. I have frequently secured excellent results by repeated gougings of small areas as they appeared, and the joint surfaces have entirely escaped contagion.

In young cases, where time is not a very serious matter to the patient compared to the benefit to be obtained, these repeated operations are most helpful, as excellent movable joints are thereby secured. In more serious cases, the disease will involve the tarsal or carpal articulations, and extensive removals may become necessary; yet, in many even of these cases the disease can be eradicated without loss of limb.

For these reasons, conservatism, even though carried to an extreme degree, is desirable, save in those cases where the tubercular process is intense and the resistive power slight; in the latter cases, amputation should be thoughtfully considered. In *erosion*, knife, scissors and gouge are to be employed until apparently normal bone is reached. Whenever it is possible to avoid the osseous structures underlying the cartilage the operation should be arrested, since cartilage is almost certain to die and implicate the adjoining articulation. It is impossible to be certain when all the invaded soil is removed; but fortunately, nature is able to overcome a moderate number of bacilli, and it is not well to open and invade any unnecessary articulation. When in close proximity to an articulation a certain number of cells, even though left behind will be destroyed by phagocytic action, or a second operation may be undertaken.

Portions of the tarsus and carpus which are liable to infection and can not be reached through the wound may be helpfully influenced by cataphoresis;

that is by driving iodoform into the tissues by the positive pole of a battery, using a current of about 5 milliamperes. By this method, or by hypodermic injections of iodoform in the region of the joint, the progress of the disease can often be arrested.

The incisions for *erosion* will vary with the site of the infected area, but for large removals I prefer the long lateral cuts as in excision.

The only guide as to the limit of removal is the extent of the disease. In children, the epiphyseal line should be avoided if possible. Unfortunately, however, in cases which demand excision, avoidance of this line is seldom feasible. The removal of the end of the tibia and fibula, together with the astragalus, necessarily shortens the leg very seriously, and ordinarily results in a stiff joint. In a large number of cases it is doubtful whether the patient is as comfortable as he would be with an artificial limb; practically nothing can be gained in growth if the lower epiphysis is removed.

In the carpus after operation, thorough fixation should be enforced by plaster-of-Paris, or other fixed dressing, which will prevent motion and relieve the resulting inflammation. Drainage, cleansing and local injections of sterilized iodoform oil (10 per cent.) are essential in the after-treatment.

At the ankle and tarsus, the inflamed parts must be absolutely protected from the weight of the body; not for an instant should a step be taken upon the diseased member. Crutches should be used, both before and after operation.

Thorough drainage is necessary and demands the most careful attention to prevent subsequent contamination which will increase the suppurative process. The great fault in such cases on the part of the surgeon lies in his failing to continue asepsis. A wound can escape contamination for weeks and even months, but only by the most scrupulous attention to the laws of cleanliness. I have seen chronic sinuses kept sweet for eighteen months, but it demands "eternal vigilance."

At the wrist the lateral incisions will frequently give good exposure, with the least injury to important structures.

For reaching the tarsus and carpus the only rule to follow is to avoid vessels, nerves and tendons as much as possible and yet secure thorough removal. Many surgeons employ one or two long dorsal longitudinal incisions with transverse cuts if necessary. If tendons or nerves are cut during the operation they should at once be sutured with sterilized silk or catgut chromicized. If one incision only is used at the wrist, it should extend from the middle of the first metacarpal well upward upon the radius. As tendons are divided the ends should be grasped with forceps, marked in pairs.

Excision.—A formal excision is desirable in more advanced cases where the process has advanced to large destruction of bone tissue, surrounding one or more of the articulations, where the general health presents evidences of succumbing to the disease, yet where there is reasonable hope of saving the limb from amputation.

The ankle or wrist joints are first involved ordinarily, although the tarsus and carpus may be primarily the seat. In the latter case, amputation is the more common, especially in tubercle-saturated patients.

In operating upon the ankle, the line of incision

will vary with the exigencies of the case, but I have found that very satisfactory exposure can be made without injuring the vessels, nerves and tendons by two long, lateral, curvilinear incisions, which can be extended as desired by cross cuts when both the astragalus and malleoli demand removal. The peroneal tendons are difficult to hold aside, but can frequently be saved by using a retractor, or by carrying around them a thread of silk, which is less in the way of the operator. If divided, they should be sutured with silk or chromicized catgut. In the tarsus, I rarely make a cross dorsal cut (although the tendons can be sutured), as I am able to make a satisfactory atypical excision through long lateral incisions. I have never employed an osteoplastic operation, even when the os calcis had to be removed.

The most useful saw for joint-work is a key-hole saw made on the principle of Adams' blade, but with a longer cutting face. This can be easily managed and can be manipulated without injury to the surrounding parts. A strong, S-shaped bone retractor is also useful for lifting out the tissues and protecting them. A strong blunt knife is also of advantage in making the dissection.

Amputation is often necessary in extensive destruction of joints and especially in adults.

KNEE.

In children under 12 years of age it is exceedingly important to preserve the epiphyseal line in order to secure growth for as long a period as possible. Erasion is, therefore, preferable to excision in all cases where it can be done effectually. The incision varies with different operators; I do not deem it of any special importance. My preference is the horse-shoe flap with the convexity downward, as stitching of the tendo-patella can be more easily accomplished than suturing of the sawed patella when the straight incision is employed, and better drainage can be secured than when the convexity of the flap is upward; moreover, it gives excellent exposure of the articular surfaces and thorough examination can be made. In some cases lateral incisions alone are sufficient to permit removal when the foci of disease are few. The spoon, gouge, knife and scissors should be thoroughly employed until all the diseased hard and soft tissues are removed; the hollow-handled flushing spoon being particularly useful to carry away the *débris*. Diseased synovial membrane throughout the bursa should be thoroughly removed even though patient search is required. Boiling water may be freely used to destroy the remaining bacilli, or the cavity can be filled with an alcoholic solution of acetanilid or a sterilized glycerin emulsion of iodoform.

In a few cases it will be possible to close the wound without drainage, but where purulent infection is decided, it would be better to drain with rubber tubing for at least a week.

In cases over 12 years of age, and in adults where the destructive process is not too extended, a formal excision is usually preferable, although erasion can sometimes be profitably employed, particularly where infection seems moderate. In the latter case, lateral incisions with scraping and drainage are rarely sufficient.

As to the incision, the same rule applies as in erasion. In an adult, particularly, the incision should extend well above the diseased bone, and all the foci should be gouged unstintingly. A butcher saw with reversed blade to saw from within outward,

with proper protection of the parts beneath, is an excellent instrument. Occasionally, the key-hole saw answers nicely, but the angle of removal can not be so accurately determined as with a larger instrument. It is very important for the surgeon to train his eye to make the section at such an angle as to bring the tibia in good line with the femur without a second cutting. As a rule, the popliteal tissue will yield sufficiently to permit the straight position; but if there is still interference the contracted tendons can be divided.

The patella need seldom be removed unless diseased, as it is of service if the tendon is stitched *in situ*.

Amputation.—In children, the cases demanding primary amputation will be few; but occasionally the destruction of bone and joint by saturation is so extensive that removal is the only operation promising hope of life. In adults, the removal of the limb may frequently offer the best hope of life and of usefulness.

As to suturing of the bone, I prefer to trust to external appliances. If plaster-of-Paris is properly applied, good results can be secured, but a bracketed splint for adults is sometimes useful. A plaster cast can be freely opened on either side and the anterior and posterior halves can be removed for dressing, while the limb can still be held in good position without disturbance of the parts.

With thorough asepsis, dressings are infrequently required, and in children there is less disturbance and pain. Drainage tubes should be removed early. After healing, an apparatus should be worn until all tendency to deformity has disappeared.

HIP.

The question of erasion at this joint is one which depends largely upon the amount of disease, the age of the patient, the amount of suppuration, etc. It certainly is an operation far less successful in this joint than at the knee, ankle or wrist.

In cases demanding early opening the pains are often severe and nothing short of complete excision of the upper end of the bone is advisable. In a few cases, however, where the exploratory incision demonstrates fairly good joint surfaces, the foci of disease may be removed by gouge, and the loss of bone substance and consequent shortening so frequently found in excision in young children may be avoided.

In osteomyelitic cases this puncturing of the bone with subsequent drainage is useful.

The disadvantage of erasion lies in the fact that it is almost impossible to decide as to the limit of the disease, and the continuation of the process ultimately demands excision; the latter operation is therefore the one employed by the majority of surgeons, as its results are beneficial in shortening the time of suppuration, and a fairly good walking member is secured.

I realize thoroughly that operative interference tends to disseminate the tubercle bacilli and, if undertaken, the extirpation should be thorough; hence the desirability, as already stated, of complete removal.

The two most practical routes by which the joint is to be reached are the anterior and lateral incisions; the anterior incision is the most suitable for exploration and where sinuses have already formed in this region. This incision is made so as to interfere as little as possible with the muscular tissue, the cut being begun just below the anterior spinous process

and extending downward as far as necessary, the object being to enter the joint between the sartorius and rectus on the one side and the tensor vaginae and glutei on the other. By this route, both muscles and blood vessels are uninjured. When the neck of the bone is reached the capsule can be divided, exploration of the head, neck and rim of the acetabulum can be made, and the amount of the diseased bone decided upon. A strong blunt knife assists greatly in the process of clearing the bone, and the neck can be divided without injury to the surrounding tissue, with a narrow key-hole saw, guided and guarded by the finger.

The head of the bone is often with difficulty released from the socket. This may be accomplished before section of the neck by manipulation of the femur and the use of a blunt knife or, as I usually prefer, after section of the neck by grasping the fragment with strong lion-jaw forceps. The ligamentum teres, if intact, must be severed. I have found a flexible knife, which can be made to conform to the acetabulum, useful in dividing this structure. All the diseased structure should be removed from the acetabulum and the surrounding area with thorough flushing, and with perfect asepsis the wound may sometimes be closed and perfect union secured. The joint should be filled with iodoform oil. In bad cases both gauze and rubber drainage should be employed for the first few days, the gauze being removed at the first dressing, and the rubber tubing as rapidly as possible.

When the suppurative process is severe, a posterior opening may be made and thorough drainage instituted. This method is most useful in the cases already described, or where the head of the bone has become separated and lies as a sequestrum.

In old or largely suppurative cases the lateral incision over the trochanter is desirable, as it gives a larger exposure of the joint, and when the trochanter is to be removed it is decidedly better. Whenever it is possible to strip off the trochanteric attachments of muscles in a comparatively healthy bone, this method should be employed, as subsequent motion is thereby improved. As the femur is often extremely fragile in these cases where the osteitis has extended throughout the entire shaft, great care should be taken not to fracture the limb, especially in making rotary movements.

If the disease seems to have a definite limitation it will be better for subsequent locomotion to leave the trochanter, even if the drainage is somewhat interfered with by its retention. In these cases the drainage may be supplemented by a posterior opening, which often compensates for lost lateral space.

The power to steady the femur upon the pelvis is so important in locomotion that the retention of all possible muscles is essential, consequently I retain the trochanter whenever it is safely possible. I can show cases of excision when the femoral head and neck have been removed through an anterior incision, that can stand upon the toes of one foot without assistance and flex the thigh upon the pelvis beyond a right angle, can abduct and adduct the limb and have no deformity but shortening, a result which is a great improvement upon the condition attained after excision of the trochanter.

The majority of hip excisions, however, leave the patient a cripple for life, which readily accounts for the persistence with which many surgeons adhere to

the conservative methods of treatment, and as an ankylosed limb in fair position is usually more serviceable for locomotion than an excised joint, the resection should not be undertaken until it is certain that suppuration will occur or that danger to life will ensue by delay.

The results to be feared are the exhaustion from long drainage, amyloid degenerations and general tuberculosis. While excision aims to remove the dangerous tubercular foci, yet the operation sometimes rapidly disseminates the disease. In a child with a bad antecedent history, an excision should be performed earlier than in a healthy child. Long continued, or very profuse suppuration also calls for surgical interference to avoid waxy degenerations. When in doubt, an exploratory incision is advisable, especially if suppuration is present.

In general, a case which is progressing unfavorably in spite of good mechanical treatment, with evidences of systemic infection, demands interference. Acetabular disease, when manifested by suppuration within the pelvis, is best arrested by thorough removal and drainage. Amputation is usually reserved for adult cases with old and suppurative sinuses and marked caries.

ELBOW.

In this region, erosion is decidedly the best operation for young children: by careful gouging of the diseased areas a very fair member can be secured. Whenever possible, the attachment of the biceps and triceps should be left intact. When the entire bone must be removed the retention of the periosteum, (if healthy) at the points of muscle insertion is advantageous. Quite frequently the cancellous tissue of the olecranon can be gouged without disturbing the insertion of the triceps.

The incision for erosion may be lateral, but a focus in the ulnar is rapidly reached by a cut made directly over the olecranon. For formal excision, a posterior long incision directly over the olecranon, or two lateral posterior ones with cross cut, will give good exposure and save also the ulnar nerve.

The head of the radius is liable to disease, but section of the neck will often permit retention of the biceps. I have not found much difficulty in drainage, even when I have sawed through the olecranon and left it *in situ*. For excision, the narrow saw and rongeur forceps are the most useful instruments in addition to the gouge and curette. Care must be taken to remove every particle of diseased tissue, whether excision or erosion is employed, and the parts should be flooded with bichlorid and afterward with iodoform oil and other antibacillary substances.

Drainage tubes should not be retained too long. Plaster-of-Paris makes the best subsequent dressing, as the cast can be made thick at the bend of the elbow by longitudinal reverses, thus giving strength to the dressing when the windows are cut. Amputation is seldom required except in adults or in the worst class of cases.

SHOULDER.

The rarity of tubercular disease at this joint makes it difficult to speak with certainty as to definite results. My personal experience has been so limited that I can not speak from that standpoint, but my opinion is that erosion is decidedly the best operation for this region, and that it should be done as early as possible, as soon as the presence of pus is determined,

The incision should be made so as to avoid as much as possible, interference with subsequent muscular action, and the vessels and nerves should be left unmolested. I have never seen an amputation for this condition.

CONCLUSIONS.

1. When operative measures are demanded, excision is the preferable procedure, as it gives less subsequent deformity and results in better locomotion. This operation is especially applicable at the ankle, wrist and shoulder, frequently at the knee and elbow; rarely at the hip.

2. Excision is most useful at the hip. It is also largely employed at the knee and elbow; more rarely at the other articulations.

3. Amputation should be employed in rapid and extensive degenerations at the ankle, knee, wrist, elbow, and in old hip cases which have relapsed after excision.

4. In children, the less mutilatory operation should be first employed, even though repetition is required; but in adults, temporary operations are seldom advisable.

5. The necessity for operative treatment in joint diseases arises from neglect of proper mechanical measures. Protection and fixation of the joint in the early stages of tubercular invasion will nearly always result in a cure with movable joint and good function. These measures together with antibacillary injections and cataphoretic in-driving of iodoform are steadily decreasing the number of cases demanding operation. Motion and traumatism are the chief causes of inflammatory complications in tubercular osteitis, and often result in such an amount of sup-puration and loss of bone as to demand removal of the diseased tissues.

EXSECTION OF THE KNEE-JOINT,

WITH REPORT OF A CASE OF COMPLETE DISLOCATION OF THE KNEE, OF NINE YEARS' STANDING, AND WITH SPECIAL REFERENCE TO METHODS OF FIXATION.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. F. FORBES, M.D.

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Early in May, 1894, Maggie D., a wholesome young girl of German parentage, came under my care for a slight malarial trouble. In the course of the attendance, which was only three or four days, I discovered that the girl was severely crippled in her left leg; She was otherwise a healthy, robust, well-formed young woman, of 21 years of age; but she was utterly unable to move a step, even about the house, from chair to chair, without the aid of a crutch, which she kept constantly at her side. In attempts at locomotion, or standing, with this leg, the toes of the foot only touched the ground, and the body sank down a foot or more, and gave the appearance as if falling.

Her story was, that nine years before, when 12 years of age, while running on the frozen ground, her left foot fastened in a hole and she was thrown down and suffered a severe injury of the left knee. She was conveyed to the house and left to lie on a couch for a week or two. Then a physician saw her, and after a short and imperfect examination gave the opinion that it was a strain of the joint which would be well

in due time. But from that time on, for over nine years, she had not been able to walk a step on that leg.

Examination at once revealed a complete dislocation of the knee in the antero-posterior direction, the head of the tibia being thrown into the popliteal space, and the condyles of the femur down upon the front of the tibia. The leg was bent at an angle of nearly 45 degrees from the line of the thigh; the whole limb was shrunk and poorly developed from its nine years of enforced idleness. There was slight motion at the knee and the shortening from the anterior superior spinous process of the ilium to the internal malleolus in a straight line was five and one-half inches. Part of this, perhaps one inch, was in consequence of the angle at the knee. Her gait in walking with the crutch was, slow, jerking and exceedingly ungraceful. The young woman was keenly alive to her crippled condition, and the fear that she was to go through life in this deformed state caused her almost constant anxiety and unhappiness. When, therefore, an operation was mentioned, looking to her improvement she gladly assented. Near the end of the month (May) she entered the Toledo Hospital, and was made ready for exsection of the bones composing the knee.



Complete dislocation of the knee of nine years' standing. Unable to walk without a crutch, or use the limb during that time.

In considering the methods to be used in the conduct of this case, I resolved not to employ for fixation the steel drills, as advised and used by Wyeth, nor the bone or ivory pegs used by others, nor indeed but little, if any, of the so-called internal or direct methods of fixation. Such methods are in some cases painful and irksome, and in all cases not more effective than external supports. I could not then see, and can not now, how the bones, in exsection of the knee, differ, or should receive different methods of treatment from those in transverse compound fractures of the femur. Neither did it appear that the excessive and cumbersome bandages including the pelvis, generally used heretofore in these cases, were either necessary or advantageous.

Briefly, the operation and after-dressing were as follows: the patient being anesthetized and the limb having been prepared, an incision was carried across the knee from condyle to condyle, and an upper and lower cuff dissected back a sufficient distance. All of the structures in front and under the condyles, in-

cluding the patella and some extraneous osseous material, were removed down to the tibia. The condyles were carefully bared, pushed out of the wound, and one and three-eighth inches removed by the saw. The leg was now well flexed on the thigh, the head of the tibia cleaned and pushed out of the same wound, and three-eighths of an inch of the articular surface of this bone removed. On straightening the leg now, the bones came together fairly well, but the leg was so nearly cut off and was so loose and unsteady that I confess to having had a temporary weakness come over me, and decided to use some internal fixation. Hence, six chromicized catgut ligatures, three on a side, and one silver ligature in front, were applied to the divided bones. The hemorrhage was trifling, and when completely arrested, a few strands of catgut were left in the wound for drainage, the periosteum was drawn down and carefully stitched with catgut, the external flaps treated in a similar way, and the line of the wound sealed with iodoform collodion, the drainage strands only protruding. Two layers of sublimate gauze were next applied, covering the entire foot and leg, reaching well up on the groin. An envelope of absorbent cotton was wrapped evenly around the limb, extending above and below the wound a few inches. The whole limb was now



Ten months after operation (exsection of knee joint); has good use of the limb; walks long distances without crutch or cane.

neatly and carefully wrapped in a well-filled flannel bandage, and a plaster-of-Paris bandage applied from the toes to the groin. During the application of this latter envelope, strips or splints of wood (ash), five-eighths of an inch wide and one-eighth of an inch thick, were inserted as the binding went on, reinforcing, so to speak, the plaster, and giving an instant steadiness to the limb. These strips were four in number, two under and one on either side of the limb, extended from the ankle to the body, and were permanently embedded in the plaster envelope.

The patient made a good recovery from the anæsthetic and operation, and from the hour of her returning consciousness until the present, has repeatedly stated that she never felt the slightest motion of the bones upon one another. So far as her feelings and sensations were concerned, as well as from all other indications by which the surgeon might judge, the fixation was instant, complete and permanent.

The further progress of the case was uneventful. About thirty-six hours after the operation some reac-

tionary fever began. The pulse rose to 120 and the temperature to 104 in the course of a few hours. Pain and restlessness occurred to such a degree that a hypodermic of $\frac{1}{4}$ grain morphia was given with much relief, and in a few days a nearly normal condition of the system returned, and continued until the patient was discharged cured.

About three weeks after the operation the bandage over the outside of the knee became stained from some internal discharge, and a trap was cut through the plaster down to the wound, when it was found that a thin edge of the upper border of the lower cuff about one-quarter of an inch wide and three inches long across the limb had died, and was being cast off. The parts were cleaned and absorbent cotton pushed in around the wound, which was covered by iodoform gauze, and this dressing repeated two or three times daily, thereby keeping the wound and adjacent parts perfectly clean. In about one week the slough became loose enough to be, and was removed, leaving a perfectly clean wound one-quarter of an inch wide, two and one-half inches long across the limb, and one-half inch deep. In the bottom of the wound the silver wire lay loose, but partly covered by the granulations, and as it was serving no purpose I divided it and took it away. No bone could either be seen or felt in the wound, which was re-stitched with catgut and made quite tight, covered with gauze and bandaged. In about two weeks more the wound was healed, and in seven weeks from the day of the operation the plaster and all coverings were removed from the limb, which was fully healed and appeared quite strong. The patient was now allowed to go about the ward, and in pleasant weather out of doors a little, on her crutches, wearing only a bandage and some slight support around the knee. Within three weeks thereafter the limb had acquired sufficient strength for her to stand upon that leg, and make some little attempts at walking with it. She was discharged from the hospital and from all surgical care and attendance ten weeks after the operation, with a straight limb and one which was already serving her somewhat in walking.

The progress in usefulness and strength in the limb has steadily continued, and now at this writing, ten months after the operation, she walks without crutch or cane, getting on street cars in crowded streets, and walking miles even, without pain or fatigue. In fact, she is acting as a house girl in a private family, and is upon her feet more or less all day. Her gait has also become quite normal, and when walking at a moderate pace, no halt or limp is noticeable.

She wears under the shoe of the affected limb an iron support of just two inches, and uses the limb with a freedom and confidence quite surprising, considering the short time which has passed since the operation.

Two points of practical value are sought to be proved in the report of this case. The first is, that in exsection of the knee joint all internal or direct fixation, especially of unabsorbable material, is unnecessary, and sometimes undoubtedly interferes with the healing process; and that external support by means of the plaster bandage, strengthened by wooden strips, gives instant and permanent fixation. There are two purposes, however, which chromicized gut serves in these cases, namely: these ligatures aid somewhat to keep the bones steady in the handling

which takes place during the dressing of the limb, and also they prevent the crowding in of the soft structures between the ends of the bones. For these purposes, but not for any purpose of lengthy fixation, a few heavy strands of gut may very properly be used. But all such measures as steel drills, ivory pegs, or other similar methods, should be abandoned; for they, as before stated, are often painful and irritating, literally as a thorn in the flesh, and do not serve the desired purpose as well as the method here described.

The second point in connection with this case is, that the practice of extending the bandage up onto the pelvis, while it is irksome and painful to the patient, is not necessary to secure entirely satisfactory results. Many times during the progress of the case I found my patient, on arriving at her bedside, in a half-sitting position, engaged in reading or light needlework, and insisting that this position she knew did not affect the bones of her leg. The partial, even quite limited use of the hip joint, affords much relief to the tedium of the weeks which must pass during the process of bony union. In conclusion, the opinion is here expressed, that by the employment of the methods of fixation and bandaging here described, operators will secure not only the best surgical results attainable in these cases, but they will also receive the grateful appreciation of their patients for rendering their condition as painless and comfortable as possible during the period of repair and convalescence.

FLAT-FOOT—ITS CORRECTION AND COMPARATIVE STUDY WITH THE FOOT OF THE ORANG, CHIMPANZEE, GORILLA AND BABOON.

(ILLUSTRATED BY PHOTOGRAPHS.)

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. MERRILL RICKETTS, PH. B., M.D.
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Of all misfortunes in the way of orthopedic deformities, I believe there can be none worse than aggravated forms of flat-foot. The patients must not only suffer the humiliation of being deformed, but must suffer pain in many instances to the degree of absolute helplessness, and of but little use, unless it be to the instrument makers. They have usually experienced all kinds of treatment, both medical and surgical, have taken all the rheumatic remedies and applied the greater number of patent nostrums for the relief of soreness. When once the deformity becomes painful, either from trauma or the natural consequences of such a deformity, there seems to be no means of relief, especially for that class in which flat-foot is most commonly found. That the cause of flat-foot is primarily rachitic, I am not quite sure, as I believe that there is as great variance in the shape of the feet as there is in any other part of the anatomy. We have differently shaped hands, and why not differently shaped feet? The measurements of the hands vary materially with individuals; sometimes they vary in the same individual. Just so do the feet vary, and especially the arch of the foot; some are higher, while others are lower than the average. If a foot with a low arch should be subjected to an injury in such a way as to diminish the height of that arch, it is to be suspected that the

patient will suffer more or less inconvenience from the changes.

I do not wish to be understood as challenging the theory, which many investigators have set forth and advocated, viz., that flat-foot is usually due to a rachitic condition. I believe that rickets is responsible for a large percentage of flat-foot.

When we take into consideration the bony structure of the foot of man's nearest allies, I do not believe it is safe to say that all flat-foot is of rachitic origin, especially while the effects of trauma are so well known. Man being the only true biped, it is interesting to study the most conspicuous differences between him and his nearest relations, those which but occasionally become erect; though the erect position has caused the foot to become flat and the great toe shortened, and otherwise modified, through the influences to which the loss of power of prehension can be attributed, there is an arch in the foot of man that does not exist in that of his allies. This, however, is not the case in all bipeds, for there are



1. Orang.

still certain savages that retain the power of prehension, as shown in their ability to climb trees. Some apes are now undergoing this evolutionary change. Baboons are to be found among the hills and rocky districts only climbing trees from necessity. In them, we find a foot that is flat to the highest degree. The gorilla runs in a sidling manner and rests on its hands and feet. This, perhaps, is due to the excessive flatness of its foot, the ends of the toes being bent under to take the place of the arch. Some of the hylobates can walk or run upright. The construction of the hands of the quadrumana is of the same pattern as those of man, but not so symmetrical or well adapted for diversified use. Some of the monkeys, the chimpanzee and the orang-outang, walk on the margins of the palms or on the backs of their bent fingers.

This is perhaps due to the great length of the hand, a condition necessary for climbing. However, the greatest climbing monkeys in the world are the

American atales and the Asiatic hylobates, which have rudimentary thumbs, the fingers being converted into hook-like appendages. There came a time when a difference in the construction of the hands and feet was necessary, perhaps due to the manner of procuring substance, on the ground and not in trees; quadrupedal or bipedal. The mastoid process, which is found in the human skull, is the

children are born with flat-foot, and that the arch is developed as the child reaches adult life. Accidents, together with a rachitic constitution, are, I believe, invariably responsible for the arch not reaching its highest degree. The manner in which the foot is dressed, no doubt, has something to do with increas-



2. Orang.



4. Orang.



3. Orang.



5. Orang.

result of the erect position of man, and they are almost rudimentary in the next nearest relative, the gorilla. They do not exist at all in the baboon, chimpanzee or orang.

A careful study of the accompanying photographs will, I think, add much to our knowledge of this abnormal condition in man. It is a fact that all chil-

ing the degree of the arch, for in all savages who have not worn shoes we find flat-foot to a greater or lesser degree. This is so with the Samoans, Dahomeys and several other tribes of the South Pacific, as observed by myself. It does seem, however, that the arch of the foot is increased with the degree of

civilization. We need not, then, be surprised to find that the arch of the foot will not tolerate the excessive endurance so often imposed upon it, and when this arch has reached its degree of endurance neither should we be surprised in not being able to devise some mechanical means that will answer every purpose intended for a high arch. It has been my observation that the fastest runners have the highest

lieve it makes any difference what the cause is in these most aggravated cases; there the remedy would be the same, whether congenital or traumatic. I believe that many of the milder ones are benefited by some one of the many appliances. Since the introduction of clean surgery, much more has been hoped for, and it now remains for us to determine which of



6. Gorilla.



7. Gorilla.

arch. This, perhaps, may have some bearing upon the subject.

This abnormal condition, flat-foot, naturally falls within the domain of orthopedic surgery, and it is only in the most simple cases that any kind of appliance gives any benefit whatever, it being seldom claimed that the benefit is permanent. I do not be-



8. Gorilla.



9. Gorilla.



10. Gorilla.

the surgical operations is to be adopted for the correction of the deformity in those cases which have made the subject helpless and practically an invalid with great suffering. Surely the various tarsotomies have been found wanting, also the various operations upon the tissues of the plantar regions. This being the

case, it seems that for the present there is but one of three things to do: 1, to shorten the foot by dropping down the posterior part of the os calcis, thereby raising the arch, as suggested by Gleich, of Vienna; 2, supramalleolar osteotomy (Trendelenburg); 3, amputation of the foot and its substitution by an artificial one. Whatever operation should prove the

ators we find Willy Meyer, Royal Whitman, Bernard, Roth and T. S. Ellis. In our own country it appears that Meyer was the first to operate, surely the first to operate in the way suggested by Trendelenburg, of Bonn (supramalleolar osteotomy), although he had operated twice in cases of flat-foot, as the result of Pott's fracture, before operating for simple flat-foot according to Trendelenburg.

For my own part, after finding all appliances useless, giving the more aggravated forms no relief



11. Chimpanzee.



13. Chimpanzee.



12. Chimpanzee.



14. Chimpanzee.



15. Chimpanzee.

most desirable, to Golding-Bird, Davy, Ogston, Stokes, Wienlicker, Hare, Phelps and Trendelenburg belong the credit of having been the first to substitute the various surgical appliances with a direct surgical operation. The first of these seems to have been in 1878, only fifteen years ago. Among the later oper-

whatever, if anything increasing the amount of pain, I have decided that Trendelenburg's operation is the most rational so far presented. In consequence thereof, I operated upon a mulatto, female, age 38, weighing about one hundred and fifty pounds. Although there was a predisposition to flat-foot, she had no inconvenience at all until at the age of 28, when through a misstep in going down stairs she

broke down the arch of the foot, since which time she has been a great sufferer, not being able to attend to household duties for several months at a time. The patient had been subjected to various kinds of appliances, having had the foot in plaster for several weeks on several occasions. It was not long until she began to have pain in the left foot, the result of overwork. Between the two it was necessary for her to use crutches in getting about the house. I was consulted on November 7, when I advised one of the various operations suggested for the relief of such deformities. It was at this time that one of our most prominent instrument makers declared that he could relieve her trouble. I was perfectly willing that he should be given an opportunity to apply his skill and so permitted him. At the end of six weeks her suffering was unbearable, and she was

wound was closed with silkworm gut. Time, fourteen minutes. The right fibula was divided in the same manner, in a corresponding locality. Silkworm gut used for sutures. Time of operation, eleven minutes. I then proceeded to divide the right tibia. After making my incision it was found, upon removing the rubber bandage which had been used upon the other leg, that the posterior tibial artery had been injured. I was at a loss to know where the hemorrhage came from, but I soon determined that the artery was in an abnormal position, running along the tibia upon its inner and anterior surface. The branch divided was about the size of an ordinary pin, but the hemorrhage was quite severe, necessitating the ligation of the posterior tibial. The hemorrhage once checked, the bone was divided and the operation completed within sixteen minutes. Silkworm



16. Before operation.

K. T., age 38, 150 pounds. Both feet inclined to flat foot. Broke down arch of right foot at age of 28. Disabled four out of ten years. All appliances failed. On Dec. 19, 1893, supra-malleolar osteotomy both legs. Left fibula 12 minutes, left tibia 14 minutes, right fibula 11 minutes, right tibia 16 minutes. Fenestrated plaster-of-Paris cases. Complete recovery with double bow-legs. (Trendelenburg's operation.)

anxious that I take the matter in hand and give her relief in some way. Consequently on Dec. 19, 1893, I made a supramalleolar osteotomy on each lower leg, while the patient was under the influence of chloroform. An incision one inch long, directly down upon the left fibula, two inches from the lower end, was made, the periosteum divided and the bone severed with a chisel, subperiosteal. The wound was closed with silkworm gut. Time of operation, twelve minutes. An incision was then made upon the inner surface of the tibia, in the same manner, and the bone likewise divided at a point corresponding to the division in the fibula. This was also periosteal. The



17. Fifteen months after operation.

gut was used throughout, a small piece being drawn through for drainage in each wound.

After the incisions had been dressed and the legs banded with cheese-cloth, plaster-of-Paris was applied by my assistants, Drs. J. V. Ricketts, H. V. Sparger and O. S. Mills, while I held the foot in an extreme adducted position. The left leg was first applied, so I was able to place the right foot in position before its plaster cast became hardened. These casts were removed at the end of fourteen days, and three of the wounds found to have united primarily. The legs were adducted to a greater degree and new plaster dressings applied. The left, however, was more adducted than the right, because it was the more troublesome of the two. In fact, the right foot had caused but little trouble, aside from its being overworked. The wound which had not healed primarily

was upon the left tibia. There was more or less trouble for several weeks when a small spicule of bone was removed. After this time the union was perfect, and the patient has since been able to go about her household duties without pain or discomfort in any way whatever. She is absolutely free from pain, and I might say entirely cured. She has gained considerable flesh, weighing perhaps thirty pounds more than at the time, still she does not complain, but says she has not felt as comfortable and as free from pain since the day of her injury, eleven years ago. Thus, this case illustrates that the end has justified the means, and I look upon it as one of the most gratifying results that could be obtained in a deformity of this kind.

I am free to admit that I look upon supramalleolar osteotomy as the most rational means of treating

causes: (a), failure of the tarsus to become arched; (b), rickets; (c), trauma.

2. That it becomes aggravated with age.

3. That all bipeds are born flat-footed—the arch being an after-consideration.

4. That the highest arches are found in the fleetest runners.

5. That the barefooted races do not have any very perceptible arch or inconvenience.

6. That man's nearest allies, the chimpanzee, gorilla, orang and baboon, have but little indication of an arch. On the other hand, the tarsus in the chimpanzee, his nearest ally, lies upon the plane, while the posterior under surface of the os calcis does not touch the plane to any degree whatever. In the gorilla, however, the posterior part of the os calcis, together with the tips of the toes support the body—the tarsus not touching the plane. This is the case with the orang.



18. After operation.

flat-foot that can not be managed with the ordinary appliances. I believe that if the operation is done aseptically it offers more than any appliance, and should be substituted for them without any great hesitancy. The division of the os calcis, as suggested by Gleich, does not, I believe, offer the same advantages. It is not so rational. If either the operation of Trendelenburg or Gleich should prove fruitless, and the patient continue to be an invalid, I believe it is our right to make an amputation of one or both feet and substitute them with artificial ones. There are many deformities that are attended with more suffering and pain, loss of time and humiliation than the wearing of one or two of the most ingeniously constructed artificial feet.

In conclusion I would say:

1. That flat-foot is principally due to one of three



19. Before operation.

7. That the construction of the hands and feet of the quadrumana are of the same pattern as those of man, but are not so symmetrical or so well adapted for diversified use.

8. That the manner of dressing the foot in early life is a prominent factor in causing pain and discomfort in feet that are disposed to flatness.¹

9. That the degree of the arch of the foot increases with civilization.

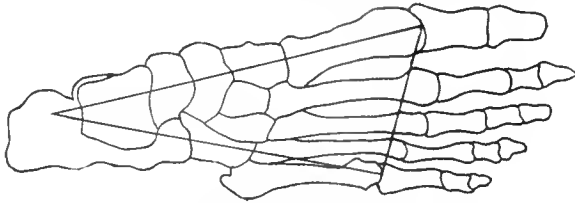
10. That but little benefit can be derived from any kind of an appliance, except in the lesser degrees of deformity.

11. That the aggravated forms of flat-foot should be subjected to the operation of Trendelenburg or Gleich, regardless of what the cause may be.

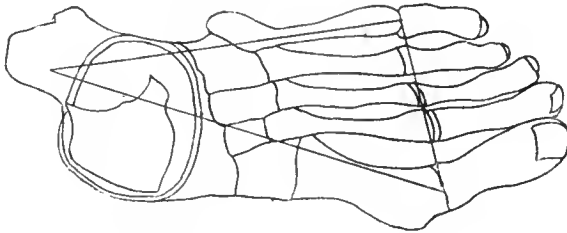
¹ In this connection, I will say that the French Academy of Science has expressed its belief that the small toe in man is becoming rudimentary as the result of the wearing apparel of the feet.

12. That so far as can be determined by observation, the relief given by the Trendelenburg operation has been absolute.

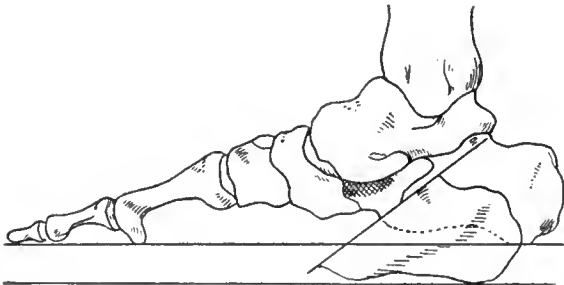
13. All things being equal from a cosmetic point of view, the operation of Gleich (dropping the posterior half of the os calcis) would be the most desirable.



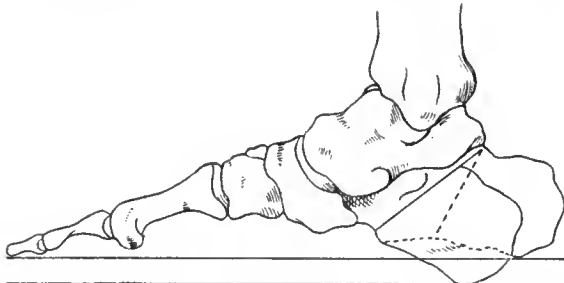
20. Von Meyer's triangle on normal foot.



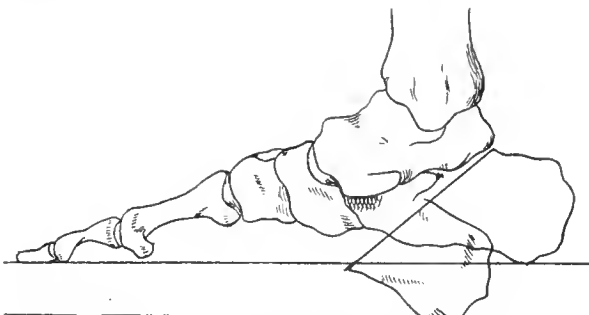
21. Von Meyer's triangle on an abnormal foot.



22. Shows position of post. portion of os calcis after being divided. Gleich's operation.



23. Lesser degree of lowering post. portion of os calcis. Gleich's operation.



24. Extreme degree of lowering post. portion of os calcis. Gleich's operation.

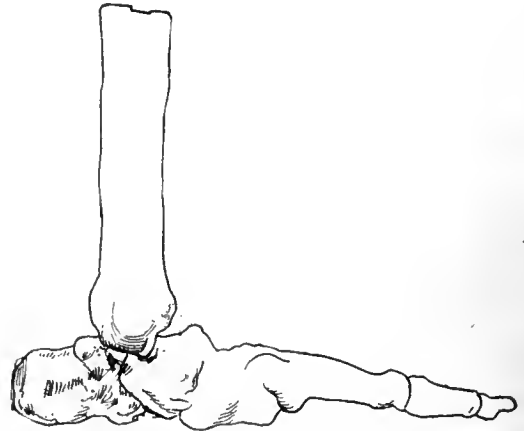
ble. Nothing but time and the making of a number of operations by each method will determine their relative merits.

14. That in all cases of Pott's fracture, where flat-

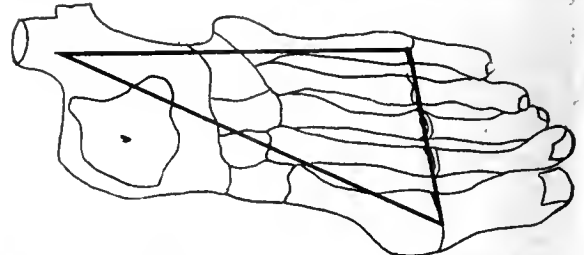
foot has previously existed, a cure has always resulted.

15. If the osteotomies are made subperiosteal and aseptically, without complications, no serious results should follow.

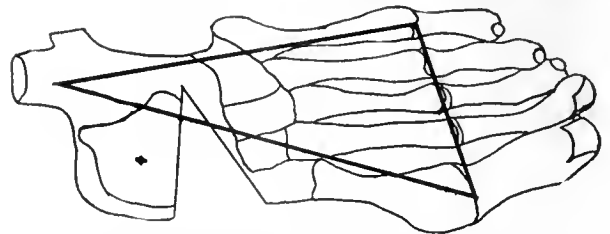
16. That the first plaster-of-Paris dressing which has been fenestrated and reinforced by small ribs of steel, should be removed at the end of the tenth or twelfth day, and a new one adjusted to make sure that adduction is of the proper degree.



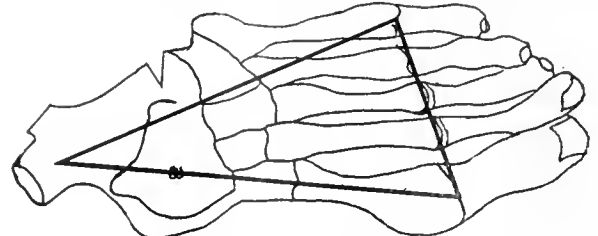
25. Shows how the astragalus is displaced to the inner side of the foot.



26. Shows the situation of the astragalus point lying outside the small von Meyer's triangle.



27. Shows the foot after the removal of the wedge-shaped piece of bone.



28. Shows the foot adducted and the astragalus point on the inside of von Meyer's triangle.

17. That my own experience would lead me to operate unhesitatingly upon any flat-foot causing incapacity by pain or deformity, which could not be relieved by any mechanical devices.

18. That the operation in the case just reported has resulted in all that could be asked for—making a producer out of a consumer.

ON CRYPTOGENIC CYSTITIS AND PYELITIS.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CARL POSNER, M.D.

PROFESSOR OF GENITO-URINARY DISEASES UNIVERSITY OF BERLIN.

The time is gone when the ever usable and available "catching cold" might serve as an explanation for suppurations and catarrhs of the mucous membranes. We know now that while it may produce a degree of predisposition of the tissues, the real awakening of the affections in question must proceed from precisely definable poisons. These, in the vast majority of cases, are connected with microorganisms or are produced by them.

Thus "vesical catarrh from cold," which formerly was so frequently diagnosed, has disappeared from our field of vision; in like manner, purulent inflammation of the pelvis of the kidney must be attributed to pyogenic presences—bacteria or the products of their metamorphosis—impinging upon the mucous membrane. Their presence is an absolute *sine qua non*, without which any disturbances such as stones, foreign bodies, stasis, etc., can not produce this definite effect.

How do these pyogenic elements enter the urinary passages? As regards the bladder, it is now the habit to think exclusively of infection from without. Bacteria can readily be carried into the bladder from the urethra by instruments, with ease. L. Lewin's and H. Goldschmidt's experiments have demonstrated the process by which they can certainly occasionally ascend to the pelvis of the kidney.

But this simplest of explanations does not always apply. Cases are not at all rare in which cystitis appears, though they have never been catheterized, and with equal frequency pyelitis obtains without ever having been preceded by cystitis. In the latter, post-mortem examination often enough shows an absolutely intact condition of the bladder with severe suppuration of the kidney.

The deduction is inevitable that in such cases the pus producers have immigrated from the circulation. The kidneys serve as drains for the body; any presence of microorganisms causing fluid poisons, must lead to their elimination by the kidneys, and attention has often enough been attracted to the danger to which the kidneys are exposed by the presence of purulent foci in the organism. Pyelitis has frequently appeared after abscesses and furunculoses. But in the majority of instances no heed has been taken of the fact that the healthy body continually harbors immense numbers of pus producers which relatively slight causes can send into the blood and the kidneys. So the intestinal bacteria, preëminently among them the bacterium coli, are entirely innocuous parasites as long as they inhabit their normal domiciles; but as soon as they migrate into other tissues, they act as most energetic pus provokers.

Brunner's declaration regarding strumitis must be designated a most important general law and a very significant one for general pathology. The participation of the urinary passage herein might perhaps have been deduced from the circumstance that of all the bacteria which have been proved to be provokers of cystitis and pyelitis the bacterium coli plays a most important part.

Numerous experiments made by me conjointly with Dr. Arthur Lewin have shown that upon completely

tying off the rectum, eighteen to twenty-four hours suffice to produce an inundation of the entire body with bacterium coli. When we injected the easily discernible bacillus prodigiosus into the rectum of animals and ligated it at once and allowed the same time to elapse, we found this readily recognizable organism in all the organs of the body and especially in the kidneys and urine.

This, which refers to microorganisms, as easily applies to fluids. It has long been known that drugs and poisons of most widely different kinds such as iodine, bromine, carbolic acid, corrosive sublimate, quinine, morphine, etc., are as quickly absorbed by the proctodeum as when they are applied subcutaneously. I made a series of experiments with the assistance of Mr. Fanadic, to elicit a closer knowledge of the manner of this absorption, by injections of solutions of coloring matters into the rectum. Aside from other results, precisely the same facts obtained, viz., that twelve to fifteen minutes after an injection into the rectum (for example of indigo-carmin) it could be found in the kidneys and urine.

No one who witnessed these experiments can escape the conviction that they point to a cause for the development of such renal and vesical affections as hitherto have been obscure. As yet, far too little attention has been given to the dependence of these organs upon the intestine. And still, observation of diseases of the urinary apparatus indicates often enough that their origin should be sought for in digestive disturbances.

The future will teach in how far purulent diseases require consideration in this connection. I believe, as has been elsewhere suggested, that chronic forms of nephritis in their narrower sense, will find their explanation herein.

It may suffice, for the present, to invite attention to the conditions under which those many cystitis and pyelitis, formerly designated as "cryptogenic" may originate. Then, accepting that the bacterium coli can provoke such diseases, the conclusion is inevitable that intestinal affections which can cause them to penetrate the circulation, merit special consideration.

SOCIETY PROCEEDINGS.

Cleveland Medical Society.

Quarterly Meeting, June 28, 1895.

THE PRESIDENT, DR. WIRT, in the chair.

Meeting called to order at 8 o'clock P.M. Reading of the minutes of last meeting. Nominations for membership.

The application of Dr. J. H. ROGERS, of Louisville, Ohio, has been approved by the Censors. On motion of Dr. Humiston, the Secretary was instructed to cast the ballot for Dr. Rogers as a member of the society.

PROGRAM OF THE EVENING.

DR. WIRT—At this quarterly meeting we dispense with the report of cases and exhibition of specimens. We now come to the program of the evening. You have all no doubt read in Dr. Wood's text-book on "Therapeutics," his classic description of the experiment upon himself in the use of Indian hemp. In this most perfect description, the Doctor relates that he lost all appreciation of the relations of time, space and surroundings. The Doctor has the happy faculty of hypnotizing his audience, and although the effect is not identical with that of Indian hemp, yet you do lose all appreciation of time, space and surroundings.

It has been my happy privilege to bring about, in a measure, the possibility of this condition for you. I therefore take great pleasure in introducing to you the speaker of the evening, Dr. H. C. Wood, of Philadelphia.

THERAPEUTICS OF HEART DISEASE.

Dr. Wood said:—Gentlemen of the Cleveland Medical Society; if any unfortunate skipper ever took with him a load of coal to Newcastle, before he had time to unload his cargo he probably felt very much as I do to-night coming before you, for I am not at all sure that I know as much about the subject that I am to speak of as many of you do. And I am very sorry that I was not prepared with a series of thorough doses of Indian hemp that I might hypnotize you into comfort and peace during the administration of the nauseous dose that I am about to give you.

I want to talk to you, nevertheless, concerning a disease which, as you know, is everywhere prevalent throughout the civilized world. And I propose first to carry you back to the days of my childhood, and one of my first patients (an old lady probably 85 years of age, who had many a time sat upon the lap of Washington) who was redolent with the memories of Physic and of others of the older day medical men of Philadelphia; and who taught me this great lesson: that it is possible, with a very small amount of valvular integrity, to pass through a long life of labor and usefulness.

Now when we come to look at the why of this thing we can go back to our early childhood days, and remember how in the frosty mornings we crawled out of bed and ran to the old pump under which we washed ourselves. We had to redouble our strokes in order to keep warm. And this is what the heart does; and it is what we call compensatory hypertrophy. Almost all your practical skill in treating a disease of the heart must rest upon practical skill in deciding, not whether this valve is diseased, or whether that valve is diseased, but whether the increased power of the heart has or has not kept pace with the increased work required of the heart.

And here I want to say a word in regard to this question of diagnosis. There are some who think that when the aortic valve is diseased, you should never give heart tonics or heart stimulants; that digitalis is not indicated. Not so, gentlemen. The aortic valve is no different in its functions and its relations to drugs than the mitral valve. It so chances that the mitral disease is commonly produced rapidly during youth, and the aortic disease comes on slowly during age, and in the one case the heart is more prone to be unable to adjust itself to the new conditions, and you get cardiac weakness.

It is not a question whether this valve be diseased or whether that valve be diseased, but it is a question of the relation between the work and power.

We want, then, always in every case of heart disease, from the very beginning to guard against this failure of development of compensatory hypertrophy; but before taking up the subject of drugs and their uses in failing heart, let me say a word to you in regard to the effects of failure of heart power. Where does the strain come, or where is the lack apparent? When the heart fails the blood fails to be in the aorta and its tributary vessels; and when the aorta fails and its tributaries are empty the veins are full, and consequently you may take for a sign of failing heart that there is over-venous repletion of the skin, congestion of the lungs and liver and edema of the extremities.

Now I want to call attention to this fact, that it is the liver among all organs, next to the lung at least, that feels this excess of blood in the venous system. Engorgement of the portal circulation is present almost always in every case of heart disease. It is largely for this reason that mercurials are of the value that they are in heart disease. And if I have had any special success in the treatment of this class of cases, it is because I have recognized the value of mercurials. Mercurial purges and corrosive sublimate given in long-continued small doses are of the greatest importance. The fiftieth of a grain or the sixtieth or even the one hundredth of a grain of corrosive sublimate, given with the tincture of the chlorid of iron will sometimes effect almost a revolution, aiding your true heart tonics in the most remarkable manner; aiding, so to speak in the digestion and absorption of the medicine.

I want here also to force upon your attention the necessity of cardiac rest. There has grown up a wide school of therapeutists in Germany who teach that we are to cure heart disease by cardiac gymnastics, climbing mountains, etc. Gentlemen, the heart is an organ that never rests under any circumstances, and do you believe it is common-sense teaching that you can take an organ that has had no rest and is exhausted, and build it up by piling on to the load which nature has put upon it? Not so. Did you ever notice the difference between what we call a fat American or Englishman and a fat German of the better class. The American or Englishman could walk eighteen hours through the snow,

climbing mountains. His paunch might be larger than necessary for anybody to carry, but his arms and legs are iron. But take the fat German, he is usually all fat and beer. In the German mountain cures it is not the extra work put upon the heart that cures, but it is the extra work put upon the muscles of the body that cures. Such cases are not instances of genuine failing heart.

Another set of cases are cured by the mountain treatment. These are the cases with a heart working irregularly because the blood is loaded with uric acid derivatives or uric acid-like compounds.

But you take a spare American with bad heart and you put him up the mountains, and you ought to put the lid on the coffin so he could carry it up and bury himself.

Leaving these means, which seems to me of great practical importance, I come to ask your attention to the drugs we have to use in cases of failing heart. I have studied adonidin cactus, convallaria and other of the newer remedies, and I do not think they have real value. I have never seen, myself, any good result obtained from any cardiac drug whatever that could not be obtained from nitro-glycerin, strophanthus and digitalis; and I never had any satisfaction whatever in the treatment of real downright heart trouble with any other cardiac drugs than these three.

First nitroglycerin. Nitroglycerin lays itself aside from the two other cardiacs or cardiac drugs, in the fact that it dilates the arterioles, and lowers arterial pressure. More than that; nitroglycerin probably has a powerful momentary stimulant influence on the heart muscle; but if one passes over in the slightest degree the dose, the stimulant action passes immediately into one of immense depression; kill the animal with nitroglycerin and its heart is relaxed as a wet paper bag; kill the animal with strophanthus or digitalis and its heart is spasmodically contracted.

Then, again, remember that nitroglycerin, like prussic acid, acts only for a few minutes. The profession has been giving prussic acid for years three or four times a day. Now, it is a well-known fact that if a man takes a fatal dose of the acid and survives thirty minutes he almost invariably gets well. All symptoms are usually gone in twenty minutes. A fatal dose may show no influence after twenty minutes. How much influence will there be in two hours, from a dose that at no time has caused any demonstrable effect? Now, it is very nearly so with nitroglycerin; and therefore if you are going to use nitroglycerin at all, use it small doses and at very short intervals. It is only valuable as a momentary pick-me-up, to the heart. It is only useful in the crisis of the attack, and is especially efficient if the attack takes the form of angina pectoris. How it acts I do not know. It is very possible it may be by relaxing spasm, rather than by stimulating the heart.

And now let me call your attention to strophanthus. Strophanthus is a drug which is used in the chase. I believe it is true that every drug used in the chase of animals by savage peoples is one that acts either upon the nerve or muscle, the reason being that the man who chases an animal wants to get him, and wants to use something that will stop him from running away. Strophanthus is a muscle poison. It only acts upon the heart as it acts upon the other muscles, but it so happens that in man the heart muscle is more susceptible to its influence than are the voluntary muscles; and so in human medicine we are able to get a stimulant effect on the heart before we get it on the other muscles. It is a drug, therefore, that acts directly as a stimulant to the heart muscle. But there is no reason to think that, like digitalis, it acts further as a tonic than as a stimulant. Then, again, the muscle of the arteries is acted upon by strophanthus and so it contracts the arteries. It increases arterial pressure, it empties the veins and fills the arteries. It differs, further, in its action from digitalis in being more distinctly diuretic; it is much more prompt than digitalis, acting at once; it is much less permanent than digitalis.

Let us now study digitalis, which, always in proper doses elevates the arterial pressure. How? It does it in the first place by contracting the arterioles. It narrows the blood paths, it lessens the amount of blood space to be filled. It does this in a two-fold way: by stimulating the vasomotor center in the medulla; by acting on the arterioles themselves. Take a terrapin; cut out its nervous system, leave its heart intact; or cut out its heart, then put your fluid under pressure into the arterial system and have it come out from the vena cava. Add a little digitalis and it almost arrests the flow. It contracts the capillaries directly. But it acts upon the heart more powerfully. Every one knows the full strong beat you get from the drug. Especially do

not forget that it stimulates the pneumogastric nerves as well as the heart muscle. It lengthens the interval between the beats. When that beat comes it is a great mighty throb of blood. But digitalis is more than a stimulant to the heart. You take a heart which is beating one hundred and ten to one hundred and twenty times a minute. The veins are everywhere full, the aorta is empty. The diastole has not been long enough for the heart to expand and receive the blood. The heart is continually irritated by impulses coming up from every part of the body crying, Give us more blood. You give that heart, digitalis. You quiet it, you take off its nervousness, you get the long diastole, you get the powerful systole; so there comes a great wave of blood through the arteries. In the failing heart the coronary artery gets little or no blood. At the very time when the heart is being overworked and overworried it is starving. But when the great wave of digitalis action comes, it swells out the aorta, it fills the coronary artery, it goes into every part of the heart, it brings sustenance and food. The old effete material that has been clogging the heart walls is also squeezed out by the powerful contraction of the muscle. Thus digitalis acts as a heart tonic, but it does more than this.

Gaskell has proved that there are two functions or stages in the heart life. What is true of the heart life is true, I believe, of every portion of the human body. A period of functional activity and structural down-tear, alternating with a period of functional rest and structural upbuilding. During diastole of the heart there is no functional activity; relaxation. During systole there is functional activity. During systole this functional activity is accompanied by destruction of tissue. During the period of diastole, or of functional rest, every force in the heart is given to repairing the ravages of function, and there is restoration and upbuilding.

Now, it is the pneumogastric nerve that occasions the inhibition or stopping of functional activity in order that the structure of the heart, which has been worn, may be up-built. My own belief is that every portion of the human body has behind it this principle. The spinal cord has its inhibitory centers. Every nerve cell has above it a higher nerve cell that inhibits it. However this may be, during diastole the pneumogastric grasps the heart firmly and says to it, Let the workmen build up the ravages in the walls.

Digitalis has the power of stimulating to a point of intense activity the pneumogastric nerve. Expose a frog's heart, give it digitalis, and you will see the strange fight for mastery between the irritated pneumogastric nerve, and the irritated heart muscle. Sometimes the digitalis arrests the frog's heart in diastole. It never does this after section of the pneumogastric nerve. It is when the pneumogastric nerve gets victory over systole, that there is arrest in dilatation. Now, don't you see how digitalis acts in failing heart? Not simply as a stimulant but also as a tonic. It brings food to the heart at the time of its starvation and overwork; it squeezes out of the heart muscle the effete matters which have been lying there; especially does it stimulate the pneumogastric nerve, the trophic nerve of the heart, enabling it not only to quiet the heart into long diastoles, but to hasten during these periods the up-building of the heart structure.

Every now and then in our hospitals we see a case of heart disease in a poor man who has had no rest and no medical treatment; the heart seems hopelessly feeble, but a short course of digitalis brings not only immediate relief but seems to lift the whole man up to a higher plane. It is because the digitalis has really helped the trophic nerve to use the food which has been given to the heart by the use of digitalis to the restoration of the structure which was almost destroyed.

Before applying these considerations to individual cases, let me say a word or two about the preparations of digitalis. It does not make any difference which preparation, provided it has been made from a good drug. I speak now of the official preparations of digitalis. Digitalin is always a doubtful theme. Of two specimens one will be soluble, one insoluble; one is called the French, the other German. Digitalin is not of the nature of the active principle. It is a mere extract of digitalis more or less purified. There is a wide-spread belief that the infusion of digitalis is better than the tincture. Not so, gentlemen. The reason of the belief is that proportionate doses are not used. Commonly, digitalis tincture is given in 5 to 10 drop doses, the infusion from a teaspoonful to a dessertspoonful, which is equivalent to about 20 to 40 drops of the tincture. Results are obtained from the infusion because it is given in larger doses.

Sometimes you will find a stomach that the infusion will agree with better than the tincture. Sometimes one that the tincture agrees with better than the infusion. Practically, there is no difference. Again, the tincture of digitalis lends itself fairly well to hypodermatic medication; infusion you can not use.

I do not propose to occupy your attention at all with discussing the ordinary use of digitalis in heart disease. Only to call your attention to certain points. First let me say a word in regard to its employment in acute endocarditis, acute heart disease. Early in the case, digitalis is very rarely indicated. It is more apt to do harm than good. The heart is already in a state of irritation. There are some cases of endocarditis—septic or malignant endocarditis—in which it does not make much difference what you give. But in ordinary rheumatic endocarditis, digitalis does harm. The heart is not weak but over-irritated. Usually tincture of aconite and similar drugs are what you want to try. But when the storm has gone by, the only salvation for the stricken child is the up-building of that heart into a great powerful organ that shall enable it to overcome the leak that has been left in the valve. There is no power to repair that valve. There is no rag that we can push or stick into that broken space. There must be increase of power, and so under these circumstances, so soon as the acute disease has passed by, it is absolutely important to begin the use of digitalis in small doses continually, given with great watchfulness. Recollect here, as in other cases, that when you give digitalis you give a drug which has a persistent influence. The moment you get the slightest effect that moment you stop the drug, for you know that effect will last hours, perchance days.

Passing by the ordinary use of digitalis, let me call your attention to its administration in large doses. And here I beg of you not to misunderstand me; I do not mean to say that the doses of digitalis I am going to speak of are to be used in the ordinary cases of heart disease. But there come times in the life of almost every case of heart disease when the heart fails to respond at all to the moderate dose of digitalis, and when the large dose of digitalis will have a most pronounced and beneficial effect upon it.

A case happened to me two or three months ago. I was sent for by Dr. S. to see a case in consultation. The man, 76 years of age, had one pleura two-thirds full of water. His pulse was, as far as one could count it, 160 to 170 a minute. It was a mere broken confused jumble of pulse beats. The man had been sick eight weeks without conscious sleep; sitting up struggling for breath.

"Doctor," said the physician in charge, "I sent for you to back me up in tapping this pleura."

"I don't think that pleura ought to be tapped. However, I will back you up in doing it, provided you tell the wife of the man that he is liable to die during the operation." This was done and the wife said, "Then he had better die without operative procedure."

"Now," I said, "let me try digitalis. Give that man 40 drops of digitalis now (6 o'clock), give him 40 drops at 8 o'clock, 40 at 10 o'clock, and then hold off."

I went there the next morning. The old man had slept soundly the whole night. Had begun to urinate freely (had had nearly complete suppression), and his pulse was down below 100, perfectly regular. The result was that the man came down to see me in my office not many weeks afterward, and has been going about apparently in good health ever since; of course with a diseased heart.

There are cases in which you have to keep these doses of digitalis up. There is a certain large graveyard in the suburbs of our city. Years ago when I had worked out these thoughts to my satisfaction, I was sent for by an old German doctor, to take charge of a patient whose window overlooked this graveyard, while he went on his vacation. The lady was sitting up in bed or on a chair in perpetual horrible orthopnea. This old German was a very plain-spoken man. I asked if I might try the use of very large amounts of digitalis. The doctor explained my wish to the patient, saying: "All right, Sarah, what the devil is the use of your sitting there for weeks? This young doctor says he will either put you in the graveyard or get you down stairs. You had better be in the graveyard than as you are, so you had better let him try."

She said: "Very well. I would a good deal rather be in the graveyard."

I gave her about 2 teaspoonfuls of tincture of digitalis a day. She was down stairs in two or three weeks.

Not long after that I had another case. A banker somewhere from the West. He had been taken acutely ill, or

rather chronic disease blossomed out in full while he was attending to some business in the East. He had been under homeopathic care for three or four weeks in perpetual orthopnea. I put him on enormous doses of digitalis, and the result was that in one or two weeks he was able to go home.

Now, gentlemen I mention these cases to you, not simply as examples of the results that can be obtained by large doses of digitalis, but to point out to you a further lesson.

The ending of the first old gentleman has not come yet. But it so happened one day in the course of some months after, the woman whom I put upon the digitalis had been going about attending to her household duties and she went to market. Returning with a light basket in her hand she fell dead over her own lintel. And the banker from the West went back to his office and gathered together the gold, but it so happened one day that as he was reaching forward to put his clutch upon the yellow coin he fell dead across his counter.

Some would say it was the digitalis killed them. But such is not the truth. It is not digitalis that arrests that heart. It is the power of digitalis to quiet the nervous condition of the heart; to feed up the heart as far as may be, to keep it going as long as it can, until at last there comes a time when there is not one grain of power left in the heart. When the power had all gone out of the banker's heart it ceased. That is the effect of digitalis. When you venture to give these large doses of digitalis in the treatment of cases of heart failure, tell the patient, or at least the friends of the patient, that this thing will come. Remember, the patient will live longer than if left to himself. It is better to live months of comfort, and perhaps a year or two, and then drop dead in the harness, than to struggle in agony for a shorter period.

A few words in regard to the so-called cumulative action of digitalis. Digitalis may be given through a length of time and suddenly there comes an explosion of its action. I remember a case of pleurisy I had. I was using digitalis to stimulate the kidneys and get out the fluid. I went thereon on Sunday; the pulse, which had shown no effect of digitalis, had fallen from 106 to 80. I stopped the digitalis. Monday the pulse was 70; Tuesday the pulse was 60; Wednesday the pulse was 40; Thursday the pulse was lower still, and I began to wonder what the pulse would be on Saturday. But when the pulse got down somewhere between 30 and 40 there it stopped, stayed so three or four days, and then came up.

I have never yet seen but one case hurt by the use of digitalis, and that was a case of mistaken diagnosis. A lady had been under the care of two or three of the best doctors in Philadelphia; was supposed to be dying. I was sent for and she was placed under my care, as her husband did not believe in consultations. She got worse. I kept on with the digitalis until it suddenly occurred to me, This is a case of digitalis poisoning. I stopped the digitalis and she began at once to come up. I never told my secret and she thinks I am a great doctor. There was no true heart failure; only neurasthenia, from gastric catarrh.

This cumulative influence comes on at certain times: first place, when the drug fails to act upon the kidneys; second place, when it is already in the body. You have a case of dropsy; you tap; reduce the pressure. Instantly the blood vessels take up the serum; that serum is loaded with digitalis. Then comes digitalis poisoning. It is not the drug that is in the body, but the drug that is in the blood that affects the heart.

A practical induction is: When you expect to tap a man suffering from heart disease or from any form of dropsy in which you have been giving digitalis, cease your digitalis for a length of time before you tap him.

Years ago I noted one class of seemingly incomprehensible cases. Cases of mitral valve insufficiency; in which the heart seemed to be in the last stage of weakness; cases where I said to myself, This man will be picked right up by digitalis, but when I gave the digitalis there came increased heart dullness, and an anginous horror that instantly demanded the withdrawal of the drug. I was sure that I was right in my diagnosis that the heart was weak and failing. I was sure that I was right in my physiology that digitalis was a heart tonic and stimulant. But when I put the two things together they did not work. The cases always went from bad to worse. At length I worked out the problem. The cases were, all of them, cases of mitral insufficiency, and they were really cases of exceedingly weakened auricle; an auricle that was toned down and thinned out until it was little more than the thickness of paper. Now, under the influence of digitalis there came back a reflex wave through

the mitral valve and that met the blood pouring in from the pulmonary veins. The thin, paper-like auricle could not stand the double pressure. It could not stand the strain of the blood pouring in and the blood pushing back through the insufficient mitral valve by strengthened systole. Whenever this condition exists nothing can be done. It is the shadow of death, and death very near at hand.

Digitalis has been much used in treatment of aneurysm. Gentlemen, it is death to aneurysm. . . . The reason surgeons have not killed more cases of aneurysm is because they do not use digitalis in large enough doses to have any effect. Digitalis is the most dangerous drug known in aneurysm. You give a certain amount of strychnin, or a certain amount of atropin and get, let us suppose, 20 per cent. of increase of arterial pressure; but the pulse wave is small. Digitalis puts up the arterial pressure 20 per cent. but it does more than this. It makes a long diastole. It makes a great wave of blood; not a little tiny thread, but a great mass of blood rushing with full force down the arteries, coming into the chamber enlarged by atheromatous degeneration, stretching and tearing everything before it. It is the immense distension due to the large blood wave, under the influence of digitalis, which makes the drug especially dangerous. This is not merely theory. Some years ago a man was picked up in the street and brought into the hospital. He had a pulse you could scarcely feel; temperature 4 or 5 degrees below normal. I ordered digitalis to be freely given. At my visit the next day the man was sitting up enjoying himself, talking and laughing. I put my hand on his pulse and I got the tremendous big strokes of digitalis. As I was directing that the digitalis should be stopped, the man sprang with a great cry up into the air; there came a crimson flood from the mouth and nose, and the man dropped back dead. That man had an aortic aneurysm; we had ruptured it with our digitalis. At the autopsy the aneurysm was found torn right across. And, therefore, gentlemen, when you have an aneurysm to deal with, don't use digitalis.

Let me speak of the contrast between digitalis and veratrum viride in the treatment of pneumonia. You have a case of pneumonia in the first stage. You give veratrum and you lower the heart action. More than that, you open out every blood vessel in the body. Here is the blood in that lung in excess. You can put the whole of the blood of the man in the abdominal vessels. You take away the blood from the lungs; and put the whole body upon one plane of dilated arterioles, so to speak. That is what veratrum viride does in the beginning of pneumonia.

If you have a lung in a man in which the general system is adynamic, you can get at the same result in a different way. You have general relaxation. Now you give ergot freely which contracts the blood vessels. Bring about the same result by contracting the blood vessels in the lung and the whole body.

Digitalis comes into use in pneumonia in an entirely different stage. How does that man die in advanced pneumonia? Very often from paralysis, exhaustion or arrest of power of the right heart. What is the reason? Because the right heart, heated almost to death by the fever, has to force blood through paths narrowed by the pressure of the exudation upon them. You give digitalis; it stimulates that right heart. It does not cure the pneumonia, but it keeps the right heart up to its work, and by and by the pneumonia subsides.

In answer to a query, Dr. Wood further said: in regard to this question your President has put to me about the use of alcohol in etherization. Some years ago there was reported a case wherein a woman had cardiac failure from etherization, and brandy was given her. Six or eight hours after the etherization she died of heart failure. Is not this wonderful? This woman had a pint and a half of brandy; that, not the ether, was the cause of death.

What is the difference between ether and alcohol? Only a little water; physiologically there is no difference. Then, again, you might as well give ether as alcohol to a failing heart. This is not mere theory. Test it on the animal. As you give alcohol, less ether is required.

By no dose of alcohol . . . can you bring up the arterial pressure of the animal poisoned by ether. You might as well give hypodermic injections of ether in the failing heart of etherization. Here I see some of you smile; there are surgeons fatuous enough to do even this thing. Gentlemen, does it make any difference to the heart whether a drug which is in the blood has been picked up in the left leg or the right leg, in the lung or in the buttock? Is the heart a sentient being that it can tell where the blood got the ether? Why not crowd the ether on the sponge and give

it to the man by the mouth. Sometimes these hypodermic injections do seem to arouse the patient. It is because they are a local irritant and reflexly excite the heart, the same as holding ammonia to the nostrils. But just so far as the ether is absorbed just so far it aids in overcoming the heart.

The only drugs which, in these failing insufficient hearts, I have found to be of value are strychnin, cocain and digitalis. Digitalis should be given hypodermically. More than this; I have found in the lower animals that the lowered pressure under chloroform or ether is brought up wholly by digitalis injected into the veins. More than this; I have found that digitalis given before the anesthetic has a remarkable power in steadying the heart. Whenever you have any reason in any case to especially fear cardiac depression from the use of the anesthetic, precede the anesthetic by your digitalis. And precede it long enough so that the heart shall be under the influence of that digitalis when the anesthetic is given.

And with digitalis always use strychnin in the accidents of anesthesia. It affects the respiratory function probably more than it does the cardiac function, but it certainly has some power in backing up the action of digitalis on the heart.

And then there is another drug which is of equal value with strychnin, and which can be associated with strychnin; and that is cocain. It acts upon the respiration and circulation about as strychnin. In the chloralized dog you can raise the respiration by as large doses of strychnin as can be given without producing convulsion, and then by giving cocain get a further increase of the respiration. You will find in cases of adynamic, advanced pneumonias, where you want to sustain the respiration, as well as the circulation, that the combination of strychnin and cocain is of especial value.

British Orthopedic Society.

First Provincial Meeting of this Society held at Liverpool, May 24, 1895.

After lunching together at the Adelphi Hotel, the members visited the new Royal Infirmary, the Children's Infirmary, and the Southern Hospital, at the invitation of the several staffs. They were then entertained at dinner by Mr. Robert Jones, after which they adjourned to the Medical Institution where the ordinary meeting was held.

A large number of living cases were exhibited, representing torticollis, talipes treated by tarsectomy, wrenching, tenotomy, etc., also numerous other cases of knee, hip, and joint diseases; several casts and stereoscopic slides were on view, the latter shown by Messrs. Robert Jones and Thelwall Thomas, being most instructive as showing the advantage of stereoscopic photography in the demonstration of orthopedic measures.

MR. ROBERT JONES was elected to the chair. Several candidates were balloted for and elected.

MR. TUBBY, of London, read notes of a case of talipes equino-varus, drawing attention to the rotation inward of the lower end of the tibia and fibula which complicated these cases. He had performed osteotomy of the lower end of the tibia, the limb being afterward put up in plaster with a satisfactory result.

MR. ROBERT JONES agreed with Mr. Tubby that the rotation was due to an alteration in the shape of the tibia and fibula and he had for years successfully treated it by osteoclasm above the ankle joint and in this way, by inversion at once corrected the deformity. A comparison of the position of the patella with the great toe was evidence that the deformity was below the knee.

MR. MURRAY of Liverpool, considered that the fault lay not in the tibia, but above the knee.

MR. LUKE FREER of Birmingham, held that the inversion was general, the knee and hip being equally involved and secondary in origin to the foot inversion; he had always met the difficulty by passive manipulations and occasionally instrumental aid, by which the knee and hip were rotated outward, as it were, simultaneously with the daily after-treatment of the talipes itself.

MR. FREER showed photographs of a case of extreme rachitic genua valga; the girl had worn instruments for four years with little benefit and when 4 years of age, he had performed a double MacEwen with the best results, continu-

ing retentive apparatus, however, for two years after, to prevent relapse. A week ago she had turned up again after a lapse of eight years, with most pronounced genua vara, evidently due to rachitis adolescentium. He emphasized the necessity of mechanical control after osteotomy and the fallacy of very early operation.

MR. MURRAY thought the case would be best treated by another osteotomy.

DISCUSSION ON THE TREATMENT OF INTRACTABLE TALIPES EQUINO-VARUS.

MR. ROBERT JONES opened the discussion. He maintained that it was always an avoidable condition, and that the relapses so often alluded to were generally due to carelessness on the part of the patient's friends, and sometimes on the part of the practitioner. The relapses frequently occurred because the surgeon did not recognize their causes; these were: *a*, insufficient correction of deformity; *b*, superincumbent body weight on outer side of tarsus; *c*, slack and lengthened state of muscles opposed to the deformity. Frequently surgeons were content to merely twist the foot until they were able to get it comfortably into the straight position, and yet so soon as the little patient put his limb to the ground, one could see that the flexor muscles of the foot had not recovered their powers and the result was that the whole body weight fell on the outer side of the tarsus. The foot is not cured until the patient can voluntarily place it in the position of valgus, and he should not be allowed to walk until the foot is so far recovered that each step he takes tends to improve the position of the foot; in other words, until the act of walking becomes a beneficial factor in the correction of the deformity. It was impossible to lay too much stress upon the influence in the maintenance of deformity, or its recurrence, exercised by the overstretched muscles on the convex side of the deformity. In proof of this, Mr. Jones instanced his treatment in infantile paralysis, where contraction had existed for some years, and their influence upon the lengthened opponent muscles. After discussing the anatomy of inveterate club-foot, Mr. Jones traversed Phelps' statement that the bony deformity in intractable cases did not by any means keep pace with the deformity of soft structures. He maintained that it was impossible for the foot of a growing child to remain twisted without corresponding bone changes and he drew attention to the osseous deformity in lateral curvature in knock-knee. In discussing the methods of treatment, including that of manual correction, subcutaneous division of deep structures and tendons, forcible wrenching, tarsoclasis, open incision, linear osteotomy, removal of astragalus or cuboid tarsectomy and Pirogoff's operation, he found it difficult to criticize all the methods, and he wished to insist upon a very often forgotten fact that the goal might be reached successfully by different routes. Some surgeons, like Wolff, of Berlin, were able to show extremely satisfactory results where the hand alone was used, and this in extremely intractable cases. Phelps had described uncommonly good results by means of his open incision and Mr. Jones had personally seen some very useful feet after Lund's excision of the astragalus. That evening Mr. Murray had shown what could be done in suitable cases, by well performed tarsectomy. After describing Phelps' operation, Mr. Jones argued that it had more effect on the varus deformity than on the equinus, and the cases he had seen after the operation seemed rather deficient in the power of putting the heel to the ground.

Phelps' argument for open incision seemed founded on the ground that it was indiscreet to work in the dark, but at the same time it was noticeable that he had very considerably modified the length of his incision, so that it became almost essential by reason of the small incision now made, to introduce out of sight the tenotome for the division of some of the deep structures. Mr. Jones had performed Lund's operation on six cases and wedge-shaped tarsectomy thirteen times, but although his results were fairly satisfactory, he had discarded the operative treatment for that of forcible wrenching. He felt the difficulty in that inevitable percentage of failure after incision of a wedge to make up the deficiency by subsequent methods, as the foot became so firmly ankylosed and resisting. He maintained that operations such as those described should only be done by surgeons of experience under strictly antiseptic precautions; that the foot should be over-corrected at the time of operation and that the appliances should be worn for a considerable time afterward. He felt certain that all cases of club-foot could be successfully treated by Thomas' wrench, and that the failures which had been reported were due to the

fact that surgeons often did not learn its method of application. He then described in detail the mode of twisting by means of that instrument. He always divided the tendo-Achilles before proceeding to further treatment, as its contraction often had to do with the varus deformity as well as that of the equinus. He rarely found it necessary to divide any other tendons. Occasionally several wrenchings were preferable to forcing the foot into position at once. After each wrenching the foot became quite capable of being molded into any position. In the after treatment he preferred the application of a cheap iron shoe to the plaster appliances now commonly in use and he described the simple device of adding an iron flapper on the outer edge of the boot in order to complete the eversion of the foot during walking. The rotation inward of the leg he corrected last of all by osteoclasm. This internal rotation could always be avoided if one began treatment early by twisting in their long axes the tibia and fibula outward, grasping the lower end with the right hand and the upper end with the left. The cases he had shown that evening, all of them of a very extreme character, were sufficient proof of the efficacy of this method of treatment; a method which, while leaving intact, and training to a proper shape, the tarsal bones, left a pliable foot as the result. There was very little pain attached to the method. Treatment had only to be continued for a few months and there was absolutely no risk involved. This could not be said of the cutting operations with the inevitable percentage of mortality. Surgeons were too accustomed to be shown only the successful cases of tarsectomy, but in private and hospital practice he had frequently come across some of the dire disasters.

MR. TUBBY thought that in the normal state the action of the extensor and flexor muscles was not alternate and distinct, but that the muscles acted in concert. There was a wide field for observers for investigating the condition of the equilibrium of muscles; he never found tarsectomy necessary but had seen some very bad results from it. Cases were sent out too early and relapses occurred not seen by the surgeon; he considered the wrench a very satisfactory instrument in intractable cases, the ligaments in youth being elastic; he was opposed to Phelps' operation; excessive division of vessels favors gangrene of the parts. The operation appeared very pretty on the table and very ugly afterward.

MR. MURRAY said that in the treatment of congenital talipes equino-varus, all were agreed that the equinus part of the deformity should be dealt with by division of the tendo Achilles, but all were not agreed as to the treatment of the varus. He stated his objections to Phelps' operation and also to wrenching. The wrenching was painful and had to be often repeated, an important matter with poor patients from a distance. Of the several operations practiced, he personally preferred the removal of a wedge-shaped piece from the outer side of the foot, irrespective of bones or joints, and was well satisfied with the results he had obtained. He had performed the operation forty-two times in thirty-four patients. The dangers from the operation were practically nil, and much time and expense were saved, as the patients walked well without instrumental support in less than three months.

MR. LUKE FREER was of opinion that the very few cases of intractable club-foot with which surgeons engaged in orthopedic practice had to deal were, as the chairman had observed, a reflection on the patient's friends or more often on the practitioner. Severe relapsed cases treated by tenotomy and daily manipulative after-treatment would usually be well, with pliable feet, under three months, and he showed several photographs of cases so treated; he was in favor of the wrench rather than tarsectomy in cases where the hand was not sufficient; he agreed with the use of simple retentive apparatus easily removable for manipulation. Of all the cases of tarsectomy he had seen, he could not call any one really satisfactory; the best were "stumpy."

MR. NEWBOLT, of Liverpool, said that osteoclasis should be done through the tibia and fibula, not through the femur.

MR. ROBERT JONES, in reply, referred to the length of time in treatment, which was slight after the first wrenching; no relapse occurred if the child was not allowed to walk before the weight was borne on the inner side of the tarsus, instead of the outer. The chief advantage of his method was safety. Private patients would invariably prefer a non-cutting operation. There would be very few intractable cases of club-foot if medical men would learn how to deal with them sufficiently early.

The next meeting will be held during the British Medical week in London, in July.

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

(Continued from page 162.)

FIRST DAY—AFTERNOON SESSION.

DR. EDMUND C. BRUSH, of Zanesville, Ohio, read a paper on

FRACTURES OF THE SKULL.

The paper was a supplementary report of nine cases. The former cases, ten in number, had been treated by immediate operation, by a secondary operation and on the expectant plan. The deductions pointed clearly to the propriety of immediate operation, provided any depression could be detected.

In the supplementary report, the cases present many different phases of fractures of the skull and the results therefrom. All of those operated upon recovered, and in each case the operation was performed without delay and without any regard to the symptoms, good or bad, present. The one idea was to remove all pieces of bone that impinged upon the brain, whether the brain resented the pressure or not. Due attention was given, to the physical condition, so far as it was influenced by shock. The idea that "in children the toleration of the brain to pressure is such as to justify delay in elevation of the fragments unless alarming symptoms supervene," is probably true, but what is to be gained by waiting? Prompt action will probably prevent alarming symptoms and dangerous secondary complications. In the operations reported, the trephine was not used. With an elevator and a pair of sequestrum forceps much can be accomplished. This is not said in the way of depreciation of the trephine. It is an instrument of untold value. The anesthetic used was the A. C. E. mixture.

There is no need of repeating text-book literature on rules and methods for operations on the skull. How to prepare the patient for the operation, how to operate, and how to treat the cases after operation, are familiar matters to all. There is, however, a new idea being advanced or experimented with. Perhaps it might be well to say that an old idea is being revived in a new form. To find some hard substance to replace the bone removed has been a source of much thought in the past and it is likely that the near future will solve the problem. This may be Senn's decalcified ox-bone. It may be disinfected celluloid plates, or it may be the removed pieces of skull or even transplanted pieces of skull.

In looking over the literature on the subject under consideration, I was forcibly struck with the following found in "Bell's Surgery," 3rd volume, edition of 1796—nearly one hundred years ago!

"In the management of fractures of the skull attended with depression, the indications are:

"1. To discover as exactly as possible the site, the course, and the full extent of the fracture.

"2. To obviate the effects of the injury done to the brain by elevating or removing all the depressed parts of the bone.

"3. To endeavor to complete the cure by application of proper dressings and attention to the after-treatment."

DR. JUDSON DALAND, of Philadelphia, Pa., read the following paper:

THE PATHOLOGY, DIAGNOSIS AND TREATMENT OF MALARIA.

(Illustrated by lantern slides). After presenting a number of views of normal blood and of malarial blood, giving a short description of each, Dr. Daland said: You may ask of what practical value is all this study? This organism is always present when a patient is suffering from malaria, and therefore may justly claim the position of acting as the cause of this disease. It is important because by the study of this organism one may determine if the treatment employed is successful. It is perfectly manifest that so long as this organism is present the disease still exists. Very constantly the question as to the diagnosis of malaria arises. And the differential diagnosis between malarial and other diseases that produce the characteristic symptoms of chill, fever and sweat are constantly before us. The cases of gall stone associated with intermittent fever are more readily recognized as such, and not treated for months as intermittent malarial fever. Tuberculosis with intermittent fever is also more quickly diagnosed. When the examinations are properly made, the absence of the parasite proves the absence of malaria, as well as its presence proves the presence of malaria. Hepatic abscess or anything which produces intermittent fever, which may at times be suspected to be malarial, can be clearly separated by this important sign. As soon as we can know certainly an individ-

ual is suffering or not from malaria, our course of action is plain.

Passing from a discussion of its enormous diagnostic value, let us think for a moment regarding the influence of this body upon the blood, and the impression that is created in our mind by a study of this organism while the patient is under treatment. In the first place, it is important that the patient shall not receive quinin when you are experimenting with this organism. This alkaloid not only changes the organism but has an absolutely destructive effect upon it. It is the hope of every physician present that we may multiply these remedies very rapidly.

The study of the effect of a paroxysm upon the blood mass will give us valuable indications regarding the treatment. If one takes a patient suffering from intermittent fever and examines the blood, one usually discovers that the mass of corpuscles has been reduced from 100 to 60 per cent. Furthermore, the hemoglobin will be found reduced to 50 or 45 per cent. We therefore recognize that the blood mass is greatly reduced, first as regards the quantity of the red blood cells present, and second as regards the quantity of hemoglobin present. We also note the loss of hemoglobin is more than the loss of red blood cells. I think we would expect this, from the knowledge of the effect of the parasite in destroying so many millions of these cells. If you study the blood before and after a paroxysm, you may find the amount of loss at each paroxysm. This has been done with the result that about 10 per cent. of the red blood corpuscles of the body were found to be destroyed, and 10 or 11 per cent. of the hemoglobin was lost at the same time. In the interval between the paroxysms a considerable quantity of this loss was made up by the remarkably rapid manufacture of red blood cells and hemoglobin, so that they are kept at about an average of 50 or 60 per cent. of red blood cells and hemoglobin.

This being true, it seems to me the first indication in treatment is the destruction of the parasite, which can be best accomplished by our old friend, quinin. The bisulphate is perhaps the most soluble form of quinin, and should be given in conjunction with acid, preferably when there is a certain amount of food within the stomach. At certain periods of its development the parasite is less vulnerable than at others. It seems to me when it is just forming, at the point corresponding to the chill, or just before the chill, if we can have circulating in the blood a sufficient quantity of quinin, we can destroy the parasite; while if we postpone this until later, the plasmodium is in the red blood cells and the quinin does not come in contact with the plasmodium. Therefore it is important that the patient shall have the quinin prior to the expected chill. The remedy that stands next in importance, and one that I administer at the same time, is Fowler's solution, in 3, 5, or 5 drop doses. And in view of the great loss of hemoglobin, it would seem the best results can be obtained by the administration of a remedy that would tend to restore the hemoglobin readily, and the remedy which we believe exerts this influence best is the freshly prepared carbonate of iron. Therefore, I would suggest that 20 or 30 grains of bisulphate of quinin be given in the twenty-four hours. Of course, the indication regarding building up the general health is very apparent.

DISCUSSION.

DR. KINSMAN—How many of these plasmodia will you find on an ordinary slide?

DR. DALAND—The number of parasites varies with the severity of the case. In a well marked quotidian or tertian intermittent fever, you may find as many as we have found here. Each of these represents a quarter of the field. You may have two or three, or sometimes as many as five or six of the parasites in one field. But in the cases of malaria you see here in the North, the rule is quite contrary. They oftentimes require a search of ten, fifteen or twenty minutes to find a single plasmodium; and in other cases they increase in number. So you may say the number may be as many as one to six, and again you may have to search ten or twenty minutes to find a single body. Another form of malaria, which I did not mention, is the flagellated form, which could not be detected by the photograph.

DR. FULLERTON—Is there any culture fluid in which this plasmodium may be or has been cultivated, and have any experiments in regard to the inhibitory or destructive effects of any of the malarial remedies been tried in the test tube?

DR. DALAND—So far as I know, every effort that has been made to cultivate this particular form of microorganism has met with failure. And furthermore, the studies made in regions where the malaria is so prevalent, have not given sat-

isfactory results, in detecting a microorganism like this in the soil or damp places, where malaria is present. Consequently, not having found it outside the body, the experiments are limited.

DR. TUCKERMAN—What is one of the best monographs on the technique of the subject?

DR. DALAND—I think in v. Jaksch's "Clinical Diagnosis."

(To be continued.)

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 157.)

REPORT OF THE COMMITTEE ON CONSTANT CURRENT GENERATORS AND CONTROLLERS

was given by DR. W. J. HERDMAN, Chairman.

You will remember that the work of this committee as it was defined at the time of its appointment two years ago, was to investigate the apparatus which was designed for the generation and control of constant currents suitable for physicians' use, whether these currents were derived from primary batteries, secondary batteries, or dynamos; and also those appliances which were constructed for the purpose of modifying and controlling such currents so as to adapt them to the various needs of therapeutic work.

As was reported at the last annual meeting, the committee sought to secure a basis for such investigation by conferring with physicians who had long used electricity in therapeutics, and learn from them what sources they relied upon for their currents and in what manner they modified or controlled them, and get their opinions concerning the value of the apparatus which they were employing. It was hoped that enough information would be secured in this manner to enable the committee to take a very broad view of their field of work and draw their conclusions from statistics covering this entire field. It was the purpose to put to the test by laboratory methods the value of such apparatus and opinions as were derived from this correspondence and to display in the reports of such investigations a comparison which would speak for itself as to the superiority of one method over another. The attempt at getting such information from physicians through correspondence was a practical failure at the time of the last report and, although the attempt has again been made during the year just ended, with what has been thought improved facilities at the disposal of the committee, we must again report that we have not met with the assistance from our fellow-practitioners throughout the country that we had hoped for in this direction. We, have, therefore, been compelled to use our own judgment in selection of apparatus for investigation, and in this we have been largely guided by our personal knowledge of what is in use and by information derived from the makers of apparatus as to what is having most ready sale at their hands.

At the last meeting the committee reported progress with reference to many of the investigations which they had been pursuing. This has been continued with much diligence throughout the year and in addition to this we will be able to present some other material. A part of these investigations have been carried on at the electro-therapeutic laboratory at the University of Michigan under the direction of the chairman of the committee. Dr. Newman and Mr. R. G. Brown both members of the committee have been pursuing separate investigations at their respective homes, the latter having been placed in charge of the physical investigations on secondary batteries. These gentlemen have been requested by the chairman to personally present their reports. Dr. Campbell, the other member of the committee, has had in charge the correspondence with physicians and, although he is absent in Europe he has reported to me that his work has been diligently pursued but with indifferent results, as I have already said.

PRIMARY BATTERIES.

Aside from the investigations upon the durability and manner of action of the primary batteries that were reported one year ago, there have been added to the list the Vole battery of fifty cells and the chlorid of silver battery of fifty cells. As has been stated heretofore the cells of these are coupled in series, each cell being exposed clearly to view, so that the condition of its contents can be seen at all times, and then they are subjected to exactly similar methods of

investigation for the same period of time, the aim being to conform to the circumstances that would attend the work in the physician's office as nearly as possible. The main characteristics to which we look for determining the value of these sets of cells are: 1, the amount of constancy of electro-motive force; 2, the slowness of polarization and rapidity of depolarization; and 3, the durability of the elements subjected to chemic action for the freeing of electric energy. Time alone can determine the durability of these various forms of batteries and it is the purpose to continue these tests without renewing the elements until the energy in the cells is completely exhausted. I herewith submit a table of tests¹ of these various forms of stationary battery plants that have been made during the present year. It will be seen by investigating the last of these tests that many of the batteries are yet far from being exhausted, so that in all probability it will be some months before the question of durability will be settled. When the entire number of cells that have been submitted to us have ceased to act, it will then be the proper time for summing up the comparative excellences in action of these forms of cells. Yet it will be apparent to any one who chooses to glance over the tests, as they are here recorded, what is the capacity of any one set of cells upon the basis of the requirements for superiority that we have above mentioned. A copy of the results of these tests has been sent to each manufacturer who has furnished the Association through its committee with batteries for examination, so that they have the opportunity through the comparison which is here presented for making improvements needed upon the cells which they have been placing upon the market. In the judgment of your committee this is the true and just way of aiming to advance the appliances for electro-therapeutic use, since it avoids making us in any offensive way to discriminate in favor of one or the other manufactured article, yet gives all manufacturers an opportunity to compare their work with that of others who are aiming to supply the same trade, and has the effect of stimulating them to their best endeavors.

There are now some thirteen forms of primary batteries being subjected to these investigations in the laboratory at the University of Michigan. These forms of cells represent the majority of those that are most in use among physicians. Almost all of the batteries included in the thirteen sets mentioned are composed of cells too large to be employed in portable work and are suitable only for stationary plants in hospitals and in physicians' offices. The varieties of primary portable batteries are few. Among those most generally in use are the dry chlorid of silver cell battery manufactured by the Baltimore Company and the liquid cell of bichromate of potash solution with zinc and carbon elements, manufactured by various other companies, most notably by the McIntosh Battery & Optical Company of Chicago. A sufficient number of these cells can be inclosed compactly in a small space so as to furnish a comparatively high electro-motive force for bedside work and are therefore suitable for portable batteries.

CHLORID OF SILVER DRY CELL BATTERY.

A fifty cell portable battery was received from this company in June, 1893, with the request that it be subjected to the customary use to determine its capacity and efficiency. It was supplied with a Willms rheostat, a circuit breaker, a pole changer and a switch for throwing in the number of cells needed in groups of ten. The battery was put to work in my office July 10, 1893. At this time certain of the individual cells were tested with a standard voltmeter and found to register from .95 to .98 of a volt each. The character of work that was done with this battery was such as it is advertised to do; electrolysis, epilation and treatments upon the body where for the most part high body resistances are introduced into the circuit. At the beginning of this work the entire fifty cells registered a voltage of 48; at the end of the year, Aug. 26, 1894 the following record was taken:

The first 10 cells registered	10 volts.
" " 20 "	19 "
" " 30 "	15 "
" " 40 "	19 "
" " 50 "	22 "

It will here be observed that the voltage of the entire fifty cells did not much exceed the first twenty. It was found that the cells between twenty and thirty registered but 5 volts; between thirty and forty, 9 volts; between forty and

fifty, 9 volts. There was, then, evidently some internal resistance which, when the entire number of cells were thrown into action, succeeded in greatly lessening the voltage. It was also found at this time the Willms rheostat acted very unequally, the entire resistance of the instrument being in the first eighth part of the circuit, the remaining part of the circuit giving no additional resistance. These changes in the character of the direction of the battery had so far diminished its efficiency during the year that it was thought best to send it back to the makers for investigation and report. The following letter was received from them, when this examination was made:

"We find that the elements are not one-quarter exhausted. This is not your error, however, and we will endeavor to explain why it occurred. At the time we sent you this battery we were using domestic glass for our cell cases and, although we used every possible precaution, such glass will crack at times when least expected to do so, which it did in the case of several contained in your battery. The cracking of the glass does not affect the elements contained in them but permits the small amount of moisture to gradually evaporate and increases the diameter of the cells which serves to develop the slightest cracking. We are extremely sorry this should have occurred in your battery (for my part I am glad it did) for although it is liable to occur to any instrument containing the same character of glass as this, still we have sent out dozens of them without any trouble. However, being conscious that it is likely to happen at any time, we made provision to avoid it in the future, quite a time ago, and now all our cases are of Bohemian glass and are very fine. We propose to take no chances in your case and therefore place new cells in the machine. We have also made very important improvements in the current controller of Willms rheostat and shall also give you another one of these also."

I may say, when this battery was returned to me there came with it one of the imperfect cells that had been referred to and I found the condition to be as was stated in this letter. It is to be hoped that this company has succeeded in overcoming this serious fault by the means which they have indicated. The new rheostat also I find to be uniform in its resistance and a much better instrument than the one which it replaced. The voltage of this battery since it has been returned is 47, a little less than 1 volt per cell and this voltage is divided up equally in the various groups of cells which compose the battery. The cells which are used with the chlorid of silver battery are the smallest in size employed in any portable battery and the manner of arrangement is such that it makes this a very convenient instrument. If the cells can be so perfected that they will be entirely reliable and the controller can be made equally reliable, this will be made a very perfect apparatus for a portable battery. I have found it a suitable form to employ in cases of diagnosis where I am in need of a constant current, as it can be carried to the bedside without inconvenience or impairment of its action in the transit.

Another line of investigation which the committee has carried on is that of testing the action of the various forms of rheostat and controller.

RHEOSTATS AND CONTROLLERS OF THE CONTINUOUS CURRENTS.

Water Rheostats.—We have found a variety of this form of rheostat in many batteries used by physicians. The character of resistance which it offers to the current is much the same in all, but the amount of resistance is determined by the purity of the water employed and the amount of it which intervenes in the course of the circuit. The methods which are employed by the different instrument makers for varying the amount of intervening liquid differ considerably and upon this mechanism and the ease with which it is managed depends the efficiency of the instrument. The simpler this mechanism is as to freedom and equability of movement, the better the instrument. It should be so arranged that the current is modified gradually. Certain of these water rheostats are constructed so that the interval of liquid is maintained by a moving rod held in position by a set-screw. At times the slightest movement of this set-screw is sufficient to drop the rod instantaneously and so suddenly throw out all resistance. This necessarily gives a shock to the patient in the circuit and is both disagreeable and hurtful. Others of them are so constructed as to permit of a very slow and gradual change in the amount of intervening fluid and require too much time for making even very slight changes in variation of resistance. The main objections, however, to this form of rheostat are that the current passing through the fluid causes decomposition of it by electrolytic action and so

¹ This table is entirely too voluminous to be printed in the JOURNAL, but a copy can be obtained by applying to the Electro-Therapeutic Laboratory of the University of Michigan.

produces corrosion of all metals with which it is brought in contact, if these are corrodible; if they are non corrodible they are necessarily so expensive that the instrument can not be sold for a price that will enable many to purchase it.

Another, and to my mind, a main objection, is that it is a very indefinite character of resistance, there being no means of measuring the amount of resistance which is thrown into circuit and so leaves it open to the fault of inexactness in measurement, a feature in our work that we are endeavoring to overcome.

Graphite Rheostat.—Of this form of resistance we have had a number to investigate, differing very much in construction, and while they are free from some of the objections that we have just mentioned as attaching to the water rheostats, they have certain deficiencies of their own, depending partly on the nature of the material and the manner of their construction. Yet on the whole we have found this class of rheostats to be superior to the liquid form. But they are likewise indefinite as to the amount of resistance which they furnish in the circuit and by reason of the wear which friction produces they are inconstant, even when the same extent of graphite surface is thrown in.

Among the graphite rheostats that have been subjected to test by the committee I mention the Wilims, the Vetter, the Massey and the Gebhart, Reiniger and Schall. The absence of liquid and consequently of electrolytic action renders this class of rheostat more universally serviceable than any form of liquid rheostat we have had under examination.

Wire Rheostats.—These are, for the most part, when manufactured to be used in electro-therapeutic practice, made of German silver wire which alone furnishes sufficiently high resistance for the purpose. The character of the workmanship required to make reliable rheostats of this material and the amount of wire necessary, render them very expensive and few of our American instrument makers have attempted to furnish wire rheostats as a part of the outfit of primary batteries, except occasionally they have been introduced into very expensive cabinets. A well constructed wire rheostat is an instrument of much greater exactness and constancy than any of the forms we have hitherto considered. By care in their construction the amount of resistance can be determined within the minutest fraction of an ohm and the limit of resistance is only to be determined by the expense of construction and the space in which it is desired to place it. Wire rheostats therefore are altogether the best method of introducing a controller into the circuit of a constant current. Certain of the foreign manufacturers, as Gaiffe and Gebhart, Reiniger and Schall, have made such rheostats the controlling elements in many of their better forms of constant current batteries and thereby making them, so far as this feature is concerned, very accurate and reliable instruments.

CONTROLLERS FOR DYNAMO CURRENTS.

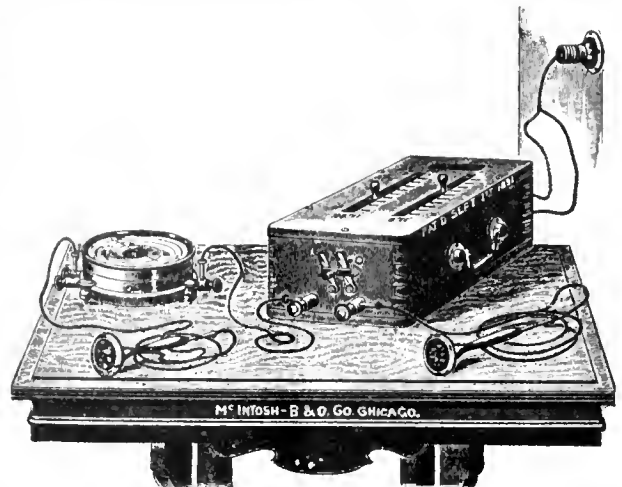
Your committee has, since our last meeting, given considerable attention to that class of instruments designed to employ the constant currents generated by dynamos used for electric lighting and other commercial purposes which are oftentimes available for physicians' use. By employing a constant current so furnished all the perplexities and annoyances which attend the maintenance of a primary battery plant are done away with and such currents and controllers of them are coming more and more into demand.

Among the instruments which have been put upon the market for controlling dynamo currents for general therapeutic work, the committee has been furnished for investigation the McIntosh Current Controller, the Gish Ideal Rheostat and the Vetter Current Adapter. All of these instruments act upon the shunt principle, allowing a main current to pass through a continuous wire or other material offering a certain amount of resistance and then possessing an additional mechanism by which more or less of this main current is diverted at the will of the operator into the patient's circuit. These devices have the effect of diminishing the original voltage at the same time that they diminish the current, an effect which to some who are engaged in electro-therapeutic work would appear to be of considerable value. We have made somewhat prolonged investigation of the first two of these appliances mentioned and herewith submit the reports pertaining to them:

THE MCINTOSH CURRENT CONTROLLER.

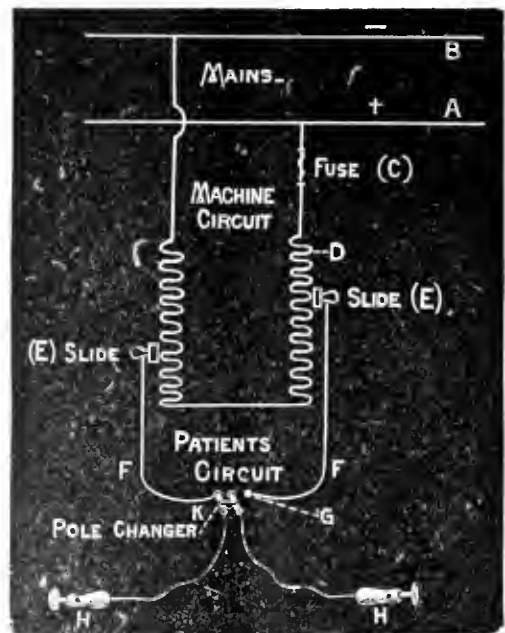
This controller is designed for portability, though not at the expense of durability. It is contained in a neat hardwood case $6\frac{1}{2}$ inches x 9 inches x 4 inches, having the index and regulating handles on top, the binding posts for the

machine terminals on one end and the reverser and binding posts for patient's circuit on the other end. A handle is fastened to the side for convenience in carrying. A delicate fuse is constantly in the machine circuit, so placed that all the current traverses the fuse before it reaches the point where the patient's circuit joins the machine circuit. This avoids all possibility of a dangerous increase in the current strength in the patient's circuit.



McIntosh Current Controller.

The fuse is so adjusted that a current of one-half an ampere in the machine circuit would instantly melt it and thus disconnect the instrument entirely from the dynamo. Under no circumstances can a harmful current pass through the patient. The reverser is in the patient's circuit to avoid the sparking and burning of contacts that would result from reversing the heavier current carried by the machine circuit. The controller works on the well-known "shunt" principle. The machine circuit consists of a succession of coils, 19 in all, joined in series and having a united resistance of 209 ohms, about the resistance of an ordinary 100 volt lamp. The patient's circuit is so arranged with sliding contacts that the

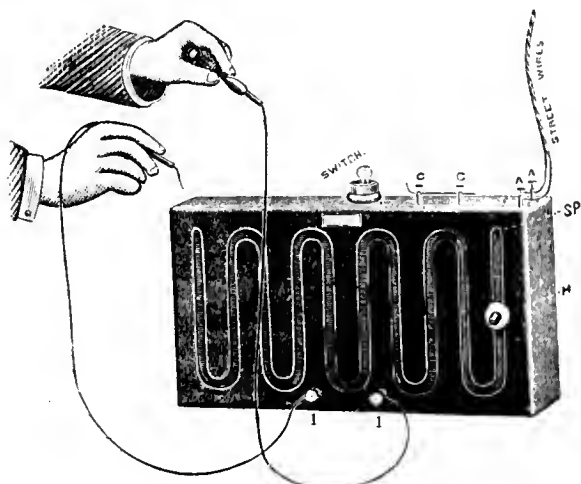


patient may be placed in a shunt to one or more coils. The coils vary in size, but are so proportioned as to modify the current in tenths and hundredths. The sliding contacts are arranged in two rows, each row having its own index. One row is connected with the larger coils, and consequently each coil in this row divides the E. M. F. in the machine circuit by ten. The remaining coils are connected with the other row of contacts, and each coil divides the E. M. F. by one hundred. The two rows may be used singly or together. The contact consists of a heavy brass roller sliding on a flat

brass plate and held tightly in contact with the plate by a flat brass spring. The accompanying diagram illustrates the essential parts of the instrument, and will enable the reader to clearly understand its construction and action. The laboratory test was made with an E. M. F. of 90 volts in the patient's circuit when shunt to the entire number of coils. A resistance of 1,560 ohms was placed in the patient's circuit, in which was included also a Weston milliamperè meter. A Weston volt meter was connected shunt to the patient's terminals. The following table will show the E. M. F. and current in patient's circuit, with the sliding contact at various points on the index:

LEFT SLIDE.			RIGHT SLIDE.		
Index.	E. M. F.	Current.	Index.	E. M. F.	Current.
1.	8 Volts.	7 Mil'amps.	1.	1.1 Volts.	.9 Mil'amps.
2.	19 "	15 "	2.	2.3 "	2. "
3.	29.2 "	25 "	3.	3.51 "	3. "
4.	40 "	32 "	4.	4.24 "	3.61 "
5.	50 "	40 "	5.	5.35 "	4.5 "
6.	59.2 "	49 "	6.	6.93 "	5.84 "
7.	69.3 "	58 "	7.	8.21 "	6.9 "
8.	80.1 "	67 "	8.	9.2 "	7.8 "
9.	90 "	75 "	9.	10.63 "	8.93 "
			10.	11.89 "	10. "

It will be seen from these tables that the voltage and current increase and diminish in corresponding ratio, and this holds true, no matter what the source of E. M. F., whether from a constant current dynamo, an alternating dynamo, or a series of primary batteries. The laboratory contains a number of plants of various forms of primary batteries each made up of fifty cells. The voltage furnished by these varies from 60 to 78, according to the make of battery of which they are composed. This current controller seems to work quite as well on the current furnished from any one of these batteries as upon that generated by the Edison or other constant current dynamo, modifying the E. M. F. and the currents by tenths and hundredths proportionate to the initial voltage, whatever that may be. The dynamo generating the current upon which the foregoing tests were made is used for distributing power to motors throughout the city. The current enters the laboratory with an E. M. F. of five hundred, but this potential is reduced by lamp resistance to the desired amount. It appears, therefore, from these observations that we have in this controller a simple and efficient mechanical device for adapting both constant and alternating currents, or currents derived from primary batteries, to the physician's use.

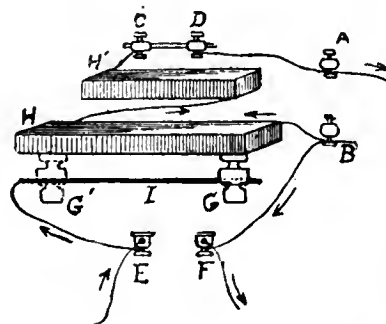


THE GISH IDEAL RHEOSTAT.

The instrument here represented is another apparatus designed to adapt the commercial dynamo currents to the physician's and dentist's needs. It is constructed on the shunt plan and consists of a main circuit and a shunt circuit, the latter of which is the patient's circuit.

The main circuit within the instrument is made up of a continuous German silver wire, No. 22, wound on a succession of rectangular wooden blocks covered with asbestos paper. Ten of these wire-wound blocks are exposed through a sinuous slit in the face of the instrument, and in this slit the slide moves which serves to vary the amount of current

in the shunt circuit of which it forms a part. The remaining blocks, smaller in size, stand in the rear and are not touched by the slide. We here present a diagram of the working plan of the instrument.



AB are binding posts connecting the instrument with the dynamo circuit.

EF are binding posts for connecting the patient with the shunt circuit.

H represents the portion of the German silver wire resistance that can be made a part of the shunt circuit.

H' that part of the resistance wire that can not be included in the shunt circuit.

It will be seen from this illustration that while the instrument is in action the dynamo current constantly flows through the circuit BH, H', C, D, A, and that while the shunt circuit remains open at EF; that is, when no patient is in circuit, or when the slide is at the extremity of the slot nearest to B, no current flows through the shunt circuit. But should the slide be moved toward H with a patient in circuit between E and F, then we will have between the points A and B what is termed a divided circuit, and the electro-motive force with which the current traverses the shunt or patient's circuit will be determined by the difference in potential existing between the points B and A, and the distance to which the slide G is moved away from the post B.

This instrument was designed to be used on the Edison 110 volt dynamo circuit, but it can also be used on the alternating system. The resistance of the circuit from B to A is 185 ohms, and from B to the extremity of the resistance H 141 ohms. The difference of potential therefore that can be admitted into the shunt or patient's circuit would be 141-185 of the potential difference between B and A. In case that difference is 110 volts, as in the Edison incandescent circuit, the proportion that would be admitted to the patient's circuit when given its fullest capacity would be 84 volts. This electro-motive force applied to a body resistance of 3,000 ohms, which is a fair average when the integument forms a part of the circuit in contact with both electrodes, would give a current

$$C = \frac{84}{3000 + 141} = 26 \text{ ma} +$$

which represents the full capacity of this instrument on the Edison circuit, with the amount of resistance named. The majority of treatments with the constant current, when the skin intervenes at both electrodes, does not require a current to exceed 20 milliamperes.

When a mucous surface forms a point of contact for one electrode, the body resistance is very greatly lessened, seldom exceeding 250 milliamperes. Should this instrument be employed on the same voltage with this resistance, we would have

$$C = \frac{84}{250 + 141} = 215 \text{ milliamperes.}$$

as its full capacity, a current sufficiently powerful to meet the exigencies of the present treatment of uterine fibroids, endometritis, etc.

The instrument is provided with a switch for letting on the current when it is needed and shutting it off when not in use. Also, a gate CD, is left between two binding posts on the top of the instrument, opening into the main circuit, which can be used at any time for increasing the resistance of the main circuit. The instrument is not designed for nor will it heat a cautery. Neither is it suitable for lighting exploring lamps. The same company have other forms of apparatus especially adapted for these purposes.

(To be continued.)

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 56 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, AUGUST 3, 1895.

THE RIVAL MONUMENTS AT WASHINGTON TO
HAHNEMANN AND RUSH.

The chairman of the Rush Monument Committee, in another column, calls attention to a matter that he justly believes demands the serious attention of the medical men of this country. The erection of a statue to PROFESSOR GROSS by the American Surgical Association, of which he was founder and President, was a very natural and proper demonstration of personal admiration and affection for their late eminent associate and friend, and no one interested in the monument to RUSH ought by word or influence to antagonize the project. Indeed, among the subscribers to the testimonial to Gross are the names of prominent advocates of a national monument to BENJAMIN RUSH.

It is quite another matter, when a numerically small body of sectarians propose to glorify a foreigner, whose only claim to distinction is that he was the founder of that sect, by erecting at the capital of the Republic as superb a memorial as money can enable its members to procure. The committee on the monument to RUSH very naturally feel mortified that the great body of their professional associates, who at the annually recurring sessions of their representative Association have for ten successive years enthusiastically applauded their efforts and pledged their contributions, forget all about the one and the other when they reach their homes.

BENJAMIN RUSH's claims to the grateful remembrance of medical men in America can not be contested. As DR. GIBON recently stated in the pages of one of our contemporaries, no one pretends that he was impeccable. He was too zealous, ardent and

energetic not to err in word and deed, but his signature, one of the most conspicuous, firm and still legible, on the immortal Declaration of the Independence of these United States of America, written boldly and unhesitatingly by him when other men, who professed fealty to the cause of the rebellious colonies, feared to take this dangerous step, alone entitles him to the most imposing monument his professional brethren can erect.

The project has now gone too far to be abandoned. A monument of some kind will be erected, but whether it will be a commanding structure of artistic excellence, befitting the man and the profession, depends upon the amount of money subscribed. It will be a humiliating contrast if in one portion of the capital city of this country there shall stand the splendid memorial of a little band of homeopaths, and in another an humble pile of bronze and granite, eked to its utmost possibility, by some self-sacrificing sculptor, as the measure of the liberality and appreciation of over one hundred thousand physicians of him, who, in the words of a great living physician, was "the greatest physician this country has ever produced."

The JOURNAL earnestly hopes the profession will realize the necessity for its prompt response to the committee's appeals, and that, as the chairman suggests, every State, Territorial and county medical society will at once take decisive action, and every individual physician contribute of his means toward the completion of this commendable undertaking.

CHOLERA AND YELLOW FEVER.

The news from the Orient in regard to cholera is not reassuring. Cholera is raging in Corea, in the Liao Tung peninsula, in the government of Volhynia Russia, and in Japan. In the latter country 9,000 persons are reported to have been attacked since the outbreak, with a mortality of 5,000. This mortality is about that of the last serious epidemic in Europe, and shows that the world has not yet placed the disease under therapeutic control. We may indeed prevent its spread by careful disinfection, and by supplying pure water instead of contaminated water, but the work of stamping out the disease at its original center seems yet far away. In this, Great Britain has a moral responsibility in the eyes of the world that she can not shake.

The yellow fever has spread from the Island of Cuba to the Island of Puerto Rico, where it is stated that the daily mortality is about 20 per cent. The Spanish troops have suffered greatly in Cuba, and the Cuban patriots have thus had an ally more invincible than armed men. When the island of Cuba is once free and independent, and the military domination suppressed, there will be every incentive to stamp out the yellow fever habitat in Cuba. At present, while

the heel of the despot rests on the "ever-faithful isle," there is no time to seriously consider any sanitary plan, and at no time for the past thirty years have the Spanish masters of Cuba felt strong enough to undertake it. The cutting of a canal from the upper bay to the sea, the cleaning and purification of dwellings, and the reconstruction of house drains, would work wonders in fever-stricken Havana. Whether this generation will see the attempt made is another question. From the personal observation of the editor of this JOURNAL, he is of opinion that no one who has ever seen the stagnant waters of the upper bay, in the vicinity of the Military Hospital, and smelled the vile and nauseous odor emanating from it, could fail to think of the possible change that might be wrought by the construction of a canal or a tunnel to the sea. The bluest, deepest water of the Gulf passes along the coast and bathes the rocks at the foot of Moro Castle, but the Military Hospital remains now, as it has for the last century, on the shores of a stagnant sea of sludge and slime.

VARIOLOUS IMMUNITY OF THE FETUS FROM THE MOTHER.

At a recent meeting of the Paris Academy of Medicine, M. HERVIEUX read the report of the following case by DR. ANNET, a military surgeon: A young woman of 24 was re-vaccinated successfully in the fifth month of her first pregnancy; her child was vaccinated at three and at six months, the latter only being successful. "So far," says DR. ANNET, "nothing is unusual, for we know that immunity transmitted from the mother rarely persists beyond five or six months." But the patient became pregnant again in 1894, four years after, and this second child was inoculated at the second, seventh and eleventh months; all attempts failed, though the vaccine matter had been used in several other children and always with success. M. ANNET expressed the opinion that this immunity could only have been conferred by the blood of the mother. M. HERVIEUX, in discussing the case, said we do not recognize this transmission of immunity as one of the possibilities. A more acceptable supposition is that the second child was refractory, not from maternal immunity, but by reason of its individual constitution. We see persons who are repeatedly vaccinated with the greatest precautions, with irreproachable vaccine matter, and always unsuccessfully. But suppose they were inoculated ten times without success. Nothing enables us to state that the next time would fail also. So, for the child mentioned by DR. ANNET, a fourth vaccination might have succeeded.¹

M. HERVIEUX might have materially fortified his position, had it been necessary, by a reference to that wonderful storehouse of facts and philosophical deductions—"Original Investigations on the Natural

History (Symptoms and Pathology) of Yellow Fever," 1854-1894, by DR. JOSEPH JONES, of New Orleans. In his second chapter, on the "Communication of Yellow Fever Through the Mother to the Fetus in Utero,"² he has brought together a number of important observations covering a period of more than a hundred years, bearing upon the transmission of the poison of smallpox through systems, "themselves entirely protected from its influence and demonstrating the existing of the poison in a potential active state, as shown by the excitation of genuine smallpox in the fetus in the womb of the mother protected by previous inoculation, vaccination and smallpox."

The conclusion is unavoidable that no degree of immunity is conferred upon the fetus through any variolous or vaccinal experience of the mother, and the lesson of DR. ANNET's case, for the sanitarian and health officer, is to repeat vaccination whenever there is exposure to the smallpox contagion, and often enough to demonstrate insusceptibility.

CONTROL OF MEDICAL PRACTICE IN RHODE ISLAND.

After eleven years of persistent effort by the reputable members of the profession—to which the State Board of Health afforded valuable assistance—Rhode Island has finally succeeded in securing legislation which should result in ridding the State of at least a large percentage of the quacks, incompetents and itinerants who have heretofore fleeced the public, uncontrolled and unmolested. The Medical Registration Act, which went into effect July 16 ult., provides in substance the following conditions for the future practice of medicine in the State:

1. The possession of a diploma from a reputable medical college, indorsed by the State Board of Health as such. Only such colleges as require a three years' graded course are to be considered as having the indorsement of the Board; or

2. Satisfactory evidence that the person making the application was reputably engaged in the practice of medicine or surgery in the State prior to Jan. 1, 1892. This evidence to be subscribed to and verified by oath, in affidavit, and such statements, if wilfully false, shall subject the affiant to conviction and punishment for perjury; or

3. Submission of the applicant—if not included in either of the foregoing—to an examination by the State Board of Health to determine the possession of sufficient knowledge to practice medicine and surgery.

Under the first condition it is necessary for each and every practitioner to present his diploma to some member of the State Board of Health for verification, as well as to swear to the ownership for proof

¹ Bull. de l'Acad. de Med. No. 23, 1895.

² JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, VOL. XXIII, p. 942.

of identity and possession before a notary. Under the second condition the applicant is obliged to make affidavit that he is not and never has been an itinerant doctor, and will not become such in any capacity under a certificate if granted; and that he was reputably and continuously engaged in the practice of medicine and surgery in the State of Rhode Island prior to Jan. 1, 1892. Those not having the privilege of application under the so-called "time limit" or second condition, and provided for under the third condition are allowed an examination before the Board to prove their ability to practice.

DR. SWARTS, the Secretary of the State Board, says that "while this law is not all that could be desired, it has already been of value in suppressing the intentions of many irregular practitioners who are daily excluded from practice in other States, and who, making application, find that they can not meet with the requirements of the act." And adds that "in the execution of the law the Board will make every effort to see that the full meaning of the law is applied, but it will be of the greatest assistance, as it has already been, if each practitioner would consider himself as a member of a sub-committee of the Board and advise in regard to individual cases which may come to his attention, in regard to midwives, "time limit" cases, disreputable or unprofessional conduct in the commercial meaning of the word, and including any questionable methods of regular practitioners."¹

Of the estimated 600 physicians in the State two-thirds of the number had complied with the law before the expiration of the sixty days after its passage and, consequently, before it actually took effect. This is cited as evidence of the favor with which the act is regarded by the profession generally.

THE RELATIONS OF THE NEWER PSYCHOLOGY TO MEDICINE.

It is at once an advantage and also practically a disadvantage to medicine that in its widest sense it embraces a greater compass of sciences than almost any other human occupation or profession. The physician should be a man of broad general culture—that is, the ideal physician should be such—as well as of minute and accurate knowledge, and the difficulty of the combination is found in the necessary limitations of the human intellect. This difficulty increases with the years and the result is an ever-growing tendency to specialism in the cities, and a greater dependence of the general practitioner upon the specialist in every line. The latter, on the other hand, unless he be a neurologist, who ought at least to be, in his way, a sort of "glorified general practitioner," is liable to become narrow in his medical

ideas with the narrowing of his field and to give little attention to matters outside his own limited territory.

It is only occasionally that a physician cultivates or gives very much attention to the lines of investigation that lie on the border lands, so to speak, of medical science; there are proportionally not many indeed who see the practical side of purely scientific investigations into what its cultivators like to style the "newer psychology," the experimental as opposed to the old introspective psychology. Whatever it may have of medical interest, they are inclined to think can be taken second hand from those who are willing to glean in this field for the medical publications. To a certain extent this is true, but it is not altogether so. There is no one who would question the importance of the physiology of the senses, and their psychology is only a step further and one that has most important bearings on their pathology and their utilization and management in disease.

While experience has taught us to use daily many of the facts deduced from ordinary observation, one trusting to this alone is nevertheless at a disadvantage as compared with one instructed and skilled in even the older psychology of introspection, and with only a slight general knowledge of the newer methods. The multitudinous literature of hypnotism, for example, furnishes abundant illustration of this fact. Most of it is of little value and much only cumber the ground and had better never been written.

Taken together with the later discoveries in the finer anatomy of the nervous system, the results of experimental psychology are wonderfully suggestive, and a thorough knowledge of what has been done in this line is almost essential before one can properly theorize on the data acquired by the recent discoveries. We have all known and experienced the symptoms of fatigue, but how much light is thrown on the phenomenon by the physiologic psychology of the day. The disease called neurasthenia, which to many is only a vague term, a sort of limbo to which to consign a large class of cases of indefinite diagnosis without any material lesions, "an ill-defined, motley group of symptoms," which it is often hard to consider as not imaginary, and falling under the same general head as hysteria and hypochondria, is supplied by the experimental investigations of physiologic psychologists on the fatigue of the nerve elements, with a perfectly rational if not absolutely established pathology.

If the pathology of hysteria is to be elucidated, it seems probable that it will also have to be along the same lines, or at least that the psycho-physiologic and pathologic studies will largely aid in bringing it about. Many other questions, such as why is insanity apparently on the increase, why is syphilis followed by tabes and paresis in modern times and among civilized peoples, have answers that are at

¹ Monthly Bulletin, State Board of Health of Rhode Island, Nos. 5-6.

least as probably true as any that have been offered, suggested by the student in physiologic psychology, that it would take too much space to give in detail here.

The whole range of the special senses in their normal and abnormal conditions fall directly under this head, as already indicated, and there is yet another special value of these studies for the physician, in the education as to methods and as to valuation of observed facts that they give. On this account alone it would seem that some instruction in this direction could well be added to the courses of our regular medical schools. But without this, the "newer psychology," the psychology of facts as opposed to that of mere theory, is a perfectly legitimate and highly profitable subject for the occupation of any unoccupied leisure of the scientific physician. And for the nervous or mental specialist some acquaintance with it would seem to be an absolutely essential portion of his professional mental equipment.

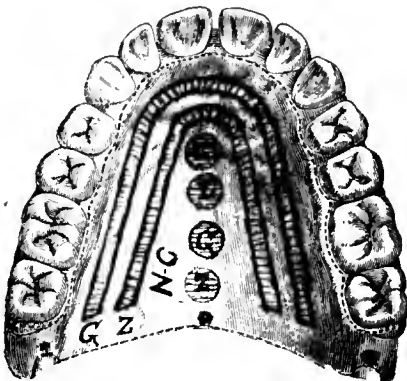
PROFESSOR HORATIO C. WOOD.

Our readers will read with pleasure the lecture by America's foremost medical therapist, in this issue of the JOURNAL, in the Society Proceedings Department, under the heading of the Cleveland Medical Society. The important subject, the well-known reputation of the lecturer, and the substance of his lecture, make this article one that will, we are sure, be appreciated by our readers.

NEW INSTRUMENTS.

ELECTRIC MOUTH BATTERY.

The object of this invention is to obtain an electric battery which can be worn in the mouth of a person for its therapeutic effects, and also to give strength to the plate when false teeth are worn.



G, gold plate; Z, zinc plate; N C, non-conducting plate.

This battery consists of a non-conducting plate arranged to fit in the mouth, metal plates of opposite electric polarity imbedded in the non-conducting plate, conductors connecting the metal plates, such conductors imbedded in the non-conducting plate, and such metal plates so disposed as to be exposed to the action of an electric excitation by the saliva or other fluids in the mouth, and the organs of the mouth, to form elements completing the circuit of the battery.

We believe this to be the most rational form of electric treatment for cases which are indicated, inasmuch as we have a mild and uninterrupted current which may be made stronger or weaker to suit the case.

These batteries being in close proximity to the brain, the medulla and spinal cord, the air passages and the alimentary canal render it easy for the current to be carried to all parts of the body, thus charging the entire system; hence it may be seen that it would be beneficial in many diseases common to mankind, especially catarrh, deafness, weak eyes, headache, various nerve disorders, stomach and lung troubles, and diseases of the mouth, reducing inflammation arising from regulating the teeth. In inhalation the air would pass through electrified tissue, rendering it ozonized before entering the lungs. In mastication and deglutition electrified food would pass to the stomach.

Will cite a few practical cases, as far as tests have gone, of positive relief; the method being new, have not had time for extensive experiments.

1. Trial for acute gastric disturbance; wore plate and was relieved in a half hour; had no more trouble for two weeks when it re-occurred. Not being satisfied that the battery had caused the relief in the previous case, different medications were used without relief; then plate was worn again about seven hours, when trouble disappeared. In several weeks, beer-drinking and smoking brought on trouble with renewed vigor, which was allayed in twenty-four hours by wearing plate. A series of experiments were kept up with good results.

2. A case of insomnia treated with electric plate from 11 A.M. until 11 P.M. Patient went into a sound sleep, without waking until 9 A.M. next day. The patient expressed himself as having had the most refreshing sleep he had had for years. Treatment is still continued with satisfactory results.

3. Closure of the Eustachian tubes, dullness of hearing and general catarrh of the nares. Plate worn for about twelve hours; trouble almost entirely disappeared. Treatment continued for two days in daytime only. Head and ears clear as a bell ever since, four weeks having elapsed since treatment was discontinued.

L. L. FUNK, D.D.S.

367 Blue Island Avenue, Chicago.

CORRESPONDENCE.

More about Truffles.

PHILADELPHIA, PA., July 26, 1895.

To the Editor:—Referring to your valued JOURNAL of the 13th inst., page 85, I would respectfully call your attention to an error in the article on "Tuckahoe," in the statement that trained dogs are used to hunt the truffle in the Old World; in France, in which nearly four-fifths of the entire production is found, trained pigs are used. They are mostly muzzled by a ring around the jaw to prevent their swallowing the delicacy. The sense of smell in these pigs is very highly developed, the truffles being often exceedingly deep underground.

Asking pardon for thus bothering you, I remain,

Yours sincerely, SYDNEY H. BOHN.

NECROLOGY.

WALTER ALFRED MORTON, M.D., of Brooklyn, died July 22, aged 35 years. He was a native of Westmoreland County, Virginia. He was graduated at the medical school of Dartmouth College, in 1889; also at the Long Island Medical College two years later. Since that time he has been a resident of Brooklyn. He was a member of the Kings County Medical Society. His final illness was due to pulmonary tuberculosis, the attack dating from the latter part of 1894.

ALBERT F. TRACY, M.D., of Westfield, Mass., died of pul-

monary tuberculosis, on July 18, after an illness lasting two years. He was a prominent physician and widely known throughout western Massachusetts. He was born in Aurora, Ont., and graduated from Victoria University in Toronto. Dr. Tracy was the husband of Hattie Schell, the authoress, whom he married in 1893. He was a member of the Massachusetts Young Men's Democratic Club, and of the Board of Medical Pension Examiners; also a member of the Massachusetts Medical Society since 1887.

THE REV. JAMES LIDDELL PHILLIPS, M.D., is reported to have died recently in Calcutta, India. He was a well-known Baptist missionary, and son of a famous missionary, the Rev. Jeremiah Phillips, D.D. He graduated at Bowdoin College, took a medical course at the College of Physicians and Surgeons in this city, and received the degree of M.D. in 1864. He married Miss Mary R. Sayles, of Pascoag, R. I., and went to India in June, 1865. He founded the Bible School in Midnapoor, and was its principal for several years. He returned to the United States in 1885 and became Chaplain of the State Institution of Rhode Island and was subsequently Secretary of the Evangelical Alliance of Philadelphia. He was Moderator of the General Conference in Marion, Ohio, in 1886.

J. WESTLEY ALLEN, M.D., of Altoona, Pa., July 20, aged 57. —Herman B. Wittwer, M.D., of Chicago, July 26. —Walter C. Overstreet, M.D., of Monmouth, Ill., July 26. —W. T. Strachan, M.D., formerly of Lancaster, Pa., July 23, aged 65. —Frances Kyle, M.D., of Sioux Falls, S. D., July 24. —J. B. Lebbond, M.D., of Sioux Falls, S. D., July 24, aged 70. —Augustin J. Dalrymple, M.D., of Baltimore, Md., July 24, aged 65. —Lemuel D. Putnam, M.D., of Grand Rapids, Mich., July 22, aged 72. —Thomas Gunn, M.D., of Chapman, Kan., July 23. —Adam Bryan, M.D., of Detroit, Mich., July 21, aged 66.

PUBLIC HEALTH.

Prophylactic Effect of Sea Air in Tuberculosis.—M. Lalesque has studied the prophylactic and curative action of the change to the sea air of Archachon in 220 subjects sent thither, either threatened with or suffering from tuberculosis in different forms. He gives the following results: prophylactic action, 50 cases, 50 recoveries. Curative action, 170 cases; in the first stage 73 cases—22 recoveries, 39 ameliorations, 12 aggravations or deaths; in the second stage 37 cases—1 recovery, 24 ameliorations, 12 aggravations or deaths; third stage 60 cases—4 recoveries, 21 ameliorations, 35 aggravations or deaths. M. Lalesque observes that the sea air, in common with that of mountains, is notable for its purity.¹

Regulations for Consumption Sanitaria.—The Comité Consultatif Francais d'Hygiene Publique has formally approved the following regulations, drawn up by M. Netter, for the sanitaria for consumptives: 1, sanitaria should be built upon elevated sites surrounded by cultivated grounds and parks, these making a boundary between the public and the patients, who should confine themselves within its limits as much as possible; 2, each establishment should be provided with a steam apparatus for the purpose of disinfection and through which all the body and bed linen and clothing should be passed before being washed; 3, rooms should be disinfected and re-painted before they are occupied by new patients, and all floors should be covered with linoleum; 4, all excreta and dejecta should be thoroughly disinfected before being disposed of; 5, patients must be prohibited from expectorating elsewhere than in spittoons provided, and these must be scrupulously disinfected every day.²

A Plea for Better Registration of Vital Statistics.—Dr. J. F. Kennedy, Secretary of the Iowa State Board of Health, commenting upon a decision of the Iowa Supreme Court, upholding the validity of the statute requiring physicians to report births and deaths occurring in their practice, urges that a faithful registration of births and deaths—"the alpha and omega of life"—would facilitate the identification of individuals and thereby aid in the settlement of estates, assist in the detection of criminals, afford data for the estimation of life expectancies, furnish to medical and sanitary science important and valuable information regarding the state of the public health, throw light upon the causal conditions under which prevailing diseases occur, thus leading to intelligent methods for prevention, and afford reliable information as to climatic influences in the production of sickness and death. He believes, from personal observation as a physician extending over a period of more than thirty-seven years, and from the meager and imperfect reports in his office, that Iowa enjoys an enviable position as to salubrity of climate, physical vigor, high birth rate, proportionately low death rate and longevity, and is sure the figures could be produced to verify this belief if only the physicians of Iowa could be induced to report as required by law. He thinks that patriotism and State pride should overcome any hesitation on account of inconvenience or want of pecuniary compensation. But "if the profession in Iowa, in the face of the statute and its expressed penalties; in view of the decision of the Supreme Court; in view of the incalculable benefits of these statistics to the profession and to science, and in view of their material advantages to Iowa, can not be induced to furnish these reports, I hope every physician in Iowa will unite in petitioning the next General Assembly to remove from our statutes every section and syllable relating to the registration of vital statistics."¹

Bovine Vaccine Plant at Dublin.—A very thorough and intelligently managed vaccine establishment is possessed by the profession in Ireland. The *Press* and *Circular* reports concerning a special investigation of the institution as follows:

"We have had an opportunity of observing the process of preparing calf lymph in the establishment recently opened by Dr. Denham, at Sandymount, near Dublin. The calves, three or four months old, are obtained from graziers, in such number as may be required, and are stabled at the Vaccine Institute, a house which is kept rigorously clean and is provided with fresh air by an electric fan. Upon admission, each of these calves is examined by the veterinary surgeon to the Institute, to insure that no signs of disease exist. Their temperature is taken, and a pulmonary examination is made. If found perfectly healthy the belly of the calf is shaved. The table upon which the animal is laid is specially constructed for the purpose, the top being capable of being tilted from the vertical to the horizontal position. The animal is ranged up against it when it is vertical, and its head secured in an ordinary head-stall with a pillow underneath to prevent the animal hurting itself. A strap is drawn around the body, and the table is then tilted to the horizontal position with the calf upon it, and the feet are strapped down with padded straps. The belly is then shaved and the surface washed first with boracic solution and afterward with sterilized water. The inoculations are then made, to the number of about thirty, on the denuded surface with lymph, which has been previously tested and found free from any taint. This having been done, the animal is returned to the stall. As the vaccine fever develops, the temperature usually goes up from 102.2 to 102.5, 102 being the normal temperature of the calf; and, as the vesicles develop, recedes again to the normal. One hundred and twenty hours after inoculation the calf is again laid on the table and the lymph is taken off, in which process a clamp like a phimosis clamp and sundry other instruments, all sterilized, are used. The lymph thus collected is then brought to the laboratory, where it passes into the hands of Professor Mac-Weeny, who, by microscopic examination and germ cultivation, tests its purity. This necessarily consumes a good deal

¹ Jour. de Med. de Bordeaux, No. 19, 1895.

² Union Medicale, June 22, 1895.

¹ Iowa Health Bulletin, July, 1895.

of time, during which the lymph stock is kept in a refrigerator. If it is pronounced to be quite pure it is then placed in a 'pulper' or mixer, for the purpose of incorporating it with glycerin and sterilized distilled water. This instrument is driven at a very high rate of speed by an electric motor, and the lymph is delivered from it in a defibrinated condition to be filled into tubes. The lymph is prepared according to three methods: *a*, it is transferred to points direct from the calf and without any admixture whatever; or *b*, it is defibrinated, as above stated, in the electric 'pulper' with a small quantity of glycerin and water, and put into tubes; or *c*, it is made up sufficiently liquid to press into tubes. The only point in this method of procedure which might be open to question, all the rest being strict scientific work, is the care which the animals receive when in the Institute, and this we have specially noted. As far as we could observe, every possible precaution and every care suitable for a human being under similar circumstances was taken with these animals."

Mob Violence Against Sanitation.—Violence, with murder, has been, it is believed, the indirect result of the efforts of Europeans, to apply modern methods of sanitation against cholera in Asia. The riot took place at Jeddah, on the Red Sea, and the rioters are supposed to be Bedouins. In the course of the outbreak, the new cholera hospital was destroyed. It is highly probable that the outbreak was a kind of reaction, or protest, against the new sanitary regulations adopted at Jeddah to prevent the spread of cholera. Jeddah is a port on the Red Sea about half way between Aden and Suez, sixty-five miles from Mecca, the birth-place of Mohammed. The pilgrims to Mecca usually embark there, and at this season of the year there are often 100,000 of them in the city. These pilgrimages have often been the starting point of a rapid spread of the disease. The Paris Sanitary Conference arrived at the unanimous conclusion that a great source of danger was to be found in the filthy condition of the wells and water tanks around Mecca and along the shores of the Red Sea. These reservoirs are open to all pilgrims, and the tanks serve as bathing places as well as for the supply of drinking water. The wells have been deepened and covered over, regular bathing places have been provided, and no one is allowed to bathe in the tanks from which the drinking water is supplied. The pilgrims who had been accustomed to lower their filthy skin bottles into the wells, have this year had pure water measured out to them, and have not been allowed to draw for themselves. As the wells are accounted holy, some dissatisfaction was to be expected, and the late outbreak is doubtless due to it. The pilgrims regarded as an unwarrantable restriction of their liberty, the salutary regulations designed to save their lives and the lives of thousands to whom they might communicate the disease.

Changes in the New York City Board of Health.—On July 23, the Board of Health of New York city retired at his own request, Dr. John T. Nagle, Registrar of Vital Statistics. Dr. Nagle has asked for this action on the score of ill health. By the unanimous vote of the board, Dr. Nagle was retired on an annual pension of \$600, to begin on August 1. Dr. Nagle is the first officer of the Health Department to be retired under the pension law passed last winter. He was himself the father of the law. It allows a maximum pension of \$1,200. The Health Board yesterday promoted Dr. Roger S. Tracy to the office of Registrar of Vital Statistics, with a salary of \$3,500 a year. He has been the Chief Statistician of the department for several years. Dr. Nagle was the chief medical officer of the Third Division of Cavalry in the Civil War, and he lately received a government pension. He was appointed a Sanitary Inspector in the Health Department in 1869, and for many years he was at the head of the Bureau of Vital Statistics. The new Registrar, Dr. Tracy, was born in Vermont in 1841, was graduated from Yale College in 1862, and took his degree from the College of Physicians and

Surgeons in 1868. He was on the medical staff of Bellevue Hospital for some time, and later studied medicine in Europe for a year and a half. Soon after his return he entered the Health Department, and some years later became Registrar of the Bureau of Vital Statistics, which position he occupied until Dr. Nagle was appointed to the position.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General of the Marine-Hospital Service:

SMALLPOX—FOREIGN.

Austria: Trieste, June 30 to July 6, 1 case.
Egypt: Cairo, June 17 to 24, 1 death.
England: Southampton, July 6 to 13, 1 case.
Germany: Prague, June 30 to July 6, 5 cases.
Holland: Rotterdam, July 6 to 13, 2 cases.
Hungary: Buda-Pesth, July 1 to 8, 7 cases, 1 death.
India: Calcutta, June 8 to 15, 19 deaths.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, July 13 to 20, 7 cases.
Michigan: Battle Creek, July 23 to 30, smallpox reported;
Detroit, July 23 to 30, smallpox reported; Olivet, July 23 to 30, smallpox reported.

Missouri: St. Louis, July 13 to 20, 1 case, 1 death.

CHOLERA—FOREIGN.

India: Bombay, June 11 to 18, 1 death; Calcutta, June 8 to 15, 27 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Cienfuegos, July 13 to 30, 2 deaths; Havana, July 11 to 18, 18 deaths; Sagua la Grande, July 13 to 20, 1 case.
Mexico: Vera Cruz, July 11 to 18, 5 deaths.

HAVANA, CUBA, July 20, 1895.

Sir:—In confirmation of my telegram of the 19th inst., informing you that "yellow fever had, within the last few days, increased considerably among civilians," I have now the honor to say that there were eighteen deaths from that disease during the week ending July 18, and that a large part of them occurred during the last few days of that week. As all of these deaths were among civilians in different parts of the town and none among soldiers, it indicates a tendency in the disease to spread in the city. Up to the present time very few or none of the recently arrived soldiers stay in the city longer than it takes to be formed into battalions, get clothing, etc., and be forwarded to the territory of the insurrection.

Very respectfully,

D. W. BURGESS,

U. S. Sanitary Inspector, M.-H. S.

ST. PETERSBURG, July 8, 1895.

CHOLERA IN RUSSIA.

In the government of Volhynia from May 26 to June 22, 1895, there were 136 cases of cholera resulting in 40 deaths.

A conference was held lately in the Ministry of Foreign Affairs between the representatives of Austria-Hungary and Russia, with a view to carrying out the resolutions of the Dresden International Sanitary Conference, concerning measures to be adopted in cholera time for the frontier traffic with Russia, based upon the experience obtained during the last cholera epidemics in Russia and Galicia. A complete understanding was arrived at in reference to all measures for the control of cholera, should it arise in the neighborhood of the Russo-Austrian frontier, and safeguarding the frontier traffic as far as possible.

Further, the Russian Government, fearing that cholera may be carried into Russia via Vladivostok from Japan, is taking every precaution. Only a few days ago, six physicians were sent to Vladivostok from the Medical Department at St. Petersburg, with orders to keep strict watch and use all possible means of protection.

JOHN KAREL, Consul-General.

SELECTIONS.

Anchylostoma Anemia in the Vicinity of Naples.—Paolucci (*Riforma Méd.*, 1894) records four cases of anchylostoma in 1894. This malady appears to be limited to the country on the eastern boundary of the city, where the poor tenants cultivate vegetables in fields, watered by dirty streams polluted by manure, and to which they fetch from the city, dung

and a variety of filthy material. All four patients were accustomed to eat freely raw vegetables and to drink the dirty water in their fields. The sickness manifested itself in the usual way with pains in the epigastrium and abdomen, loss of appetite, severe anemia, increase of the white and decrease of the red blood corpuscles, and diminution of the hemoglobin. There was no accompanying enlargement of the liver or spleen, and no hemorrhage. The patients sought the hospital on account of the increasing pallor of skin and mucous membrane, the emaciation and debility. Relative to the therapeutics, the writer praises, after a preliminary emptying of the bowels by sulphate of magnesia or soda, the use of ethereal oil of filix mas in capsules (about 7. gm. in two days), after which incredible quantities of anchylostoma, well developed, were found in the stools. Eggs could be discovered even until the eighth day. He found not the least result after a trial with creosote.—*Centralblatt für innere Medicin*.

Immunity and Susceptibility with Reference to Cholera.—(Met-schnikoff in *Wiener Med. Presse*.) The striking facts of immunity of many to cholera, and of the influence of time and place (the two factors made specially prominent by Pettenkofer) on the course of a cholera epidemic, the writer believes he can for the most part explain, on the strength of numerous experiments and observations, through the varieties of bacteria in the intestinal canal. He noticed, for instance, that different bacteria in plate cultures exerted a distinctly favorable influence on the growth of cholera vibrios, among others especially sarcina and the white yeast, called torula. On the other hand, he found bacteria among which was the bacillus pyocyaneus, which plainly retarded the growth. By reason of these facts, he examined closely the bacteria in the human intestinal canal in regard to their behavior toward the cholera vibrio and here also he was able to cultivate the previously mentioned torula and a sarcina and a bacillus not liquefying gelatin, all favorable to cholera; and from the intestine of animals he isolated several varieties of bacilli and a thick coccus, having an opposite tendency. He comes to the conclusion that the bacteria of the intestinal canal play an important rôle in the immunity and susceptibility of man and animals toward cholera. Through this, the fundamental truth that the vibrio of Koch is the specific cause of cholera, can be brought into accord with the results of epidemiology and especially with the influence of time and place on the course of a cholera epidemic.—*Centralblatt für innere Medicin*.

Preliminary Report of 1,000 Abdominal Operations by Professor Schauta.—During the ten years (Nov. 23, 1884, to Feb. 10, 1894) the total mortality in these cases was 10.7 per cent. (104 deaths); 46 deaths were traced to the operations. In 54 cases septic processes caused death. Of the 46 deaths directly due to the operations, in 35 there were septic processes, in 8 secondary hemorrhage, in 2 intestinal perforation, in 1 acute anemia. Of the remaining 58 deaths, 12 were due to cardiac weakness, fatty heart and the anesthetics. Of 11 exploratory operations, 7 were fatal. The operations are next arranged in 16 groups: 1, ovariectomies, 198 cases, 182 recoveries, mortality 8.1 per cent.; 2 deaths from operative sepsis, and 2 from secondary hemorrhage; together 2.2 per cent. In 12 deaths indirectly the result of operation, were 2 cases of infection with streptococci from the contents of tumors; 2, adnexa operations 313 for chronic inflammatory affections. Of these 290 were pyosalpinx, ovarian abscess, salpingitis, oöphoritis; 259 times the adnexa were removed on both sides; in 75 times there was discharge of pus; in 27 cases gonococci were found in the pus; in 13 streptococci; in 4 staphylococci; in 5 diplococci whose nature could not be immediately decided; in 1 the bacterium coli commune. In the 25 remaining cases either no bacteriologic examination was made or the pus was found sterile. Of the 290 cases, 273 recovered, mortality, 5.5 per cent. Five laparotomies for hydrosalpinx with 2 deaths (1 pneumonia, 1 peritonitis); 5 for hematosalpinx; 5 for tubercle of the tube with 1 death from intestinal perforation. From these 313 operations, 20 deaths, 14 due to the operation; 3, castration, 56 cases, 2 deaths from secondary hemorrhage; 4, Porro's Cesarean section, 7 cases (2 for stenosis of soft parts, 1 for osteomalacia, 2 for existing infection of uterus, 2 for rupture of uterus); 5 survived, 2 children lost (dead before removal). Conservative Cesarean section with suture, 37 cases, 16 times for absolute narrowing of pelvis, 15 for relative, 4 for eclampsia, and 1 for tumor causing stenosis of vagina. All the children survived; 4 mothers died, 1 from sepsis; 5, supravaginal amputation of uterus, 74 cases, 13 deaths; 6, supravaginal ampu-

tation with retroperitoneal provision for pedicle, 2 cases, 1 death; 7, myomectomy (Schröder) with intraperitoneal provision for pedicle, once with unfavorable result (sepsis); 8, supravaginal amputation with interperitoneal suspension of stump (Maydl), 4 successful cases; 9, enucleation of nodular myomata by laparotomy, 18 cases, 14 recoveries; 10, by ventrofixation, 77 cases, all recovered; 11, total extirpation of uterus (by laparotomy) 8 cases, 4 for myoma (1 death), 4 for carcinoma (3 deaths); 12, total extirpation by vagina, 181 cases, 14 deaths; 13, ventro-vaginal total extirpation, 8 cases, with 5 deaths from sepsis; 14, sacral total extirpation for carcinoma of the uterus, 15 cases, with 5 deaths; 15, laparotomy for extra-uterine pregnancy, 49, with 4 deaths; 16, in this group are included laparotomies for various other indications. The most interesting is one for purulent peritonitis following abortion.—*Centralblatt für Gynäkologie*, from *Wiener med. Wochenschrift*.

MISCELLANY.

Change of Address.—Dr. G. K. Dickinson, to 278 Montgomery Street, Jersey City, N. J.

The Atkinson Medical Society Register.—Dr. W. B. Atkinson, of 1400 Pine Street, Philadelphia, Pa., has now in press his "Register of Medical Societies." It is desirable that no society be omitted, and the publisher requests that secretaries of societies will promptly furnish him with data for publication.

Curran Anecdotes.—Curran's ruling passion was his joke, and it was strong, if not in death, at least in his last illness. One morning his physician observed that he seemed to "cough with more difficulty."

"That is rather surprising," answered Curran, "for I have been practicing all night."—*Ex*.

Ventilating Warships.—Commander Bradford of the inspection and survey board has been chairman of a sub-board which has been examining into the methods for ventilating warships. This has become a very serious problem in the building of the Navy, and several different plans have been suggested. The fresh air is pumped in and the foul air pumped out by fans, this being found the best practicable method. The motive power for these fans is one that has caused considerable discussion. A suggestion which meets with a great deal of favor and which may be recommended by the board is to conduct the power by electric wires, which avoid the heat of the steam-pipes and the large openings through the bulkheads and save space in the apartment where the fan is operated, as the motor takes up less room than an engine.

Central Wisconsin Medical Society.—At the annual meeting of the Central Wisconsin Medical Society, held at Baraboo, the following officers were elected for the ensuing year: President, J. E. English, Baraboo; Vice-Presidents, Charles Horst, Baraboo; H. P. Johnson, Beloit; D. Pender, Janesville; M. B. Sharp, Madison; Secretary, C. S. Sharp, Madison.—At the annual convention of the Illinois Pharmaceutical Association, held in Decatur, Ill., the following officers were elected for the ensuing year: President, G. Henry Sohrbeck of Moline; first Vice-President, Thomas Knobel of East St. Louis; second Vice-President, J. W. Blood of Chicago; third Vice-President, W. C. Simpson of Vienna; Treasurer, Dr. H. H. Rogers of Kankakee; Secretary, Frank Fleury of Springfield.

Effects of Serum-Therapy on the Urinary Secretion.—As the result of his recent investigations M. Mongour announces that: 1, hyperazoturia is constant after injections of antidiphtheritic serum; the amount of urea is generally double that found before the treatment and in all cases is above the normal—the more rapid the cure the higher the amount, apparently. 2, this hypersecretion of urea is only to be attributed to serotherapy, since it is not due to thermic

influences or to any modification of diet. 3, it only lasts for the twenty-four hours following the injection, after which the amount of urea decreases until the normal is again reached. 4, the inversion of the formula of phosphates and chlorids seems to be a consequence of the diphtheritic infection. 5, the injections of serum destroy this inversion and bring the phosphates and chlorids back to the physiologic figure.¹

The Quick Getting-Up After Childbirth—A Matter of Drainage.—

Dr. A. Rose has written to the *New York Medical Journal*, July 20, in confutation of the doctrine that lying-in women are advantaged by the prolonged recumbency that is almost universally practiced at the present day. Dr. Rose calls attention to the fact that, a number of years ago, the question was experimentally studied at the obstetrical clinic of Halle, Germany. Five hundred women, after normal confinement, were allowed to rise as soon as they pleased and remained up out of bed as long as they felt like it—i. e., as long as they felt comfortable. Some of these women left the bed for a shorter or longer time as early as the second day postpartum. No ill consequences could be observed in any of these 500 cases. Five hundred other women under similar circumstances, were kept in a recumbent posture, or in bed, according to the time-honored custom, for a week or the well-known superstitious nine days. The result was strikingly in favor of the 500 early risers.

Influence of Variola on Menstruation, Pregnancy, Parturition and the Fetus.—

Dr. L. Voigt reaches the following conclusions as to the influence of variola on the uterine functions: 1, variola, both during the period of invasion of the fever and after the appearance of the pustules, causes a congestion of the inner surface of the uterus and this congestion in most cases produces the appearance of the menses or a genital hemorrhage resembling them. 2, the same cause gives rise to abortion or premature birth in half the cases of pregnant women who were vaccinated during childhood. 3, the life of pregnant women is seriously menaced in confluent and above all in hemorrhagic smallpox. 4, hemorrhagic variola is observed much more often in pregnant women than in others. 5, the mortality of pregnant women attacked with variola and who have been vaccinated once during youth is from 30 to 45 per cent., while in that of women delivered during the disease it is 59 per cent. 6, pregnant women who are not vaccinated are in much greater danger than those who are. 7, children of women attacked with variola are in much greater danger than their mothers; nearly all succumb either in utero or shortly after birth from congenital feebleness or they contract variola before or during birth. 8, on account of the great danger to mother and child we should protect pregnant women by a fresh vaccination, and vaccinate newly-born children, if they are robust enough, each time they are exposed to variola.²

Murphy's Button.—Mr. Ernest Lane has recently contributed to the London *Lancet* reports of three cases in which he used the Murphy's button, giving a favorable opinion of the device. Mr. Lane has other cases to add to the list that is kept up by Professor Murphy himself. It is not to be expected that the lists of cases are complete, and probably, as in most similar instances of a new operation or procedure, an undue proportion of successful cases have found their way into print. But this applies equally to all other methods of intestinal anastomosis, and in no way invalidates the comparison of the results of using the Murphy button with other modes of performing the operation. The editor of the *Lancet* proceeds to comment in the following conservative and yet commendatory manner, of the button:

"Professor Murphy's button has now been largely tried by a great number of surgeons, especially in America and Great Britain, and also on the continent of Europe. The consensus of opinion seems to be that it admirably fulfills the two primary requirements; it greatly shortens the operation, and by its use intestinal anastomosis can be made with great precision, and as a result the mortality of these operations has been greatly reduced. Against this most satisfactory result two facts may be mentioned as a set-off. In the first place the button is a rather complicated and very delicate piece of mechanism; it requires to be made very well, and to be used with gentleness and care. Again, the button, when set free by the separation of the rings of bowel compressed between the two portions of it, may linger for a long time in the alimentary canal; but, so far, experience has shown that this retention of the button is not attended with danger. Too much weight must not be given to these objections to the use of the button. Simplicity of construction is to be diligently sought in all our appliances, and we doubt not that Professor Murphy himself, or some other surgeon with a mechanical genius, will be able to devise some simple method of attaining the same mechanical result. Delicacy of mechanism is not a fatal objection—at most it is a remediable defect; and Professor Murphy's tables show that it is compatible with brilliant operative results. He has certainly succeeded in lifting this whole department of operative surgery—not one isolated operation merely—on to a different and better plane, and has given intestinal anastomosis a position in surgical therapeutics it has never held before."

Fakir Journalism.—Fakirism exists in medical journalism to an alarming extent. To the uninitiated the field of medical journalism is an undiscovered country. It is only after one has been on the inside that he can properly discriminate between those medical magazines which are conducted upon an honest basis and those which claim the earth while possessing little of it. Unfortunately for the respectable, deserving and honest journals, fakirism often presents a guise so attractive, a dress so deceptive, that the cloven hoof is not easily seen. However, sooner or later, the true inwardness of things can be made out and our confidence is once more shaken. There are different ways of running and building a medical journal. One way is to resort to exaggeration to deceive the advertiser: "In less than thirty days our books showed a list of 5,800 paid subscribers," is the statement made by one journal which went up like a rocket, and is now coming down. Such statements would cause Don Quixote and Munchausen to hide their faces in shame. Yet this is a mild-mannered statement compared with some. A certain journal is known to claim a circulation varying from 7,800 to 10,000, and yet never prints more than 1,000 copies, including sample copies and exchanges. And so the tricks resorted to by some might be multiplied indefinitely. There is only one correct way to conduct a medical journal. That is to be honest with yourself, honest with your subscribers and honest with your advertisers. In the course of events this plan will outstrip all others, and will result in the permanent prosperity of the journal and the journalist. One subscriber gained and kept is better for all parties concerned than ten sampled or one hundred claimed by a Munchausen sheet. The inserting of the pictures of nude women within the advertising leaves can not be condemned too severely. It is an insult to the doctor and to the reputable advertiser. Based upon the supposition that doctors delight in the nude and lewd, it is a reflection upon the morality and good sense of the profession. The "female form divine" may look well upon canvas, placed in a metropolitan gallery of art, but certainly is out of place in a medical journal which reaches the eyes of the doctor's family, and often is read by the doctor's patients. The frantic efforts of a job printer to herald his lack of good taste are very much in evidence. We hope soon to see the last of this kind of fakir journalism.—*Tri-State Medical Journal*.

Chancre of the Eyelids.—Mr. Simeon Snell, of Sheffield, reported to the Ophthalmological Society of Great Britain a number of *outré* occurrences of primary syphilis, inclusive of nine cases of palpebral chancre. In the discussion of the subject two or more speakers referred to the affection as being one that was not rare in their practice, one specialist going so far as to say that Mr. Snell's paper was chiefly interesting and important from the point of view of diagnosis.

¹ Jour. de Med. de Bordeaux, No. 19, 1895.

² Am. Soc. Med.-Chir. de Liege, No. 5, 1895.

Another speaker averred that cases of this lesion are oftentimes so slight that the patients may recover without resorting to hospital treatment. Mr. Snell is reported, in the *Press and Circular*, to have said he had collected notes of nine cases of chancre of the conjunctiva, and he related one or two of the more typical, observing that very few of such cases had been reported, though they could not be very rare, judging from the number that came under his observation. The first case was that of a woman age 21, with a chancre at the internal canthus, also involving both eyelids, the lower more than the upper. The caruncle was also implicated. The ulcer was the size of a shilling, and there was much induration. The gland in front of the ear and the submaxillary gland were enlarged. She was a nurse, and had probably caught the disease from the infant, the offspring of syphilitic parents. She was engaged to be married at the time, but the marriage was postponed until nine months later. She has been pregnant six times, but has never gone to full time. The sixth child, the only living one, was now 3½ years of age. It was healthy until ten months of age, when it developed signs of congenital syphilis, and had since had fits, followed by paralysis. The patient herself was well and healthy looking, but there was some epiphora marking the site of the chancre. There was no history of her husband having suffered from the disease. The second case was that of a man, age 30, who came on September 20. He was married, and had had five healthy children. He said he had cut his head open, and had washed the wound with some blood-stained fluid, the accident having occurred in a slaughter-house. A month later a small spot formed, and when he presented himself there was an ulcerated surface, with indurated base and raised edges involving the whole of the outer surface of the right upper eyelid. The præ-auricular and cervical glands were enlarged. The patient suffered, among other things, from an eczematous condition of the penis and scrotum. His wife came in June, 1888, having had lumps in the groin, with ulceration of the tongue, etc. The third case was that of a man age 55, with a chancre on the right inner canthus, involving both eyelids at the junction. The præ-auricular gland was indurated. The ulceration healed in six weeks. Nothing was made out with respect to the means of infection, but he lived in a model dwelling-house in which there were only four towels for eighty persons. The other cases more or less resembled those he had related. The ages varied from childhood to adult life, and comprised four males and five females.

Advertisements of Secret Remedies.—The following circular has been issued:

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

To the Editor and Publisher:

Dear Sir:—As a committee appointed for that purpose, we desire respectfully to call your attention to the following extracts from Minutes showing the action taken by the Trustees of the AMERICAN MEDICAL ASSOCIATION and by the Medical Society of the State of Pennsylvania, respectively:

"REPORT OF THE TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION.

"BALTIMORE, MD., May, 1895.

"During the year no advertisements of secret remedies have been accepted that were not accompanied by a formula, but to still further comply with what appears to be the desire of a large number of those interested in the highest success of the JOURNAL, the editor, with the termination of the present contracts, has been instructed to accept no advertisements of medicinal preparations, the proprietors of which do not give a formula containing the official or chemie name and quantity of each composing ingredient to be inserted as a part of the advertisement."

"CHAMBERSBURG, PA., May, 1895.

"Resolved, That the Medical Society of the State of Pennsylvania congratulates the AMERICAN MEDICAL ASSOCIATION upon the decision of the Trustees to exclude unethical advertisements from the JOURNAL of the ASSOCIATION.

"Resolved, That a committee of three be appointed to communicate with the editors and publishers of medical journals in the United States, calling their attention to this action of the AMERICAN MEDICAL ASSOCIATION, and requesting them to accede to the wishes of the profession by adopting a similar rule."

Allow us also fraternally to state that: we believe that the best interests of medical men are coincident with scientific accuracy, so far as this can be obtained; that the practitioner of medicine should therefore know in all cases, the character of the drug, and the formula of the preparation or chemie compound that he prescribes; that the use of a secret preparation or nostrum is undeniably unscientific, and can not be intelligently defended; that, hence the advertisement of such preparations by scientific journals is out of place; its effect being to promote quackery and discourage scientific prescribing; that we believe the exclusion of such advertisements will aid the circulation of medical journals and give them a dignity and character not obtainable without such exclusion; that the hearty manner in which the action of the Trustees of the AMERICAN MEDICAL ASSOCIATION and that of the Medical Society of the State of Pennsylvania was received, shows the very cordial indorsement by the profession of the policy here recommended. We, therefore, most earnestly ask your careful attention to this subject, hoping and in behalf of this society requesting, that you will adopt a similar rule to that of the Trustees of the AMERICAN MEDICAL ASSOCIATION.

Very respectfully yours,

(Signed,) S. S. TOWLER, M.D., Marienville, Pa.
Special J. J. BUCHANAN, M.D.,
Committee: 1924, Penn Avenue, Pittsburg, Pa.
C. H. THOMAS, M.D.,
1807 Chestnut Street, Philadelphia, Pa.

To the Members of the Profession of Medicine in the United States.—The following from the *Evening Star*, of Washington, D. C., of Saturday, July 22, 1895, is commended to the careful, thoughtful consideration of every member of the profession:

"THE HAHNEMANN MEMORIAL—A GRANITE ELLIPTICAL CURTAIN BEHIND THE BRONZE STATUE—TRIBUTE OF THE AMERICAN HOMEOPATHIC INSTITUTE TO THE PHILOSOPHER AND PHILANTHROPIST.

"At the recent meeting of the American Institute of Homeopathy at Newport, R. I., the committee on the memorial to Hahnemann, consisting of one physician from each State and Territory, with the indefatigable worker and father of the project, Dr. J. H. McClelland, of Pittsburg, as chairman, made its report. The committee secured the assistance of several artists, notably J. Q. A. Ward, and an advisory committee, composed of five well-known members of the American Sculptors and Architects' League—three sculptors and two architects. They called for competitive designs from every source and country, offering prizes for the best three. The advisory committee, Messrs. Daniel C. French, George E. Bissell, Thos. Hastings, Olin L. Warner and Russell Sturgis, announced that, in their judgment, the first prize of \$500 should go to the design of Charles H. Niehaus, of New York, the second prize of \$300 to Joseph Loester, of New York, and third, of \$200, to Herbert Adams, of Brooklyn. Marsh, Israels & Houlder are the architects associated with Mr. Niehaus in his design, which has been accepted on the expert report by the monument committee. The description of the monument prepared by the committee says:

"The monument is a true ellipse in plan, its fundamental motive being the Greek exhedra form. The main lines of the central portion present a flat curtain wall with decorated tympanum above the impost. This, together with the projecting lines of the ampures, forms architectural vertical divisions of this elevation, which is thus resolved architecturally into component parts, resulting in a well-proportioned and equally balanced composition. Rising from the platform in front of the central portion is a simple pedestal supporting the statue, upon the face of which appears the inscription 'similia similibus curantur.' Other inscriptions and decorations are of a character significant of and glorifying the work, methods and results achieved by the great reformer. The upper portion of the niche behind the statue it is intended to decorate in glazed mosaic, in colors, of a design composed of the foliage and flower of the cinchona plant. On either side of the arch are decorative emblems in bas relief—a bowl and serpent, the symbols of wisdom, and a lamp and book, typical of knowledge and instruction. The former in association with a palm branch, the latter with a wreath of laurel. The keystone of the arch bears a lion's head, the symbol of strength in leadership. Upon the rear the date of erection appears across the center in Roman numerals and the dates of Hahnemann's birth and death, 'Meissen, April 10, 1755,' 'Paris, July 2, 1843,' encircled with laurel wreaths, are inscribed to the right and left.

"In the center, filling the tympanum of the arch, appear

two figures in bas-relief, emblematic of the science and art of medicine. Underneath this is a fountain in the form of a fluted basin fed by a stream of running water issuing from a carved dolphin; thus symbolizing the temperance Hahnemann practiced and taught. The style of the design is essentially Greek in spirit and in its form. The statue itself is in bronze. The features will be faithfully copied from the bust by David.

"The commemorative tablets are placed in two panels, on either side of the niche, upon the curved walls, representing in bas-reliefs of standard bronze, periods of Hahnemann's life. The monument is to be built of the finest grained white granite, except the statue and entablatures, which are to be of antique bronze. The ground dimensions are 43 by 30 feet, and the height 22 feet.

"The cost of the memorial will be \$50,000, of which \$29,000 has been subscribed. No particular site in Washington has been selected as yet. Local homeopathic physicians state that there is one which has the preference, but it is not known yet whether it can be had."

After this, shall the Committee on the Rush Monument appeal to you again in vain? We, too, had estimated the cost of this monument at \$50,000. After ten years, we have collected less than one-tenth this sum. This little band of homeopaths with a like estimate of \$50,000, in three years have subscribed *more than half* that amount.

Shall you be willing to place in the same city, and that the capital of this great nation, beside the splendid memorial here described, of a foreign theorist, any less appropriate and artistic testimonial of the great patriot physician of the Revolution? Your committee are not forcing upon you any man of local or sectional reputation. His eulogists are your great men among the living and the dead, in this country and abroad. For the sake of the good name of true Medicine, do not delay this work longer. Let every State, Territorial and county medical society in the United States hold special meetings to act upon it. Let every delegate and member at the recent meeting at Baltimore bear in mind that he was specially constituted at that meeting a member of the Rush Monument Committee, and the duty imposed upon him of collecting funds. Your committee, therefore, earnestly appeal to the professional pride of every reputable doctor of medicine in this country to forward his contribution at once to Dr. George H. Rohé, Secretary, at Catonsville, Md.

ALBERT L. GHION, M.D.,
Chairman Rush Monument Committee.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended July 20, is as follows: number of deaths (still-births not included): white, 76; colored, 83; total, 159. Death rate per 1,000 per annum, white, 21.51; colored, 49.61; total, 30.56. Still-births: white, 5; colored, 4; total 9. The increase is general, both as to disease and locality. The principal causes of the mortality were lung diseases and maladies incident to childhood. Seventy-nine of the deaths were those of children under 5 years of age, forty-two of which were from diarrheal ailments. With the exception of two fatal cases of whooping cough, there was an entire exemption from dangerous contagious diseases in fatal form throughout the city. It is to be remarked that neither a case nor a death from diphtheria was reported during the week. In the absence of epidemic diseases, the high death rate may very properly be attributed to the long continued high temperature, the maximum of which was 95 degrees, and the mean for the whole period 73 degrees, with high relative humidity.

REPORT OF THE BOARD OF DENTAL EXAMINERS.—The report of the board of dental examiners for the fiscal year ended June 30, 1895, was yesterday submitted to the Commissioners by Dr. H. M. Schooley, its secretary. It states that during the year twenty-five applications for certificates

of qualification to practice were received and passed upon. Twenty-three applicants were graduates of colleges requiring a three years' course, and were therefore entitled to certificate without examination. One other applicant passed a satisfactory examination, making in all twenty-four certificates issued since last report. These figures, with those dentists already authorized to practice, constitute a total of 247 dentists legally practicing at the present time.

DROPPED FROM MEMBERSHIP IN THE DISTRICT MEDICAL ASSOCIATION.—A circular letter was sent, a short while ago, to the members of the Association, informing them that certain members "having refused or neglected, for a period of two years, to pay their assessments" are therefore dropped from membership in this Association. The list includes the name of Dr. William A. Hammond. The result of the law suit lately in progress between the Columbia Chemical Company and the Hammond Sanitarium Company consequently is of no interest to the regular profession.

Hospital Notes.

THE CHARITIES COMMISSIONERS OF KINGS COUNTY have begun a movement for a new hospital on a site in the neighborhood of the Kings County Penitentiary, on land belonging to the county. Work will begin at once. The building is to cost \$250,000. The hospital is to be used mainly for chronic cases, as a kind of "overflow" to the county hospital located in Flatbush. The Board has also appropriated \$25,000 with which to repair Flatbush Institution. The patients there now number nearly eight hundred, but there are suitable accommodations for not more than five hundred.

Society Notes.

THE FRENCH ACADEMY OF SURGERY.—Professor Guyon has been elected president of this society in place of the late Professor Vernenil, and Professor Lannelongue as vice-president in place of Professor Guyon, named as president.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 20, 1895, to July 26, 1895.

First Lieut. ALEXANDER S. PORTER, Asst. Surgeon U. S. A., extension of leave of absence granted on account of sickness, is further extended two months on account of sickness.

Col. DALLAS BACHE, Asst. Surgeon-General, Medical Director Dept. of the Plate, is granted leave of absence for one month, with permission to apply for an extension of ten days, to take effect on or about July 20, 1895.

LETTERS RECEIVED.

Ashe, Walter R., Lebanon, Ohio; Ansley, W. B., Saltsburg, Pa.
Burchard, T. H., Big Indian, N. Y.; Baker Henry B., Lansing, Mich.;
Bovee, J. Wesley, Washington, D. C.; Bleyer, J. M., New York, N. Y.;
Beverly, H. A., Smiley, Texas.
Cutter, J. A., New York, N. Y.; Carstens, J. H., Detroit, Mich.; Cincinnati Sanitarium, Cincinnati, Ohio; Chloride of Silver Dry Cell Battery Co., Baltimore, Md.; Chapman, B., Copley, Ohio.
Gihon, A. C., Washington, D. C.
Halloway, S. W., Louisville, Ky.; Humphries, Will C., Acworth, Ga.;
Hummel, A. L. (2), Philadelphia, Pa.
Jamieson, T. H., Enfield, Ill.
Krieder, Geo. N., Springfield, Ill.; King, S. H., Narragansett Pier, R. I.;
Kierulff, B. F., Marshalltown, Iowa.
Lincoln, D. F., Geneva, N. Y.; Lord & Thomas, Chicago, Ill.
Meyrowitz, E. B., New York, N. Y.; McBride, M. A., Leesville, Texas;
Meyer, Theo., Salt Lake City, Utah; Morgan, James D., Washington, D. C.;
Mann, E. C., New York, N. Y.
Nenneker, Henry, Haubstadt, Ind.
Osbaldeston, Julian, Chicago, Ill.
Pollock, R. M., Princeton, Ill.; Peacock, Chemical Co., St. Louis, Mo.;
Parke, Davis & Co., Detroit, Mich.; Plinkham, Geo. E., Lowell, Mass.
Reed, R. Harvey, Columbus, Ohio; Reynolds, F. R., Eau Claire, Wis.;
Robbins, W. L., Washington, D. C.
Sharp & Dohme, New York, N. Y.; Scott, W. A., Swanton, Ohio; Stewart, F. E., Detroit, Mich.; Stover, E., Amsterdam, N. Y.; Schieffelin & Co., New York, N. Y.; Smith, C. J., Pendleton, Ore.
Trommer Extract of Malt Co., Fremont, Ohio.
Utter, J. A., Crawfordsville, Ind.
Vetter, J. C. & Co., New York, N. Y.
Walker, A. B., Canton, Ohio; Wyman, Walter, Washington, D. C.; Wirt, Wm. E., Cleveland, Ohio; Weir, F. A., Jesup, Iowa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, AUGUST 10, 1895.

No. 6.

ADDRESSES.

THE ETHICS OF THE MEDICAL PROFESSION.

Abstract of an Address to the Kentucky State Medical Society at the Harrodsburg Opera House, June 13, 1895.

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Ethics is the written code of rules of right conduct for societies, professions, and all bodies of people having a common interest in the advancement of themselves in their individual relations to each other, and of the growth and advancement of the class to which they belong. Politics has for its main object the betterment of the forms of government; and political societies, professions and systems grow in importance as nations or states are made up of people willing to mold their personal conduct to a harmonious general standard in respect to each other's rights as defined by law.

Ethics must be construed to mean the right conduct of people toward each other in their associate relations; and so the ethics of a professional class must define the right conduct of individual members of that class, in the growth and advancement of the whole body. The ethics of the medical profession must be preserved or we shall have no advancement; as, without the written code, we could have no standard of correct deportment, and no basis of comparative improvement upon primitive forms. Virtue is the unselfish conduct of a member of society in the interest of the social circle or class to which the individual belongs. Virtue is, therefore a prime ethical feature of all intellectual associations of men.

A high sense of duty flows naturally from the cultivated exercise of the power of reason. Ethics must belong to the educated classes, because it aims to establish harmonious systems for the development and maintenance of the right conduct of those belonging to a particular class, with respect to themselves and all others.

Recognizing the learned professions as the natural result of well-developed educational systems, which have advanced, little by little, as each interested individual added something for the general good, one must see how the ethics of the professions has promoted their development and established their dignity in the sphere of wisdom. Who has not seen the multiplying force of united harmonious action in the common school systems, the natural outgrowth of the ethical principles of free government? Laws are made for the whole people of a nation with respect to the rights of the individuals and of corporations, municipalities, states, and of the whole nation to all other nations.

Knowledge of justice comes from the willingness

to harmonize the personal interests and conduct of neighbors, to combine the influence and power of collective bodies called communities. The ethics of the medical profession could not, therefore, fail to hold each member to the observance of those rules of right conduct defined in the code. If the profession of medicine required no personal efforts to advance it, there could be no means of distinguishing its members as belonging to the true and noble profession, from those hypocrites who adopt empiricism as a means of imposing upon the credulity of the unlearned masses of the people. The people have gradually come to recognize the necessity of respecting the written code of ethics as the only reliable guide in the choice of medical officers for the armies and navies of the world. State laws prescribe the qualifications of those engaging to practice medicine, upon the basis of regularly conducted educational training.

Indefinite organization, common affiliation, without written codes, has always left the members in a state of degeneracy. Definite organization of the medical profession in all nations gives a fixed character to its purposes, unites its working energies, and has led to those great triumphs of experimental research which are the proud boast of the best achievements of the human mind. Who has not heard that human life is prolonged, and the sum of human happiness vastly multiplied by the superior skill and knowledge of the regular medical profession? Who in our day and generation, outside the ranks of the organized body of the regular profession, has made a valuable discovery, or an important addition to the advancement of medical knowledge? I do not know of one, in any country.

Medical societies observing the code of ethics adopted by the representative bodies of the profession in each nation, become constituent elements of the most noble and the most learned profession in the world; and, by local, state, national and international congresses, discuss the best work of all the individual members. Organized upon the basis of a written series of ethical rules harmoniously adapted to the several nations of men, there is perfect community of professional aspiration, and whatever good may come from increasing knowledge is at once the property of the profession throughout the whole world, and mankind everywhere enjoys the full benefits of it.

Karl Koller demonstrated his discovery of the local anesthetic powers of cocaine to the International Medical Congress at Copenhagen in August, 1885, and the people of every country were enjoying its benign influences in every city of the earth within thirty days from the date of the announcement of the demonstration in the section of the Congress.

Koch, of Berlin, published, in March, 1882, his discovery of the bacillus tuberculosis. In September,

1882, the students of the Hospital College of Medicine at Louisville, were taught the details of the methods of demonstrating the presence of the bacillus in the expectorated matter of consumptives.

The great work of Ephraim McDowell, over at Danville, in 1809, did not receive recognition by the profession, generally, for sixty years, because the profession of medicine had no representative national organization; international congresses had not brought the inventor of a great surgical means of prolonging life, face to face with his brethren of all nations.

The great Lister was enabled to inaugurate the universal reform in all surgical procedures, eliminating every element of danger from septic poisoning, and death from surgical wounds, by discussing his methods in society meetings. The medical journal helps the societies to spread quickly over the whole world the newest demonstrations of the members, with such criticisms and discussions as the society indulged at the time. The work done by societies may be well illustrated in the great changes made in Lister's own methods at Edinburgh, and subsequently at London, and those which followed as the natural results of the criticisms and discussions of them by the International Congresses of 1876 and 1879. In the Congress of 1881, antiseptic methods had already been abandoned for the aseptic principle, and the technique of the masters became at once the common property of the members of that congress, and all its constituencies in every country of the civilized world. The ethical codes defining the right conduct for individual members of the regular medical profession, brought about those harmonious relations which led to the organization of representative and delegated assemblies of medical men, and proved at once the common interests of the profession all over the world; established the national and international congresses, and put the newest and best fruits of all original research into the hands of competent practitioners in every town and country place having a member of a regularly organized medical society.

If reading these great works alone were sufficient to convey a knowledge of them so clearly as to enable one to practice them, colleges would not be necessary for the education of students, and societies would not be necessary for the training of practitioners in correct methods of observation.

In 1847, the AMERICAN MEDICAL ASSOCIATION was organized as the representative national body of the medical profession in the United States. It adopted a code defining the right conduct of those fit to become members, and provided rules for the determination of the proper qualifications of individuals by the profession of each city, town, county and district. An obligation to observe the rules of right conduct defined in that code makes any regularly educated physician eligible to membership in a society of representative capacity. Any society adopting as part of its constitution, the code of the national body, can send one delegate for each ten members, and one for any fraction of more than five, to the next ensuing annual meeting of the AMERICAN MEDICAL ASSOCIATION. These delegates are admitted to membership in the national body, on filing their credentials and paying the annual dues of \$5 in advance, and signing a personal pledge to observe the Code of Ethics. Any member of the national body is admitted to all associations and congresses of the pro-

fession everywhere, may enjoy any of the discussions of original matter, and witness the demonstration of newly discovered facts, and convey them to his brethren at home.

The Kentucky State Medical Society was organized in 1851 and adopted the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION as part of its constitution. It has had representatives in each annual meeting of the national body, and in all the international congresses, since the first one organized at Paris, France, in September, 1867, where our lamented brother, Prof. Lunsford P. Yandell Jr., was received with great *éclat*, as from the home of McDowell and Dudley.

The Kentucky State Medical Society admits to its membership all those who hold membership in the local societies at their places of residence, and who obligate themselves to an observance of the national Code of Ethics. We are here in our strictly professional capacity, as the representative body of the regular medical profession described in the code of right conduct, and our deliberations will be received and duly respected by the profession all over the world. Some of the matters discussed at this meeting will be published in all countries.

You see how important it is to have some standard by which to test the qualifications of those claiming membership in the medical profession, and how necessary it is for every community to have its medical society. You see, also, that the medical man who belongs to no society is not in fellowship with his profession, and can not, therefore, be regarded as a member in good standing. He is unworthy of your confidence, because he is, in fact, not a member of the regular medical profession to which he claims to belong.

In the Code of Ethics the delicate and responsible duties of the practitioner of medicine to the patient, are duly set forth. He is counseled to seek consultation in all difficult and protracted cases, for the purpose of inspiring confidence, energy, and more enlarged views in practice, as well as to secure the patient against a possible chance of any neglect to perform even the most trivial service. In the regular profession of medicine, where education is graded and knowledge has a fixed standard for entrance into the profession, there can be no mistake that the patient's welfare will not be duly considered. If, however, consultation were demanded by one of that class who make a pretense to some exclusive system of practice, there could be no possible advantage to the sick, because the limitations of an exclusive system of practice would forbid an extension of the boundaries, or an enlargement of the plan of treatment.

It may be fairly assumed that what is known to one man in any professional class, must receive the sanction of his confrères to give to it the dignified designation of knowledge. For we must limit that which we call knowledge to matters susceptible of demonstration, as it is by demonstration only that knowledge may be conveyed from one person to another. In the pursuit of knowledge, therefore, the regular profession of medicine is bound by no limitations, excepting those imposed by nature; and when we look about us and observe those who claim to practice by some exclusive method, or proclaim their choice of remedial agencies upon the basis of some dogmatical system, we must conclude that, either false pretenses are resorted to, to support this claim

or that it is founded in ignorance so dense as to excite profound commiseration.

The study of the life history of plants, and the laws governing their reproduction, as well as the composition and adaptability of soils and climates, are fields of inquiry open to all. The agriculturist, therefore, who still claims to be governed by the superstitions attaching to the signs of the zodiac, or the phases of the moon, possesses no convincing arguments to support his ignorance; and so it is with the followers of Hahnemann, and other founders of conjectural systems of therapeutics.

There is nothing in the Code of Ethics of the regular medical profession which forbids the broadest liberality of sentiment and opinion, either in consultation or other professional intercourse; and no limitations known to the human mind in the choice of remedial agencies or methods of study.

The members of the medical profession upon whom is enjoined the performance of so many important and arduous duties, and who are required to make so many sacrifices of comfort, ease and pleasure for the welfare of those to whom their professional services are constantly given, certainly have a right to expect and require that their patients should entertain a just sense of the duties and obligations naturally due to their medical attendants. It is manifestly the duty of the patient to select as medical adviser, one who has received a regular medical education. In no trade or occupation in life do men rely upon the skill of an untaught artist or an untrained hand. Does any one suppose knowledge of the profession is intuitive? Are we not all familiar with the constantly increasing requirements medical colleges exact of their students? And this is, after all, but the response to the constantly increasing demands for more learning in the profession of medicine. Patients should, therefore, prefer a physician whose educational training is known to be thorough; whose habits of life are regular; and who is not devoted to social pleasures, to business pursuits, nor bound by any sort of obligations which might divert his attention from the constant discharge of his professional duties. The patient should, if possible, avoid even the friendly visits of a physician who is not attending him; but, when he desires to change his medical attendant he should candidly express that desire.

Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members. He should, with unwearied diligence, resort to every honorable means of enriching the science and ennobling the art. He should at all times entertain a due respect for his seniors who have, by their labors, brought the profession to the advanced position in which he finds it.

Our code says it is derogatory to the dignity of the profession to resort to public advertisements, private cards, or handbills, inviting the attention of individuals affected with particular diseases; publicly offering gratuitous services to the poor, or promising radical cures; or to publish cases and operations in the daily papers, or to suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates

of skill and success, or to perform any other similar acts. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or others. For, if such nostrums have real efficacy, any concealment of its nature is inconsistent with beneficence and professional liberality. If mystery alone can give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice.

The professional life is entirely inconsistent with any sort of avarice. The desire for pecuniary gain never displaces the unquenchable thirst for knowledge and skill. The public ought therefore never to lose sight of the necessity of according to the regular profession suitable compensation for public services.

The assumption of a special title, or the claim of any superiority of methods in practice must expose such person to the suspicion of fraud. For by education alone can any one acquire sufficient knowledge of the profession to be able to practice it intelligently; and the titles bestowed by institutions of learning are always graded in accordance with the amount of systematic study pursued and the degree of excellence in scholarship. Thus, Doctor of Medicine means that person upon whom that title has been conferred is so learned as to be able to teach the profession to others. It does not mean that he can treat diseases of some particular part only, but it implies a sufficient knowledge to be able to engage in any department of practice.

Our code recognizes specialties as legitimate fields of practice, but there are no special fields of practice which may be properly cultivated independently of the state of the general system, or of the most remote organs.

The title of Doctor in Medicine covers the whole range of professional knowledge, and is never bestowed upon any who do not pursue the entire curriculum of the colleges.

Every practitioner owes his best professional services to all the other members of the profession, and all their dependencies. No affluent member, however, would accept the service and tax the time of his impecunious brother without bestowing upon him a suitable honorarium.

SOME MOOTED POINTS IN PELVIC SURGERY.

CHAIRMAN'S ADDRESS.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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CHICAGO.

In selecting for the subject of my address, "Some Mooted Points in Gynecologic Surgery," I am aware that I may lay myself open to criticism for presuming to bring before a body of medical practitioners constituting the highest national representative body of American gynecology, subjects which may be considered hackneyed—subjects upon which but little that is new can be advanced. My excuse can readily be understood by every pelvic or abdominal surgeon. Every such surgeon is a learner and an original investigator from the beginning of his career until its end, or a failure. No one ever learned laparotomy by attending lectures or by watching a master, or by the perusal of books. No one ever learned laparot-

omy in a personal experience of a year in actual abdominal work on animals or on patients, in a series of one hundred cases or two hundred cases. He, who, to his own mind has mastered this intricate and most important branch of surgery at any point in his career, is but an infant to whom greatness and fame will always remain strangers. A laparotomist must become an idealist if he is to progress and approach success. Couple with the idealist enthusiasm, with enthusiasm brains, with brains knowledge, with knowledge industry, with the foregoing honesty, and with all these ambition, and an abdominal or pelvic surgeon will develop who will always be less satisfied with himself than is any one else. As an idealist he will constantly seek to accomplish the ideal in surroundings which can never become so. Thus perfection will be sought, which while it can never be obtained can in this manner, only be closely imitated.

What, then, is my excuse for my subject? It is, that here in the shadow of a renowned institution with its brilliant surgeons, in the hearing of others possessing the attributes which have made them renowned gynecologists, I wish to bring these mooted points, the discussion of which may increase our idealism, which may arouse enthusiasm for our specialty, add to our knowledge, increase our honesty of purpose and industry, and not least of all aid in developing a laudable ambition. Not that all of these desirable things will be accomplished by my feeble effort alone, but the feeble effort, reinforced by the discussion of the subjects presented by this Section, may succeed in accomplishing something in that direction.

In dealing with my subject I shall not quote authorities; I shall not ransack literature in order to establish priorities; I shall not exploit methods.

The methods of every experienced gynecologist are an evolution from the methods of some admired teacher, together with accretions gained by subsequent observations, experiments, readings, reflections, and personal experience—an evolution from these to his own settled routine which has become his technique. Thus I will discuss these subjects from the light evolved from my own experience.

TREATMENT OF FIBROIDS OF THE UTERUS.

The surgical treatment of fibroids of the uterus is always a fruitful subject for discussion in gatherings like this. The fact that the subject is such a fertile one for debate; the fact that it is a debatable question, is the best proof that no one method has yet arisen which meets all indications, and that the question should be discussed until our debates show a lamentable lack of interest as a result of general agreement.

"Do you employ electricity in the treatment of fibroids of the uterus as much as you did formerly?" is a question which I have frequently to answer. To answer this question in the affirmative would be to admit that I ignored the recent great progress in abdominal hysterectomies and other pelvic surgery, and also to admit that electro-therapeutics had not progressed. While I employ electricity successfully in a large number of fibroids, I do not employ it in the same large proportion of cases that I did formerly.

The cases upon which I do the most satisfactory work with electricity now, are those which surgeons who have a wholesome regard for their statistics refer to me to get rid of, or similar cases which come di-

rectly to me. They are usually large hemorrhagic tumors, the subjects anemic, hearts hypertrophied, kidneys diseased, skin waxy, respiration difficult. Filled with pelvic pain, pelvic pressure and pain of peritoneal adhesions. Uterus deep and irregular, menorrhagic when not bleeding, discharging semipurulent fluid. Digestion ruined, secretions checked, bowels constipated and reflexes run rampant. In other words, among the most deplorable cases that it becomes a surgeon's lot to behold.

These cases I treat with galvanism in strong doses, systematically and rationally applied, combined with the most appropriate general tonics and alteratives. I apply the galvanism with the idea of getting the following well-known effects of the current: 1, most powerful general tonic; 2, powerful local antiseptic; 3, anti-hemorrhagic effect of positive pole; 4, local trophic stimulant.

I have not time to tell how much these apparently desperate cases invariably improve under this treatment; how I have resuscitated case after case so that they have been able to have their burdens removed by skillful surgery and again live; how I have been able with treatment from time to time to keep symptomatically well a score of patients who under no circumstances would have an operation of the safest nature, and who before electricity came to their aid were bedridden.

Another class of cases in which galvanism is a justifiable means of treatment is that of the hemorrhagic variety not of large size, the subjects of which are near the menopause. The hemorrhage can often be controlled and the atrophy of the uterus which is a usual coincident of the establishment of the menopause will do the rest. I have saved many such cases the horrors of an operation, while at the same time keeping them in symptomatic health during this precarious time of their life.

However, in the present state of pelvic and abdominal surgery, I would not voluntarily administer or recommend galvanism for fibroid tumors, the subjects of which were under 40 years of age, whose tumors were suitable for operative procedures, and whose general health would show an average chance for favorable surgery. While I would expect to be able to control the hemorrhages in the majority of such cases, improve their general health, and to reduce the size of the tumor, relieve the endometritis, and stimulate absorption of peritoneal adhesions, I would not expect these results to be permanent in a large enough proportion of cases to justify keeping the patient away from the more permanent and satisfactory results of modern surgery.

I can not admit that galvanism ever does harm in these cases except that it may be the means of keeping patients away from more effective surgery. It almost invariably accomplishes good, even if applied but a short time. Galvanism, except in fatal doses, the opinions of certain surgeons to the contrary notwithstanding, never produces peritoneal adhesions. It is one of the most powerful antiseptics we have, and the only one we can send through deep tissues without traumatism.

Needles, probes and other forms of electrodes improperly employed may carry septic material where they should not; electricity never does. Electricity irrationally and erroneously employed in cases of pelvic accumulation of pus, may, by producing powerful muscular contractions empty a pus sac into

the peritoneal cavity. This would be but the abuse of a powerful remedy instead of legitimate use.

Thus, as gynecologists, the better we understand our armamentarium the more will we value galvanism. The gynecologist who ignores this remedy, given to us by an exact science, will have reason to bark hard at its aggressions, and by his bark can we appreciate his hurt, and at the same time estimate his loss.

REMOVAL OF APPENDAGES FOR FIBROIDS.

This operation, popularized by Tait and his followers, as a remedy for fibroids of the uterus, has in my opinion about run its course. While, since its discovery it has served to relieve and cure many women suffering with fibroids, like all of the minor surgical methods for that difficulty, it has that fatal element of uncertainty, which in the light of the comparatively safe and certain hysterectomy makes it less popular as a remedy than it was before the appearance of this more successful rival.

The curative effect of the operation for the removal of the appendages is based upon: 1, its producing an artificial menopause—thus checking the hemorrhage of hemorrhagic fibroids; 2, the cutting off from the uterus, nourishment supplied by the ovarian arteries, thus reducing the tumor by direct curtailing of the normal blood supply of the uterus; and 3, any indefinite influence which such an operation may exert on the trophic nerves of the uterus, thus giving that organ and its ungainly parasite the benefit of any uncertain results which may occur from such a disturbance.

Theoretically, this is all a little vague. Practically it controls the menorrhagia of fibroids in about 92 per cent. of the cases upon which the operation is performed. Invariably, almost, where the menorrhagia is not checked, the tumor continues to enlarge and in a small percentage of cases it continues to grow, even when an artificial menopause is established. In a small percentage of cases only, does the tumor entirely disappear, even when a symptomatic cure is enjoyed. Therefore the tumor remains indefinitely, a constant source of anxiety, if not of possible future harm.

This operation then, which made an epoch not only in the treatment of fibroids, but in surgery, must be relegated to the rear by the very forces of surgical advance which it did so much to create. Its rival is hysterectomy; and so successfully is hysterectomy standing the test that one can scarcely find justification for the operation of removal of the appendages.

When a laparotomy is decided upon at all for these cases, it is difficult to give one good reason why a clean sweep should not be made and a hysterectomy accomplished. When a tumor is large and the broad ligaments consequently spread, a thorough removal of the appendages is more difficult than a hysterectomy. When the tumor is small the patient is ordinarily in prime condition, and while a hysterectomy is a little more difficult than the appendage operation, no one can be justified in leaving behind a useless diseased uterus, in order to save a few minutes' time in an operation. If the appendages are diseased as a result of infection, they should be carefully enucleated, and no matter how long it may consume (unless the life of the patient is positively to be endangered because of increased time required for a hysterectomy) the latter operation is imperatively

demanding because of the certainty of infection of the uterus. This leaves the operation of removal of the appendages one which should be reserved as a makeshift, when for some good reason after the abdomen has been opened, the operator finds he has underestimated his patient's strength to tolerate a hysterectomy. Dr. Byron Robinson, of Chicago who finds it difficult to shake off entirely the teaching of the Birmingham sage, still opens the abdomen with the deliberate intention of removing the appendages for fibroids, but supplements that operation by tying the broad ligament, including the uterine artery, as it ascends along the side of the uterus. By thus applying my operation from above, he hopes and with reason, I think, to reduce the 8 per cent. of bleeders which follow the old Tait operation. This procedure increases the time of the Tait operation, and still leaves the uterus. It is one step in advance, but still a makeshift, and one more halting place at which the beginner and the timid may in times of discouragement close up and save his self-respect.

VAGINAL LIGATION OF THE BROAD LIGAMENT.

This operation which was devised by me for the treatment of fibroids is one which does not require a laparotomy. It is a minor operation in every sense of the word except in its execution. It consists as many of you know, in ligating from the vagina more or less of the base of the broad ligament of either side of the fibroid uteri. The vagina is first incised at its vault to the right and left of the cervix, at right angles to the base of the broad ligaments. The contents of the broad ligament are separated from the bladder in front and from the peritoneum behind; it is then ligated *en masse* with either a single or a double ligature of silk, kangaroo tendon or chromicized catgut, sufficiently deep and comprehensive to include the main channel of the uterine artery and any anomalous branches of that artery, and also all the nerve supply which finds its way to the uterus by this route. In exceptional cases the ligatures may be carried sufficiently high on one side so as to include the ovarian artery. The ligatures are cut short and buried by closing the vaginal mucous membrane by a running stitch of fine catgut.

The objects of this operation are: to check uterine hemorrhage; to cause atrophy of the uterine tumor by depriving it of blood nourishment; to influence a decrease of the tumor by interfering with its nerve supply.

Here we have a real minor operative procedure for the treatment of uterine fibroids. It has arrived on the scene of action at the wrong time to make itself very welcome. Instead of giving us a certainty, it gives one more possible relief, one more hesitating point. Its claims are so rational, however, and it has the so important advantage of being but a minor operation, that it will undoubtedly become a method of treatment of annoying prominence to the unpromising radical of the future.

This operation may be performed with advantage in all incipient fibroids in which the operation of hysterectomy will not be accepted by the patient and a minor operation will be accepted. It may be performed in all hemorrhagic cases, when the patient has been so reduced by hemorrhage that it is considered unsafe to submit her to a hysterectomy. It may be performed in cases of advanced kidney and heart difficulties in rapidly growing or hemorrhagic fibroids

where a prolonged operation would not be advisable. It may be employed in any case as a direct and permanent curative means, with the understanding that the operation is still on trial and that the remote results may not be of such a gratifying nature as has been the case with the immediate results in the majority of cases already reported. From a rational standpoint as a treatment for fibroids, it should replace the operation of removal of the appendages entirely. It should not, however, from our present light on the subject, ever be substituted for the certain hysterectomy, when in the opinion of an expert laparotomist the latter is reasonably sure of success.

The operation is not applicable to enormous interstitial fibroids (which draw the cervix high into the pelvis), in suppurating fibroids, or in fibroids complicated with diseased appendages.

TREATMENT OF STUMP IN ABDOMINAL HYSTERECTOMIES.

A subject is this, the discussion of which has been long and is not yet ended, a subject, however, which has been discussed with far more amiability than was formerly that other one, of how shall we treat the pedicle in ovariectomy. The question of whether the ovariectomy pedicle shall be intra- or extraperitoneally treated is no longer a mooted point in surgery. Two or three short years ago the question of treatment of hysterectomy pedicles seemed to be as definitely fixed on this one point, as does the ovariectomy pedicle seem to be to-day. At that time surgery demanded that the pedicle of a tumor, the tissue of which was uterine structure, should have an extraperitoneal fixation. To be sure, we were never quite satisfied with that not altogether inelegant and incongruous disposition of the hysterectomy stump. The points of distress were: its immovability, its displacement and its exposure. It seemed, however, inevitable that we should submit to these objections in order to obtain hemostasis. Baer, however, in his simple device of ligating the uterine arteries before they reach the uterus, has rendered the hysterectomy stump bloodless, so that it can now be dropped as safely, and as free from unnatural fixation, displacement and exposure as can the ovariectomy pedicle; or it can with perfect impunity be removed entirely. And with this decided advance, hysterectomy has reached the point where its sequela are as little dreaded as the operation itself, and the operation is as safe as is ovariectomy.

I believe that extraperitoneal fixation of the pedicle in hysterectomies as a routine practice is no longer justifiable. That extraperitoneal fixation may in rare cases be a justifiable procedure I will grant. I have already mentioned what I consider the objections are to extraperitoneal methods, viz., immovability of the pedicle, displacement of the pedicle and exposure of the pedicle to external infection. Byford's vaginal fixation overcomes the first two objections as well as any method of external fixation. But the inventor of that method after making a brilliant record with it, has discontinued it as a routine in favor of the intra-abdominal.

Senn's new cuff method which, while it keeps the substance of the pedicle in the pelvis, fixes it, though distantly, through the intervention of the cuff to the lower angle of the peritoneal wound, and exposes it through this tube of peritoneal tissue to possible surface or external infection. I am sure, notwithstanding its brilliant parentage, that it can never be generally adopted as a routine practice, that it will

appear in history as one of the curious methods, the outcome of the evolution strain for a perfect hysterectomy.

There are yet a few operators whom we have learned to respect profoundly, who still hold to the fixation of the pedicle in the lower end of the abdominal incision, who still employ elastic ligatures, *serre-nœud*, and the accompanying paraphernalia as a routine method of practice. With the results of such men's practice we can not find fault. Some of them are masters and therefore their results would be of the best, no matter what method they adopted. The question of the relative practicability and permanent effectiveness of any operation must be tested by the results obtained in the hands of the average surgeon. It is not enough that some immortal can make a brilliant record with his abdominal fixation. That he can accurately adopt and manufacture a pedicle the length necessary to obviate undue tension, displacement or bladder squeezing; that he can so treat his constricted stump that it will never become infected; that he can therefore prevent in every case, extension of suppuration to broad ligament sutures, and thus obviate interminable fistulous tracts; that he can prevent in every case, an ugly depressed abdominal scar; all of this is not enough. It is necessary that the operation of the future shall be one in which there is the minimum disturbance of normal relations between the organs of the pelvis and the remaining pedicle; in which there is the minimum loss of normal mobility in the remaining organs; in which the risk of secondary hemorrhage from pedicle or broad ligament is reduced to a minimum; in which the pedicle when once disposed of is out of reach of external infection as far as it is possible to get it, an operation which is practically finished when the abdominal incision is closed (instead of one which submits the patient and the physicians to an operative procedure which must last under the most favorable circumstances from ten to twenty days before the patient is finally severed from her tumor and detached from the mechanism of the surgeon); finally, the routine operation of the future must be one of minimum simplicity, easy of execution, and one which can be accomplished in the shortest time consistent with the above requisites.

Such an operation, I believe we have within our reach in employing the Baer method of ligating the blood supply of the cervix and lower portion of the uterus before it enters the tissue of that organ; in other words, ligation of the uterine artery and branches. After this simple procedure has been enacted, it matters little whether the stump is removed entirely, left buried, or projecting into the abdominal cavity.

KIDNEYS.

The failure to recognize obscure kidney diseases in patients before submitting them to a severe operation has been the cause of many avoidable deaths. We should not only recognize kidney difficulties in every case, but we should also know when a case is laboring under some form of kidney trouble, if that stage has been reached beyond which it is safe to proceed.

It is not enough that the urine in any given case is approximately of normal quantity; of approximate normal specific gravity; and that it gives negative results in tests for albumin and sugar. It is necessary to learn the history of the case, to estimate the

specific gravity in a twenty-four hour specimen, to ascertain the amount of urea for twenty-four hours, and to supplement this with a microscopic examination, thorough and complete. In diabetes we should not operate. In interstitial nephritis, when the disease is not far advanced, an operation may be risked with proper preparatory treatment. These latter cases are the very ones which from their great difficulty of diagnosis are often neglected and consequently disaster results.

The importance of this subject must be my excuse for entering into primary details. The following summarizes the signs of chronic interstitial nephritis: lowered specific gravity of urine; patient arising at night to void urine (when there are no bladder or urethral diseases to give rise to such a procedure); an enlarged heart with accentuated second sound, a tense pulse, and diminished urea. Albumin is frequently absent. The diagnosis is doubly sure when hyalin casts are formed.

I scrutinize all of my patients in all these points. If the foregoing state of affairs exists to a marked degree, I refuse to operate; if, however, with the above symptoms, I find a normal quantity of urine, which does not show a reduced specific gravity under 1010 to 1014, and where the amount of urea does not sink lower than six or seven grains to the ounce, and the patient is well preserved generally without advanced heart disease, I am confident that I can operate on them with safety, if I can secure proper preparation.

I prepare these patients by first placing them on an exclusive farinaceous diet, with milk and fruit, an indefinite number of days before the operation. A week or ten days before the operation she is put on a diuretic with instructions to drink large quantities of water. The object is to increase the daily quantity of urine to 60 to 100 ounces, in order to thoroughly flush the kidneys and rid the patient of dangerous accumulations. With 80 to 100 ounces of urine flowing for several days, with the patient living on a non-nitrogenous diet, with the urea in improved proportions, considering the diet, I feel safe to risk an operation.

Dr. Charles W. Purdy, who has had an enormous experience in watching the behavior of kidney diseases under operations, says in reference to chronic parenchymatous nephritis: "I see no reason why these cases, if unaccompanied with dropsy, may not be operated upon if carefully selected."

ABDOMINAL DRAINAGE.

There are now but faint and unimportant protests against the use of drainage in abdominal surgery when certain definite conditions exist. These protests are so few and so unimportant that the question of whether we should ever drain can no longer be considered mooted. The questions, how and when shall we drain, are points upon which there is still some discussion.

Drainage in abdominal surgery has definite indications to meet: 1, the removal of blood, the consequence of venous hemorrhage from points which have been the seat of adhesions; 2, the removal of fluids from ruptured cysts or from sponges, when the toilet of the operation has entirely failed to do so; 3, the removal of septic matter from the abdominal cavity.

The removal of blood from an abdominal cavity where there are numerous oozing surfaces is neces-

sary, because it is the safest and quickest method of stopping the hemorrhage. We all know that many women have bled to death into their own bellies after operations where extensive adhesions have been separated, which might have been saved if some form of drainage had been adopted which would have removed the fluid before it could accumulate. Constant removal of the blood leaves the bleeding surface dry, and coagulations form at the vessels' mouths. If the blood is allowed to remain, the coagulum is dissolved in the accumulated fluid and the hemorrhage continues.

It is necessary to have a drain which will remove all the fluids, blood and otherwise, from the abdominal cavity for two other reasons: 1, because this fluid produces peritoneal irritation even though it does not become septic. The patient will exhibit this by a rapid and weak pulse for several days, while the weak and partially paralyzed peritoneum is accomplishing the removal of the fluids by absorption. 2, this accumulated fluid is the richest culture medium in the world surrounded by one of the most perfect incubators, and is therefore liable to develop any pathogenic material which may have in any manner come in contact with it.

Thus one who does not employ drainage at all in abdominal surgery, must select carefully his cases, so carefully indeed that he would discard about all which most required his assistance, or he must expect an unnecessary mortality. If he enucleates tumors, he must have large extensive oozing surfaces. If he attempts to check every particle of that oozing by ligation, cauterizing or other means, before closing the abdomen, he will be obliged to expose every portion of it not only, but he must carefully and successfully manipulate every portion of these surfaces wherever located in the abdomen. As these surfaces are frequently intestinal, these delicate and resentful organs, too, must come in for their share of manipulation. Much time (time of inestimable value) has been wasted. One can never be certain that all bleeding points have been secured, the delicate intestines have received unnecessary manipulations which weaken their tonicity, and finally the abdomen must be closed with no absolute monitor or guard, and no means of relief, but secondary laparotomy, if intuition should indicate accumulating blood. So, too, the same arguments apply to spilling pus in the abdominal cavity, contents of cysts or *débris* from any source. Excessive exposure of peritoneal surfaces, excessive manipulating, excessive sponging, excessive washing, only, will accomplish its removal and we can not be quite sure that the peritoneum will consent or be able to take care of that which may occasionally be overlooked.

In my opinion, one should drain always where there has been separations of adhesions, the oozing from which is sufficient to accumulate in any perceptible quantity in the dependent portions of the peritoneal cavity by the time one is ready to close the abdominal incision, as indicated by exhausting a glass drainage tube which has been placed in the cavity for that purpose. One should drain also when accidentally or otherwise, contents of cysts have leaked or spilled into the abdominal cavity when there is any doubt of its complete removal. Finally, in my opinion, one should always drain after any operation has been performed which calls for extensive flushing of the abdomen.

On the other hand, I do not consider it necessary to drain, if a perfectly dry condition of the peritoneal cavity is obtained (and there is no source from which fluids can accumulate) even if there has been during the operation a removal of septic material. In other words, I have great faith in the resisting or antiseptic power of the peritoneum, so long as it is in its normal state of dryness. It is only when the peritoneum, in addition to its normal work, is put to the strain of caring for little puddles of culture media which a careless operator has neglected to provide means of removing from its folds, that I am afraid of peritoneal failure, septic development and disaster.

I believe that the glass drainage with the suction pump is the safest and most effectual drain and a form which is almost invariably applicable. It accomplishes promptly and definitely the removal of all fluids from the peritoneum as frequently as it may seem necessary, and in a manner so that their amount may be accurately estimated. While the gauze drain may be used with advantage in other cavities, I must protest against it as a routine drain for the peritoneal cavity. For bleeding surfaces following enucleation, except in extraordinary cases (such as I have seen but few times) it can not compare with glass drainage and the pump. When it is employed I can not but feel that it acts more as a tampon or a dam than as a drain. With it, there is no way of knowing accurately how much work it is accomplishing, or how much it is failing to accomplish, or how necessary its employment may have been.

The glass drain properly cared for never does harm, even if its use in any given case is afterward found to have been unnecessary. Fistulæ rarely follows its use, and when they occasionally do it is in desperate cases where an operation without it would have been impossible.

INTRA-ABDOMINAL SUTURES.

Silk is an ideal suture for intra-abdominal work, if it is properly sterilized before using, and if it never becomes infected after it has been placed. The fact that silk, if once infected wherever buried, will never cease giving trouble until it has been removed either by surgery or by the very suppurating processes which it maintains, makes it a questionable ligature under any circumstances in abdominal surgery. One may be quite positive that his aseptic sutures are buried in aseptic tissues. He can never be positive that some septic process may not reach those ligatures during convalescence, or long months or years after convalescence, a septic process which finds exit somewhere in a long fistulous canal and which would heal spontaneously after discharge if it were not for a non-absorbable septic foreign substance at its bottom. The same argument holds good in regard to any form of non-absorbable suture material as a buried suture.

If, on the other hand, an antiseptic absorbable ligature is buried in aseptic tissues (whose life is of sufficient length to effectually accomplish its mission) it disappears promptly and is soon out of the way of septic processes which by accident may reach its vicinity, or if it should become septic before absorption is completed, the completion of the absorption will eradicate what would otherwise become a fixed nidus of infection, and the normal reparative processes of the tissues would be left unhampered.

Catgut and kangaroo tendon are the two forms of absorbable sutures which have been most employed. Kangaroo tendon is scarce, difficult to prepare, and consequently expensive. I have not employed it and therefore can not practically discuss it. Catgut until quite recently has been looked upon with suspicion. Even when with great care it had been successfully sterilized, so that no cultures resulted in its test, it still formed a nidus for suppuration in otherwise practically aseptic tissues, because as was discovered later, of its possessing qualities of a superlative culture medium. Then it was necessary to render it not only aseptic, but to saturate its substance with a harmless antiseptic which would not affect the integrity of the suture or poison the tissues of the patient. In seeking such an antiseptic, it was also desirable that the antiseptic or the process of preparing the gut would increase the life of the suture. Experiments and practice have been able to demonstrate that catgut sterilized by heat and afterward treated by either chromic acid or methyl blue will remain antiseptic and also possess life of sufficient length for most ordinary intra-abdominal work.

If these two forms of suture, on continuous trial carry out the promise that they have already given we will possess an economical, antiseptic, absorbable ligature for buried and intra-abdominal work, which will with great certainty do away with one of our most annoying sequela in that line of work.

Thus, gentlemen, in the half hour allotted to me I have frankly presented my present surgical status. I am aware that this is but one "stock-taking" point in my career. I am aware that in one short year from now, much if not all of this may be old. I would mistake my audience, and certainly the progress of surgical gynecology, if I did not realize that points in my present declaration have already become ancient history to some of you. What was the truth in the light of our progress one year ago is not necessarily so now.

The progress of modern surgery is like the onward march of a mighty army. It waits for no one. The weak, the stragglers and the non-progressive are left behind. The strong, the alert, the industrious, help to swell the crowded ranks and each doing his particular work conscientiously insures a wholesome irresistible advance of the whole.

Therefore let us not straggle, although we may not be in at the ultimate triumph. If we can not fill commanding positions, let us at least do our best in the front of the ranks.

So in the ranks of surgery let us become idealists. But constantly compare our ideals with those of others that they may not deteriorate. Let us be enthusiastic, but temper our enthusiasm with tried facts. Let us have knowledge of the works of others, but prove that knowledge by personal experimental labor. Let us be industrious, but not at the expense of doing unjustifiable work. Finally, let us cultivate ambition, but a laudable ambition, which has for its object the development of our art to a science of transcendent heights of usefulness.

Physiology in the Public Schools.—The following letter was received by the principal of one of our schools the other day, from a parent whose daughter is a member of the class in physiology: "Dear Miss —, I don't want you to learn my daughter any more about her insides. It ain't decent and it turns her against her vitals. Respectfully, —."

ORIGINAL ARTICLES.

A METHOD OF SUPRAPUBIC HYSTERECTOMY
FOR GOOD OPERATORS AND BAD
FIBROIDS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOSEPH EASTMAN, M.D., LL.D.

LATE PROFESSOR OF ANATOMY, AND NOW PROFESSOR OF DISEASES OF WOMEN AND ABDOMINAL SURGERY IN THE CENTRAL COLLEGE OF PHYSICIANS AND SURGEONS, ETC., INDIANAPOLIS, IND.

The lines of sound surgical principles converge toward perfection of technique in operating and the ideal operation. The proximity to the ideality of an operation is in direct ratio to the simplicity of its technique and the results obtained. Ideal results in suprapubic hysterectomy are best secured by ideal operators with ideal surroundings, upon ideal patients with symmetrically formed pear-shaped tumors.

I serve notice, in this presence, on those engaged in discussing the technique of hysterectomy that they can not have the last word until their means and methods shall deal with fibroid tumors, regardless of their morphology or pathologic condition, nor until the average operator shall advise the removal of fibroids as unhesitatingly as he does an ovarian cyst.

Despite the efforts of some to name a distinct method of operating because a flap is made here, or a ligature placed there, the problems of suprapubic hysterectomy are rapidly nearing their solution. Those engaged in the work are divided into but two classes: 1, those who have been and are yet satisfied with forming a pedicle and fixing the same in the abdominal wound; and 2, those who are not satisfied that this method was the best that could be devised, and have been earnestly endeavoring to reach some method which shall disregard the morphology of tumor, of broad ligaments, and the location of uterine arteries.

Those workers who have been wedded to the *serre-nœud* in abdominal fixation method have not emphasized, as they should have done, the important fact that the *serre-nœud* is quite as much for the adjustment of tissues as to control hemorrhage. When the broad ligaments are properly tied off, the main source of hemorrhage (in an average case) is shut off. On the other hand, the teaching that the uterine artery can always be found in the broad ligaments and tied in a definite way, retards progress, and has in the past and will in the future be the means of sacrificing lives in the hands of beginners and those not familiar with the anomalies of arterial distributions, morphologic changes and pathologic conditions found in and about the fibroid uterus.

Anatomy, from the book of nature and not from the paper books, is the keystone of the arch upon which the principles of surgical progression shall ever rest, and is nowhere more important than in hysterectomy. Some seven text-books which I have examined on anatomy, state that the spiral or curling branches given off from the uterine arteries really penetrate the tissues of the uterus including its cervix. With this idea of penetrating arteries, surgeons have many times ligated and severed a single uterine artery in different places because of its zigzag course at the side of the uterus, the operator thinking he had

secured a distinct vessel each time. I have peeled off the uterine arteries from the sides of the uterus leaving them in the pelvis of the woman, and cut off the cervix with little or no hemorrhage. This was for the purpose of proving how few ligatures could be used. It is well known to every gynecic surgeon that a nodular mass in a fibroid uterus can be peeled out of its capsule without ligating a single artery. What I have stated regarding the nourishment of the nodule by its network of capillaries and not by the penetration (for surgical purposes), holds true with reference to a uterus disorganized by fibroid tumor or tumors, no matter how large or how small—not only the fibroid uterus, but the normal uterus as well—not only the uterus but its entire cervix down to the external os. The uterine tissue may be penetrated by small capillaries, but I am convinced that it is not penetrated by arteries worth considering (as such) surgically.

This anatomic fact being established, the operator



FIGURE 1.—Fifteen pound tumor growing from anterior cervix.

who favors leaving an extraperitoneal but intrapelvic wound, having temporarily clamped the broad ligaments, proceeds without fear of hemorrhage from the uterus or its neck, to peel off the anterior and posterior flaps, and enucleate as much or as little of the cervix as he desires, keeping between uterine artery and uterus. He who expects to use the *serre-nœud*, having secured the broad ligaments with their ovarian arteries, will also peel down the tissues around the cervix, if the same be large, until he reaches a point where it is smaller, to the end that the same may be raised up to the abdominal wound without undue tension on the pelvic tissues. So what has been done on anatomic lines is really of great advantage, whether we favor uniting our pelvic with our abdominal wound, using the *serre-nœud*, or whether we will leave an extraperitoneal but intrapelvic wound. On several occasions, when I have presented the subject of hysterectomy, operators have attempted to prove that a pedicle could be made and fixed in the abdomen in every case. Some have even gone so far as to say they would not attempt in any case to follow any other method. I have shown tumors and photographs of cases where it seemed to me that abdominal fixation of the pedicle would have been very difficult if not impossible. Some three times in

¹ Dr. Etheridge, of Chicago, cuts a slab off the sides of the uterus before clamping broad ligaments.

the past year I have been able to remove a fibroid uterus with malignant degeneration of the endometrium, extending well out into the vagina. I will report one of the cases:

Mrs. H., aged 51, was referred by Drs. Murry and Baird, of Albany, Ind., the former believing that for several years the patient had had her pelvis and lower abdomen filled with a fibroid tumor; the latter, by vaginal examination, diagnosing cancer of the cervix and endometrium. Both were correct in their diagnoses. The operation was made in the following manner: an incision made through the vaginal mucosa, was carried around the cervix, extending a half inch from any malignant ulceration. Iodoform gauze was packed into this incision. The abdomen was then opened and the tumor (nearly as large as the human head) was lifted out of the abdomen. The broad ligaments were seized



FIGURE 2.

and temporarily clamped as shown with these forceps. Having peeled down the broad ligaments and made anterior and posterior flaps, we then secured the broad ligaments with strong kangaroo tendons, cutting away the forceps. Then passing my staff up the vagina behind the cervix, with this gouge we soon found our way posteriorly down on to the staff and continued our enucleation right and left, (leaving anterior surface near bladder to the last) until the entire mass had been lifted out of the pelvis. We then brought the serous lining of the pelvis over the stumps of the broad ligament, and packing some gauze down into the vagina, we made complete sero-serous approximation of the entire pelvic wound. The patient made a very satisfactory recovery.

I report this case in part, naming the attending physicians, to the end that I may at least be credited with one operation where abdominal fixation with the *serre-neud* could not be considered, and where leaving a piece of the cervix would have rendered the operation positively useless. I have found a number of such cases. If other operators have not, a time will come, if they get cases enough, when they will.

I would submit the following propositions for discussion:

1. There are cases where total extirpation is the only operation possible.
2. Ventral and pelvic extraperitoneal fixation being the only two methods worthy of consideration in average cases, which can be done in the least time.
3. Which operation gives us the greatest immunity from sepsis; (a), in abdominal wound; (b), in pelvic wound.
4. And here let me add, it will require the lapse of time and personal observation in a large number of cases before I shall reach my final conclusions.

Does ventral fixation give us the greatest amount of assurance against vaginal prolapsus, cystocele and rectocele? In pelvic fixation I have been bringing the stumps of the broad ligaments well down, stitching them to the vagina, with a view of holding that tube up as one's suspenders hold up their trousers; but I repeat, sufficient time has not elapsed, nor have I been able to observe a sufficient number of cases, only a little over two hundred, to convince me that the remaining pelvic organs will have sufficient sup-

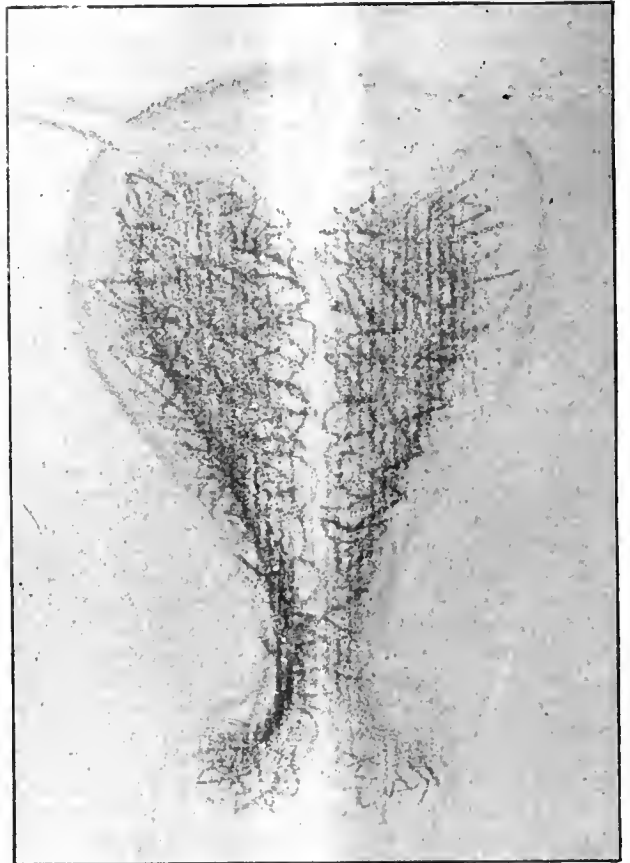


FIGURE 3.

port with this fixation. So far as my observations have led me to judge, where an atom of cervix is left, vaginal prolapsus is greater than where it is totally removed and vagina stitched to ligaments; the piece of cervix seems to push down, rather than act as a keystone to hold up. I can indorse no method as being better than another, until time, which proves all things and reveals the future with unerring certainty, shall have enabled me to make observation in a large number of cases where hysterectomy has been made both supra- and infrapubic, proving the merits and demerits of different methods.

Hysterectomy will always demand the highest surgical skill. The head to plan and meet the surprises which spring on us during an operation; the eye to see quickly the exact constriction of every ligature and adjustment of every suture; the thinking brain and facile finger, the two coöperating, and backed by an indomitable will to speedily and skillfully perfect the adjustment of the last suture with the same precision as the first, demand a combination of qualifications found only in the natural-born surgeon—the *master in the work*.

² I do not favor beginning in the vagina. It is very difficult to make it aseptic.

TECHNIQUE OF NEW METHOD OF ABDOMINAL HYSTERECTOMY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY N. SENN, M.D., PH.D., LL.D.
CHICAGO.

The dangers attending the abdominal removal of the myomatous uterus are shock, hemorrhage, functional injury to important organs near the uterus, and infection. The operation that I am about to describe to you has in view, as far as can be done by an improvement of technique, the removal of these sources of danger.

As you all know, in abdominal operations the exposure of the organs to unnecessary handling and the loss of heat they sustain are most potent agents in the production of shock; hence in the removal of myofibroma of the uterus, the abdominal cavity should be exposed for as short a time as possible. It is therefore the particular aim of this operation to secure access to the myomatous uterus in as short a time as possible and with as little exposure of the abdominal organs; hence, after opening the abdomen in the median line in the usual manner, tying off the broad ligaments on both sides by two sutures, the uterus is brought well forward into the wound and then on a level with the section through the broad ligaments, the peritoneum is divided from one side to the other, and the flap is reflected and sewed to the parietal peritoneum, when the opposite side of the uterus is dealt with in a similar manner. In making such a peritoneal cuff it is absolutely necessary to cut only through the peritoneum, and not through the large subperitoneal vessels in order to prevent hemorrhage. In making the cuff, the dissecting forceps is an exceedingly useful instrument; the process of deperitonization can be carried on readily by the use of the hand or a blunt instrument. As soon as the cuff has been sewed to the lower angle of the wound, the balance of the abdominal incision is closed; we then have the uterus with the tumor or tumors outside of the peritoneum.

I call this an extra-peritoneal operation. Rendering the uterus extra-peritoneal is a matter, in the majority of cases, of only a few minutes, when the balance of the operation can be performed at leisure. The later steps of the operation are not attended by immediate causes which expose the patient to the risks of shock. Having closed the balance of the wound, the uterus is then amputated at the desired point. Usually in cases of single or multiple myofibroma, the cervix is intact. If the cervix is affected the entire uterus can be removed. For the purpose of preventing hemorrhage during the amputation of the uterus, I then proceed to ligate the uterine arteries on each side, which is done by applying an indirect ligature. It is unnecessary to take time in isolating the uterine arteries; we can ligate and tie them very accurately with needle armed with medium-sized silk ligature. The amputation is then made by making an incision obliquely so as to make a cone of the stump of the uterus and a corresponding depression of the parts left behind. Very little hemorrhage attends this part of the operation, provided the arteries have been tied on both sides; at any rate, no additional ligatures are ever required.

After the uterus has been removed, I then excise the mucous membrane of the uterine canal and close

the wound with a row of absorbable sutures, chromicized catgut. For the purpose of arresting parenchymatous oozing the cut surfaces are then closely united by two additional rows of buried sutures; there is no need of elastic constriction, and nothing to induce subsequent necrosis of tissue. We leave the wound in a condition compatible for healing with primary union. If hemorrhage occurs at any time, the amputated cervix remains accessible for twenty-four or forty-eight hours. You perceive that so far the object we have in view is to expose the peritoneal cavity and its contents as short a time as possible, to control hemorrhage systematically and to prevent functional injury to organs near the uterus—the bladder, ureters and intestines. The organ is simply removed sub-peritoneally, leaving behind a peritoneal cuff. If the operator is sufficiently careful to resort to the necessary antiseptic precautions, the only source of infection during the operation will be the hands, the instruments, the sponge. There is no possibility of post-operative infection of the peritoneal cavity. The wound is usually two or three inches in length; its floor is packed with iodoform gauze, and two secondary sutures are at once inserted. Twenty-four or forty-eight hours later the gauze is removed. Usually a little parenchymatous oozing takes place, sufficient to saturate the inner part of the dressings. The wound is then closed. There is at no time any tension upon the stump. If infection should occur after the operation, it is limited to the wound outside of the peritoneal cavity.

Some of you may raise an objection to leaving so much of the abdominal incision unsutured immediately after the operation and may entertain the unfounded idea that ventral hernia will follow; but if you remember what you observe almost daily, that an aseptic granulating wound, when coaptated by suturing, heals as readily and as promptly as a recent wound, you will see that there can be no objection to the temporary packing of the lower angle of the wound until the time has elapsed that we no longer need to fear the two greatest dangers of laparo-hysterectomy—hemorrhage and infection.

Now, in bringing this new operative procedure to the attention of the profession the crucial test must be furnished by its results. Of thirty-three or thirty-five laparo-hysterectomies in unselected cases, not only every one of the patients recovered, but I have failed to observe in a single instance any untoward results. I believe, therefore, the Section will excuse me in pressing the merits of this method in dealing with such a formidable condition as myofibroma of the uterus; and, at any rate, I ask for this operative procedure a fair trial at your hands.

Insecticide for Tree-pests.—The year 1895 has been marked in some parts of the United States with an unusual prevalence of insects destructive to trees. The *Pharmaceutical Era* offers the following combination, which physicians may be glad to use now or put away for use next spring:

Corrosive sublimate	gm. 32.
Soft soap	litres 4,100.
Alcohol or wood spirit.	cc. 500.
Water, q. s.	

Dissolve the corrosive sublimate in the alcohol or spirit and stir it into the soft soap, add water enough to make a stiff paint and apply to the base of tree with a brush. This is the best remedy against the borers of the apple and also for the woolly louse.

THE PRESENT STATUS OF THE ELECTRICAL TREATMENT OF FIBROIDS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-Sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. LAPHORN SMITH, B.A., M.D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; FELLOW OF THE AMERICAN GYNECOLOGICAL SOCIETY; PRESIDENT OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

MONTREAL, CANADA.

At the full flow of the tide of the most successful surgery the world has ever known, one must possess a good deal of courage of his convictions to rise in the presence of such a distinguished audience as this, to ever discuss, far less to advocate the treatment of tumors, even the most benign, by any other method than the surgeon's knife.

Appearing on the program of this meeting, surrounded as this paper and its author are, by papers and surgeons advocating every kind of surgical treatment, from tying the uterine arteries to removing nearly all the pelvic contents, my position is a peculiarly difficult one; the more especially as I have been trained as a surgeon and now occupy a position as surgeon in several hospitals where I am often compelled by circumstances to treat fibroids by surgical procedures.

It is only fair that I should say at the outset that I did not choose this topic for my discourse; it was assigned to me by our esteemed chairman, who, in order to preserve the high reputation for impartiality which has been possessed to an eminent degree by the chairmen of this Section of the Association in the past, no doubt wished that justice should be done to all methods of treatment at present employed. So strong is my own personal taste for surgery, especially of the abdomen, that I might have been tempted to disobey the chairman's command but for one reason, which was that as I reflected upon my work during the past seven years there passed before me the images of some fifty women whom I had treated for fibroids by electricity. First, as they appeared when I saw them with faces anxious with pain and blanched with hemorrhage, and then after their pain had been relieved and their bleeding had been stopped by galvanism and their cheeks had resumed a rosy hue, these fifty women's faces encourage me to do justice, though the heavens may fall, to the treatment which has cured them.

Then there pass before me the dying faces of ten women who were treated by total extirpation, at two of which operations I was the executioner; at six of which I was first or second assistant, and at two of which I was only a spectator.

True the majority of the ten operations were performed in the pre-antiseptic days, though by a great master in this department of our art; but four of them were performed within the last few years under the most rigorous aseptic precautions by men who have a low mortality in general for abdominal surgery.

The memory of these fifty women who have been cured by electricity, many of whom I could find, if required, and many of whom to this day stop me in the street to thank me and it for their rosy cheeks; and the memory of those ten women who are now no more, all tell me that I would be a traitor to the cause of truth if I remained silent, not only out of season, but in the very hour when it most needed to be spoken.

True, I can quiet my conscience when circumstances compel me to operate, by the reflection that one woman died while under electrical treatment, not through electricity but through an error of diagnosis for mistaking a tense impacted liquid tumor for a fibroid, which would not have been made if the abdomen had been opened, or, in other words, if the treatment had been surgical instead of electrical. This is the one and only case in which as far as my experience goes, I have ever had to seriously regret the use of electricity.

I can still further soothe my conscience when I am compelled to operate, by remembering that I have operated on ten women, seven by abdominal hysterectomy, treating the stump by leaving it transfixed at the lower angle of the incision; and on three by removal of the appendages, tying the ovarian arteries low down; and several others treated in the latter manner, at which I was first assistant, all of whom recovered and are now in good health.

When I visit the City of Brotherly Love where the surgeons have declared war to the knife upon the electrode, I am often placed in an awkward predicament. When I tell my friend, Dr. Joseph Price, that I am going to spend a few hours at the electrical clinic with Dr. Massey, he is surprised that a man of my intelligence can waste his time in such fiddle-faddling nonsense, and it is useless for me to assure him that I can show him many women in Canada, from Manitoba in the west to New Brunswick in the east, who are pictures of health, and who have been cured by electricity.

On the other hand, when I tell my friend, Dr. Massey, that I am going to spend the morning with Dr. Joseph Price, extirpating fibroids, he looks with pity on my bloodthirsty taste and misguided energy.

In vain I tell him life is too short to treat all my fibroid cases by such means.

In this somewhat peculiar position which I occupy, I have one consolation, and that is or at least I hope that it will be so, that the conclusions which I shall presently lay before you, are those of one who is entirely unbiased and non-partisan, and are consequently to be accepted as far as they go, in good faith.

My own opinion on the present status of electricity in the treatment of fibroids is fully made up, and I shall now endeavor to lay it plainly and honestly before you.

During the last year especially, although it has been growing gradually for several years, the conclusion has become evident that electricity is not suitable for every kind of case nor for every kind of doctor.

But it is as true to-day, as it ever was, that for the cure of pain in, and bleeding from, the uterus, the application of the positive pole of the galvanic current properly applied and of sufficient strength to the uterine mucous membrane, is in the majority of cases effective. The percentage of successes is greatest in those cases in which the fibroid growth is interstitial; not quite so great in the cases of submucous growths, although in several of these cases a few applications have been followed by the expulsion of the tumor from the uterine cavity. The earlier the cases come under treatment the more surely they are cured; many patients with small interstitial tumors in the anterior wall having been completely cured by me, and still more under the care of others. So that

the plea for the early treatment of fibroid tumors by electricity is quite as just a one as is the early plea for operative treatment. Indeed, it is even more so. For while we can truthfully say that the electrical treatment, when undertaken early and with a correct diagnosis is at the present day entirely devoid of danger, no one can truthfully say the same of the treatment by operation. In fact, I am sorry to say that no one knows what is the death rate of the latter treatment. Three of the ten deaths which I have above mentioned have never been reported, and six of them were only reported at my urgent solicitation.

May there not be many other similar cases? When a woman comes to a doctor for menorrhagia and he discovers a small fibroid, is he to urge her to submit to an operation, when he knows with the greatest skill and care she runs the risk of dying from the operation, and if left alone, the death rate is more than 1 per cent., while with electrical treatment the risk is absolutely nothing?

When she tells me that she will not submit to an operation, shall I assure her that I can do nothing for her, when I carry in my pocket the record of fifty similar or worse cases which have been cured by electricity? Surely, that were dishonest. And yet the temptation to operate, in spite of the danger of surgical and the safety of electrical treatment is very great, too great in some cases for us to resist.

Ours is a busy life, and there is not one of us here who has not often felt that life was far too short to accomplish all the good that we would wish to do, and for the want of a few more hours in the day, much work of value to our fellow beings must go undone. With this feeling strong within us, a poor woman applies at the out-patient department of our hospital with a small interstitial fibroid which has, however, doubled or trebled the bleeding surface of the uterine mucous membrane. We believe that we could cure her by a long and tedious course of treatment with electricity, from ten to fifty applications; if there are no facilities at the hospital, then at our office. If at the hospital, the time required for this case would seriously encroach upon the time allotted to our service there; if at an office there is the same, as well as other objections. And when we have made the sacrifice and cured the woman, what is the reward? Perhaps, but not always, the woman's thanks. Our own feeling of having done well, surely. But when we turn to our brethren, whose esteem is and should be the greatest incentive that we can look for, to good work well and conscientiously performed, what do they say? We have no fresh and bleeding tumor to take to the medical society, (as an Indian waves a white man's scalp), before our admiring brethren as a trophy of our prowess and our skill. I have shown the women over and over again; I have shown their clothing which had to be taken in, as much as seven inches, owing to the decrease in size; the women themselves have offered to state on oath that their bleeding had been arrested, their pain removed, and their general health improved. How were these triumphs of therapeutic skill received? With loud applause, you will say. No, indeed. The praise bestowed upon the exhibitor of even an apparently healthy appendix, the removal of which was followed by the death of the patient, is wild in its enthusiasm, when compared with the manner in which is received the report of a case of cure by electricity. Indeed, a sincere friend and admirer in our society warned me

privately that my reputation was injured every time I showed a woman who had been cured by this means, and he urged me to show no more. But I must continue to cure them by that means as far as my time limit and life limit will allow.

How different when we report an operation, whether the patient lives or dies. Everybody seems pleased and praises us in proportion to the danger to which our patient has been exposed. But if she dies there are two at least who must regret that it was performed: the patient and the doctor; and sometimes there are the husband and the little children to be thought about. But how much easier to take the patient into the hospital and in a few days perform hysterectomy which we can do in a quarter of an hour sometimes. It is, as the French say, "*un mauvais quart d'heure*," but it is soon over and the patient's fate is sealed for weal or woe when we have put in the stitch which closes the peritoneal cavity.

After that the house surgeon and nurses take care of her and an average of three minutes a day for the next twenty days is the very most she requires of us. But with the electrical treatment, what with getting the patient ready, carrying out the asepsis of the vagina, and adjusting the apparatus, I have spent as much as one hundred precious hours on a single fibroid case. But the ovaries remained and many of the women are now the happy mothers of children and others are happy wives, capable of having children, though childless.

I have lately asked several well-known men, men of the highest surgical reputation (you would be astonished if I mentioned their names) whether they had employed the electrical treatment with good results, and they have assured me that they had, although they have never reported them; and when I asked them what was the principal objection to it, they replied, in confidence, that it took too much of their time. And this I admit is a serious objection to it, but not an insurmountable one. There are two ways in which it may be surmounted; one is by having an assistant whose time is less precious than our own, who has been trained to carry out the treatment with accuracy and care when we prescribe it for the disease which our more experienced touch has diagnosed. And the other, is by having several rooms and a nurse to prepare the patient, including the antiseptic vaginal douche and by devoting two afternoons a week, and having these patients come only at that time as many as six treatments an hour might be administered.

Never before has it been so well demonstrated, as it is to-day, that by the division and subdivision of labor the workmen become more and more expert. It does not surprise me therefore that the best results of the electrical treatment of fibroids are obtained by such men as Apostoli and Massey, who employ this treatment alone. They both obtain results which neither I nor any other operating gynecologist can hope for. In every large city we should encourage some one man to establish an electro-therapeutic clinic, where our poor patients, at least, might obtain the benefit of his skill in electrical technique, after having obtained the benefit of our experienced diagnosis; in time, his reputation would reach the ears of the rich, and he would then have some substantial reward.

The present status of electricity is suffering as did the status of abdominal surgery a few years ago, because it has been tried by men without sufficient

experience, and has as a consequence been found wanting. The electrical treatment of fibroids requires knowledge of the pelvic contents as well as the electrician's knowledge of the power he is wielding.

I must trespass on your time yet a little more while I refer to two points. One, a claim which has recently been made by Apostoli for the electrical treatment, which I can hardly indorse; and the other an objection which has been made to it, which I can as heartily deny.

Apostoli has discovered that the very failures of electricity can be turned to advantage in the following manner: it has been found that in those cases where the electrical treatment has been badly borne and has been followed by febrile reaction, so that the patients have been turned over to the surgeon for operation, the presence of pus tubes and pelvic peritonitis has been discovered. Apostoli has pointed out that electricity may be employed as a diagnostic agent for the purpose of detecting diseased appendages.

A remarkable instance of this came under my notice a little over a year ago. A young woman who had been employed in a restaurant in a New England town, gradually lost her health, with pain and hemorrhage. She suffered agony with her periods which came too often and lasted long, so that her face was blanched and haggard. There was no difficulty about the diagnosis as the tumor was large, round, symmetrical, in the median line extending up to the umbilicus and could be easily seen and felt, bulging up the abdominal wall. Several physicians in the United States, her family physician in Montreal, as well as myself, all agreed that it was a fibroid. One of them had tried electricity several times, but always with bad results, and so did I. As she was laid up in bed for several days each time, I concluded that the appendages were diseased, and after three applications I decided to stop and to perform celiotomy. On opening the abdomen the tumor was at once seen surrounded by adherent intestines, but it still appeared a symmetrically pear-shaped fibroid. I could not, however, find the ovaries and tubes, and while digging around for them, I made a line of cleavage which being followed up I was able to dissect out of a portion of the tumor which proved to be a sausage-shaped pus tube; this was delivered intact, tied and cut off. Then followed a large cystic ovary; then the other tube which broke and inundated the field with pus, and then the other ovary, by which time the supposed fibroid was gone and only a moderate sized uterus remained. The pelvis was carefully washed out and drained, the patient made a rapid recovery and is now at work and enjoying perfect health. So that in this case Apostoli's dictum, that when the application of his method causes febrile reaction the tubes are badly diseased, was fully borne out.

Now the objection to electricity which has so often been made to it, especially by one of my most esteemed friends in Philadelphia, that it causes adhesions is not true. I maintain that one has no right to bring that charge: 1, if fibroids which have never been treated by electricity do have adhesions; and 2, if fibroids which have been treated by electricity can be proved not to have become adherent.

Now I am in a position to prove both of these facts. When in Baltimore I saw the abdomen opened for fibroid but it was so adherent to everything, intestine and abdominal walls, that the operator, one of the

ablest in the world, did not consider it possible even to get the ovaries out, and the abdomen was sewed up. Now this case, the most covered with adhesions I have ever seen, you will say had received many applications of electricity, and so I thought judging from these statements, must have been the case. But careful inquiry elicited the fact that she had never received a single application of electricity. But that is only negative evidence. Let us see about some positive evidence.

Three or four years ago I treated a lady, head mistress of a large public school a thousand miles away, for hemorrhage and pain, by means of intra-uterine positive galvanism. She had received one year's leave of absence from her important duties and the commissioners had advanced her one year's salary in order to regain her health, she being utterly incapacitated for work. You may imagine that she was peculiarly anxious to get well and therefore submitted to a very rigorous application of the treatment three times a week with great fortitude, as high as 200 milliampères being frequently given at a time. And this was not for one or a dozen applications but for fifty times. By this time the bleeding and pain were nearly, if not entirely arrested, and I advised her to complete the cure by a few months rest at her old home down by the sea in New Brunswick. This she did and came back to me in July with rosy cheeks and sparkling eyes. She and I would have been perfectly satisfied with the result, and I should have reported her among my cures, had it not been for one thing, and that was that she asked me the question: "Can you promise me that the awful hemorrhages will not return after I have gone to my far away home in the West?" This I could not answer her affirmatively.

Her next question was: "Is there any other treatment by which you can guarantee that result?" My reply was "yes, one only, and that is hysterectomy." Although the operation was not required by her then present condition, yet owing to her financial situation which would preclude her ever coming to Montreal again, at her urgent request I removed her uterus.

Now if the charges against electricity have a vestige of truth in them I must have found the tumor covered with adhesions; in fact, the tumor and appendages must have been one agglutinated mass requiring some hours of patient toil to detach them, and for this I was prepared. But what was my astonishment, on opening the abdomen and screwing a cork-screw into the tumor to be able to lift it out smooth and shining as the top of a bald man's head; the transfixing of it with pins and circling it with the serre-nœud was the work of a few moments and in a minute more the tumor was off. She ran her 5 or 10 per cent. of risk of death safely and made a splendid recovery and was at the head of her school once more on September 1.

One such case carries more weight than a thousand assertions that electricity causes adhesions.

But I can duplicate it. A young lady who is now a trusted nurse in a New York hospital came to me the first year I used this treatment, for hemorrhage and pressure symptoms caused by a large fibroid. She improved so much that I decided that she ought to go home by the time she had received fifty applications. But after the last application she began to flow before the time, and I asked her to wait until it stopped. It lasted seventeen days, a steady little

stream of dark red blood. I became momentarily discouraged and advised operation which was accepted, but I handed her over to a more experienced operator than I was, at that time. I assisted at the operation and the tumor came out without the slightest difficulty, and was removed in the same way as the case mentioned above. I examined it most carefully and the only trace of an adhesion to be found was a spot about the size of a silver 5 cent piece, where the tumor had rubbed upon the brim of the pelvis on the right side and where she often complained of pain before coming to me. But there was not a sign of adhesion in the track of the electric current nor anywhere else except this one spot. The hemorrhage was due to a tiny opening in a sinus by the end of the electrode.

I dislike electricity, personally, because it takes up my precious time, but I want it to get fair play and not be blamed for sins that are not its own.

There is one charge, however, which was frequently brought against the electrical treatment of fibroids or rather against a method of applying it, in the past, and which was well deserved but no longer applicable, because no longer employed. I refer to the method of galvanic puncture.

The greatest claim for the electrical treatment of fibroids that can be made is that it has no mortality, that it is absolutely safe. If it is not safer than any other treatment, or, in fact, unless it is absolutely free from danger there remains only one advantage in its favor, namely, the saving of the ovaries. But galvanic puncture no matter how performed, whether by the vagina or through the abdominal wall, must ever be a procedure fraught with danger and is to-day practically abandoned. If any one still uses it, in the cause of electrical treatment of fibroids, I beseech him to use it no more. The positive pole of the galvanic current gently introduced into the uterus will accomplish our object by unseen but no less certain means. It dries up the juicy, bleeding mucous membrane and by its tonic action upon the muscular tissue through which must pass the vessels carrying nourishment to the tumor, its blood supply is cut off just as surely as though we tied the ovarian arteries which supply the body of the uterus. The action of the electric current as applied to fibroids is three-fold. The first is not mysterious; it is but the arrest of circulation in dilated capillaries by an electric-chemic cautery. The second is no more difficult to understand than the action of ergot or strychnin; it not only tones up the vasomotor system making the caliber of the arteries less, but it calls into play the special and remarkable power which the uterus possesses of controlling its own circulation when it has the strength to contract. The third effect of the current, its electrolytic action is, I admit, as mysterious as it has ever been, but not more so than the invariable absorption of syphilitic gummatous deposits following the administration of iodid of potassium. Whether what we call electrolysis means the actual breaking up of an organic tissue into inorganic atoms, or whether it means, as seems more likely to me, that the growth deprived of its blood supply undergoes fatty degeneration and is partly eaten up by phagocytosis, stimulated to greater activity by the trophic nerves; no one with a large experience with this subtle fluid can deny that a uterus infiltrated with and enlarged by the deposit of fibrous tissue, whether localized in the form of fibroids

or diffused as in areolar hyperplasia, so that the sound will enter four or five inches, will invariably diminish in depth by means of electrical treatment.

Then again, what is the enormously enlarged uterus after delivery but a bleeding myoma? Does it not stop bleeding when the arteries which supply it with blood are squeezed by its contracting walls? Does it not rapidly get smaller when, for the want of blood and exercise, that immense mass of tissue silently undergoes fatty degeneration and returns to the blood from whence it came?

Wonderful and almost incredible as the total disappearance of a fibroid or myoma may seem to some, it is no more mysterious than this wonderful process of nature which we call involution. Have those who doubt and even worse, deny the power of electricity to work a change in fibroids, never reduced the size and weight of a uterus which nature had failed to involute? Has Emmett never reduced its size by repairing a lacerated cervix? Have Churchill and Athill and ten thousand others with honored names never reduced the quantity of tissue in the uterus by the application of iodine? Have not a hundred thousand others ever reduced the weight of blood and muscle and areolar tissue in the heavy uterus by means of glycerin and hot water and other therapeutic measures?

Then why in the name of reason and justice, will you deny that an agent which we can see blanching tissues before our eyes, and making muscles of every kind of contact, why will you deny, I say, that it can diminish the blood supply to, and favor the fatty degeneration and absorption of, the fibrous or myomatous uterus?

The electrical treatment of fibroids, reduced to the above simple equation and stripped of all the extravagant claims which were at first made for it, stands to-day upon a foundation so strong and true, that it will find an honorable place in the treatment of fibroids as long as women shall dread to die by the surgeon's knife, which I believe will be as long as the world shall last.

LIGATION OF THE BROAD LIGAMENTS FOR UTERINE FIBRO-MYOMATA—REPORT OF TWO CASES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The various forms of treatment and the varied surgical operations for the removal of fibroid tumors of the uterus has, in the past decade, been one of the most prolific subject of discussion in medical circles and the end is not yet.

Abdominal hysterectomy—supravaginal amputation, with or without the clamp, or extirpation through the vagina by morcellation, each have their advocates; while other operators of note advise women with uterine fibroids which are giving no special distress to leave them alone.

A certain proportion of uterine myo-fibromas produce symptoms which necessitate some operative procedure for their relief. Often the distress is occasioned by the association of a pus tube or an ovarian abscess, the diseased appendages, not the tumor, being the cause of pain and ill health. Should an

operator in such a case do a total extirpation? The operation done must fit the case and its varying conditions. If there be double tubo-ovarian disease, it would seem wise to remove the uterus and both appendages, whatever the age of the woman, for a uterus without either tube or ovary is a useless organ. Its removal will not lengthen the operation or add to its dangers in the least.

If, however, the woman be young and only the appendages on one side be diseased, the question is pertinent, Shall we do a total extirpation if anything can be done to cause the fibroid to absorb? If this can be accomplished the woman is left essentially in as perfect a state as though she had never lost the appendages of one side. It can not be denied that woman was created with these organs for a purpose, and if not diseased they are essential to the most perfect state of health during her menstrual life, even if she bears no children.

If the woman be under 38 to 40 years of age, if the uterine fibroid can be absorbed and her uterus returned to its normal size and functions, and if one set of healthy appendages can be saved, it must be apparent to the most radical, as well as to the conservative, that it is the desideratum to be desired. It is truly conservative, it is just to the patient.

Shall we subject every woman who has a fibroid to total extirpation, even if she has no other symptoms than discomfort from the presence of the tumor? I believe that every fibroid tumor of any appreciable size should be dealt with surgically, either to cause its absorption or to remove it *in toto*. Fibroid tumors have been said to be benign. I have seen malignant degeneration in three fibroids, and in conversation with other operators of experience have learned that they too have frequently seen malignant disease develop in uterine fibro-myomata.

Several years ago Gottschalk proposed to cause the absorption of uterine fibroids by ligating the broad ligaments, thus cutting off a part of the blood supply and so modifying the nutrition of the tumor as to produce this result.

Dr. Franklin H. Martin, of Chicago, was the first in this country to carry out the suggestion, and it was by the reports of his successful results that I was led, a few months ago, to try it upon a young woman who would not consent to an hysterectomy, but who would let me do any operation which did not involve entering the abdominal cavity.

The original limits of the proposed operation were that the broad ligament should be tied through the vagina. I have three times tied them through the vagina, and twice while I had the abdomen open for the removal of other diseased structures than the fibroid. In one of the cases in which I tied the ligaments in the abdomen, I should have removed the tumor, because the woman was at the age of the climacteric, had I not been desirous of observing its effect in that particular case.

The results have been so satisfactory that it may be of interest to listen to a brief history of these five cases:

Case 1.—Miss McC., American, age 25, single, virgin, entered the Buffalo Woman's Hospital Sept. 23, 1894. The patient was anemic, having had almost constant uterine hemorrhage for fifteen months. She had hemic murmurs. The fundus of the fibroid uterus extended two inches above the umbilicus. Examination of its cavity revealed no submucous growths. On Sept. 27 the base of the broad ligament, including the uterine artery, was tied through the vagina.

The cervix was first incised as in vaginal hysterectomy, except that the incision was carried backward far enough only to sever the lateral utero-vaginal junction, and at the same time not open into Douglas' pouch. Then pushing back the bladder and the ureters from the front of the cervix, the base of the broad ligament was easily reached and the whole mass ligated. The line of incision was then closed by a continuous catgut suture. The uterus was noticed in two days to have decreased in size and especially in hardness, having a boggy feeling on palpation. She was discharged on the eighteenth day after operation, the fundus of the uterus being easily felt just above the pubic symphysis. An interesting, and at the time a very annoying incident of her history after operation was the high temperature which developed without any apparent assignable cause. On the second day the temperature went to 101 degrees and the pulse rose correspondingly. There was no evidence of peritonitis, no fetid discharge, no pus from the incision; everything was negative. Careful exploration of the chest revealed no bronchitis or pneumonia. The temperature continued to rise and on the fifth day was at 104 degrees and the pulse 120. From this time it continued to fall and reached normal on the tenth day.

I have since seen the patient. She is hearty, full blooded and robust. The uterus is natural in size and her menstruation is normal in every respect.

Case 2.—Mrs. A., American, age 33, married fourteen years, sterile, entered the Buffalo Woman's Hospital Sept. 26, 1894. She has a fibroid of the uterus extending to a point midway between the symphysis and the umbilicus. She gives a history of pelvic inflammation three years ago, followed by almost constant pain in the left inguinal region. She has noticed the existence of the fibroid for about five years, during which period her menstrual flow has been too profuse and often too frequent. Examination under an anesthesia disclose a large mass to the left of the uterus which is probably a tubo-ovarian abscess. September 30 made an abdominal section; removed the left tubo-ovarian abscess out of dense adhesions and tied the base of the broad ligament. Before she left the hospital the uterus was curetted for a persistent muco-purulent discharge. The patient went to her home on October 18, eighteen days after operation. At that time the uterus had decreased rapidly in size. It is now entirely normal but she menstruates more profusely than before her illness three years ago.

Case 3.—Mrs. G., American, age 48, married, had one child twenty-six years ago, was brought from a distance on a cot to the Buffalo Woman's Hospital Jan. 21, 1895. She is very anemic having flowed profusely for the past six months, and has a fibroid of the uterus extending above the level of the umbilicus, and an ovarian cyst on the left side which has pushed the fibroid over to the right. The patient's abdomen is about the size of a seven months pregnancy. February 5 the ovarian cyst was removed and the blood supply to the fibroid cut off by ligating the base of the broad ligament. The patient was discharged on March 9, the fundus of the uterus being easily felt above the pubic bone.

The further history is interesting and raises an important question. She has not menstruated since the operation and has continued to increase in flesh and strength. On April 20, she began to notice a fetid vaginal discharge which rapidly became more profuse. In a few days her appetite left her and she began to have chills and fever. Her physician communicated with me and I asked him to send her back to me at once. On April 26 she returned to the hospital with a pulse of 120, and a temperature of 103.8 degrees. On April 27, the following day, I dilated the cervix and removed from the inside of the uterus a sloughing sub-mucous fibroid the size of a hen's egg. In forty-eight hours the temperature and pulse were again normal and the patient ready to return to her home. The uterus had contracted to its normal size.

Case 4.—Mrs. S., American, age 38, married, one child 13 years old, entered the Buffalo Woman's Hospital Feb. 22, 1895. This patient had been having menorrhagia continuing about two weeks each month for the past six months. During the past six weeks the flow had been constant, at times very painful, necessitating tamponment. Examina-

tion under anesthesia shows an interstitial fibroid of the anterior uterine wall near the fundus, approximately the size of a hen's egg. The uterus was at once curetted and the broad ligament ligated through the vagina. The hemorrhage immediately ceased. On March 15 she was discharged, and menstruated again March 25 rather more profusely than she ought, duration eight days. In April her menstruation was still somewhat more profuse than normal for her. All traces, however, of the fibroid are gone and I doubt not that the next menstrual flow will be normal in amount and duration.

Case 5.—Mrs. B., aged 45, American, married 28 years, sterile, entered the Buffalo Woman's Hospital April 8, 1895, with an interstitial fibroid of the uterus reaching nearly to the ribs on the left side, and on the right side extending to the margins of the costal cartilages. One year ago she refused to allow an hysterectomy for its removal, as she suffered no pain, her menses were normal, and her general health was perfect. The discomfort occasioned by the size and weight of the tumor is her only cause of complaint. On April 10 I tied the broad ligaments through the vagina. The patient returned to her home twelve days after operation. The fundus of the uterus was then one inch above the level of the umbilicus. She also noticed its falling from side to side when turning in bed, owing to the decrease in its lateral diameters. I have not seen her since her return home, but on May 1, a mutual friend brought word from her to me that the tumor was still decreasing rapidly and that she was watching its departure with much satisfaction.

The results obtained in these five cases, even though they be only five, seem to prove that this operation is effective in causing absorption of the tumor. The course of Case No. 3, from whom I later removed the sloughing submucous growth, seems to raise the question whether this operation will cause their absorption or necrosis. There is need of further experimentation to determine whether this slough was caused by the deficient blood supply, or whether it was merely a coincidence. The uterus evidently had begun its efforts to extrude the mass, because the patient gave a history of pain antedating the fetid discharge, hence the uterus may have caused its necrosis by pressure as it often does.

Many operators will object to substitute this conservative operation for the more brilliant hysterectomy. A surgical operation should be done solely with a view to the best interests of the patient. Unfortunately too often the brilliancy of the operation, not the best interests of the patient, actuate the operator in his work. Fortunately, however, the real brilliancy of our work resides, not in that which brings forth the plaudits of those who frequent our operating rooms, but in the ultimate results of that work, upon which our patients and the public will surely pass judgment.

There is no more danger in this than in an Emmett's operation. If the tumor be large there is some difficulty in reaching the broad ligament, as the tumor is apt to lift out of the pelvis by its growth. Furthermore, fibroids occur more frequently in unmarried women, or sterile women, in whom the vagina is small, thus adding to the difficulties of the operation.

If as a result of this operation a uterine fibromyoma absorbs and the uterus returns to its normal size and functions, is it not better for the patient in its ultimate results than an hysterectomy? Especially is this to be desired if the woman be young, as was my first case. She may bear children if she marries.

This operation is not applicable to all fibroids. Very large hard tumors will not be benefited by it. Tumors which spread out broadly in the broad ligaments, displacing the uterine arteries upward, are not appropriate for it. Very large tumors are apt to rise

high in the pelvis making it difficult to get at the broad ligament, especially as fibroids so frequently occur in sterile women whose vaginas are narrow, thus adding to the difficulties of the operation.

The class of fibroids in which this operation will be found most effective is those of medium size, soft, bleeding tumors. The softer the tumor and the more hemorrhagic it is, the more liable is it to absorb after this operation.

There is merit in the operation in properly selected cases. It is conservative. It does not prevent more radical procedures later, if they be necessary.

DISCUSSION OF PAPERS OF DRS. EASTMAN, SENN, SMITH AND FREDERICK.

DR. GORDON, of Maine—I am very glad to see this Section of the Association alive to the subject of hysterectomy. Two years ago, in this Section, I read a paper entitled, "Hysterectomy without a Pedicle," and one or two years since I read before the American Gynecological Society another paper, in which I took the ground that in every case of fibroid of the uterus, where the woman consulted me for any trouble arising from it, I should perform hysterectomy. It was a bomb-shell in that Society, and my friend, Dr. Mundé, stayed over, it is said, to "wipe up the floor with Gordon." I am very happy to see that the majority of the men present do not join my friend in this attempt to wipe up the floor with me. I have steadily pursued the same course, and I stand to-day on precisely the same ground. If I have any patients coming to me with trouble arising from fibroids of the uterus, I unhesitatingly recommend hysterectomy and resort to it every time. I do it by a process which, I believe, is entirely my own. Every one has his own method. I do it by a continuous suture of catgut, and nothing else. I simply put a clamp under the tube and ovary, then an inch below the clamp, with a long curved needle threaded with catgut I tie as strongly as I can and cut between that and the clamp. I then cut and sew until I get down to the uterine artery on each side. I change sides and cut down to the uterine artery or near it; I then divide anteriorly and posteriorly the peritoneum and dissect it down, the best I can with my fingers and scalpel. I dip my needle down and loop the uterine artery, passing the needle through the loop, and then after it is drawn up I cut the uterine artery, and at that point beside the loop I make a knot with the free end of my catgut. I then dissect the entire cervix; I make a complete hysterectomy. When the uterus is out, I have then simply to pass forceps over and carry the suture along continuously. It is extraperitoneal, yet an intrapelvic operation. It covers the entire thing. I am not particular about closing the vaginal opening except to stop the hemorrhage and leave a small opening for drainage. With rare exceptions I close the opening with silk worm gut and put in no drainage. I believe drainage simply indicates that we have no confidence in our asepsis, consequently I do not use it. I do not say I never use it, but as a rule I do not.

DR. A. H. TUTTLE, Boston—I am glad to hear of the universal success of hysterectomy, as brought out by the different speakers; and although there are slight points of difference in the technique of various operators, still they all have the one object in view. Personally, I believe total extirpation—that is, removal of the cervix—is the proper thing. By removing the cervix we afford better drainage by the vagina. We can close the abdomen, and if there is any secondary hemorrhage or oozing it will leak out through the vagina without causing further trouble. I believe where we leave the cervix there is possible danger of subsequent changes of a carcinomatous nature; in other words, I am satisfied in many cases of fibroids that the ultimate result comes from degeneration of the fibroids in some malignant form. I have good reason to make that statement from cases I have seen.

In regard to the question of hemorrhage, I think where we do a total hysterectomy, the danger of secondary hemorrhage is less than where we resort to a partial hysterectomy, for the simple reason that as soon as the hemorrhage or oozing is detected from the vagina, we can prevent it from terminating fatally. One thing should be emphasized in the treatment of these fibroid cases, and that is with reference to making the first incision into the abdomen. In one case where I had a multilocular fibroid to deal with, as I cut down upon the peritoneum at a point above the umbilicus, I encountered difficulty in entering the peritoneum and opening the peri-

toneal cavity. I discovered the bladder was carried away up on this tumor; the uterus was back out of sight. Had I gone in at the usual point of incision I would have opened into the bladder itself. It was a warning to me and should be borne in mind when we are dealing with large masses. In removing the cervix we should insist upon closing off the uterus in some way, and although it has been shown that infection from the cervical canal is comparatively slight, still we should take no chances whatever from any source of infection. Rapidity of operation depends as much upon the operator himself as upon the technique.

DR. HOWARD A. KELLY, of Baltimore,—could not agree with the statement made by Dr. Gordon, and he sees no necessity for removing fibroid tumors which are doing no harm. He does not urge the operation unless the patient is in some way suffering from the presence of the tumor; that is, unless she has pain, or hemorrhage, or pressure symptoms. He regarded Dr. Senn's method of operating as a retrograde movement in our technique. Dr. Kelly then described the technique of the operation he usually performs in the removal of fibroid growths of the uterus, which has given very good results in his hands.

DR. HENRY O. MARCY, of Boston,—said he was in favor of treating the pedicle by the intraperitoneal method. When he first suggested this some years ago, it was looked upon as an ideal but not a practical suggestion. The evolution through which the operation of hysterectomy has recently passed is one of the marvels of modern surgery.

DR. I. S. STONE, of Washington,—said that in all of the cases coming under his observation where some benefit followed the use of strong galvanic applications there was ultimately a recurrence of the symptoms and growth. The technique described by Dr. Senn he thought worthy of serious consideration. After the removal of a fibroid of large size, there is always considerable shock, and by following the plan outlined by Dr. Senn, he thought the amount of this shock would be minimized.

DR. G. B. MASSEY, of Philadelphia,—said that in the hands of careful men electricity remains the most valuable agent at our command for the treatment of the hemorrhagic forms of tumor. The treatment must be persistent and long-continued. In growths of large size, the improvement following its use may be slow, and a radical surgical operation may be preferable. In one case coming under his observation, in which Dr. Martin had tied the broad ligaments through the vagina, the tumor decreased in size during the first six months and the hemorrhage was less severe, but after that there was a recurrence both of the size of the tumor and the hemorrhage. Under systematic electrical treatment the patient has since improved greatly.

DR. CHARLES P. NOBLE, of Philadelphia—agreed in the main with Dr. Gordon that when a fibroid gives rise to symptoms sufficiently severe to make a patient ill, it requires attention. It may not be necessary in every instance to perform hysterectomy. When they give rise to symptoms, however, it is best to remove them. During the past eighteen months he has seen five cases of fibroids which had undergone malignant degeneration, three of which were sarcomatous, and two were carcinomatous. He had not had good results with Martin's operation. Hysterectomy in his hands has proved less dangerous than ovariectomy. He did not think Dr. Senn accomplished anything by his operation. The method described by Dr. Kelly, and which was familiar to the members of the Section, would save at least twenty minutes in the performance of the operation. Dr. Noble believes that in a short time the general mortality of hysterectomy will be less than 3 per cent.

DR. J. M. BALDY, of Philadelphia—said that he would remove all fibroids that came under his care, because he never saw such a tumor that did not give rise to more or less trouble. An ovarian cyst would be removed as soon as discovered, symptoms or no symptoms, and so should a fibroid tumor, which can be removed as safely as ovarian cysts. As to ligation of the uterine arteries, it is a very plausible, very attractive procedure theoretically, and it is only applying to the uterine arteries what Mr. Tait does to the ovarian artery when he removes the appendages. He gets a shrinkage in his tumors by shutting off the arterial supply. The means of effecting a cure in the operations are precisely the same. Collateral circulation will sooner or later be set up, and the tumor again begin to grow. If the abdomen is opened and the uterine arteries ligated, the operator might as well include the removal of the uterus. The shock is no more, it does not add to the length of the operation, and with all due respect to Dr. Senn's fear of shock to the peritoneum he has none whatever. He rarely sees it. Mere exposure of the peritoneum

does not lead to shock. He was glad that no one had advocated complete extirpation, for he believes this operation would be difficult. Dr. Kelly's method in the hands of expert operators is a good one, but it is a dangerous method for beginners. Dr. Baldy did not believe that it is good practice to tear the tissues in performing hysterectomy; he prefers to ligate and then cut. He agreed with Dr. Kelly in considering Dr. Senn's method as a retrograde procedure.

DR. DUDLEY, of New York—said it was utterly impossible in five minutes to do justice in the way of discussion to the series of papers that have been read, covering as they did a large field in the removal of disease from a woman's pelvis. He said that all the various methods of operating, which were referred to by the different speakers, are applicable in proper cases. We must learn to apply the method to the case, and not the case to the method. A complete and radical operation is the most brilliant, and often the one most easily accomplished, but it is not always the best one for the patient.

DR. FREDERICK had done a good many hysterectomies during the last five months. He had tied the uterine arteries in five cases as a test, and the results were so uniformly successful and he was so well pleased with the method, that he thought he would trespass upon the time of the Section by reporting the cases, so that the members might have the benefit of his experience. In the hemorrhagic forms of tumor in virgins or in young women, by tying the uterine arteries the tumor is absorbed, the patient's uterus, tubes and ovaries are left, and if she marries she may bear children or may not. Whether she does or not, she has in her pelvis normal organs that are better there than an empty pelvis. It is the surgeon's duty to do what is best in his judgment and experience for the patient, and every operation, as Dr. Dudley had said, should be shaded according to the case, and not make the case come up to the standard.

DR. SENN said the members of the Section were not all Kellys and Baldys, and while the operation he had described was not intended for experts but for the average surgeon and gynecologist, he believes that even a Kelly or a Baldy could learn a lesson from the description of the operation. He had seen cases of myofibroma of the uterus—and so had Kelly and Baldy—where a complete hysterectomy, one of the most complicated of all surgical operations, was indicated and called for, and from which men old in experience shrank from undertaking such a task. The veteran Keith, after he had performed thirty-five laparo-hysterectomies, was candid enough to inform us that his courage began to fail him; that he was glad to grasp at more conservative measures, notwithstanding the unparalleled success he had attained at that time.

DR. EASTMAN considered the method described by Dr. Senn a step in advance, and said he was wise in presenting an operation which the average surgeon could perform, and that does not require the facilities that must be had in order to make the perfect operation which Kelly and others have described. He desired to place himself on record, as he did at the San Francisco meeting, to the effect that he had seen very many cases of gangrenous nodules, of fibroid tumors undergoing malignant degeneration, and a fibroid tumor of any size is dangerous.

THE SURGICAL TECHNIQUE OF ASEPTIC WOUNDS.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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BOSTON, MASS.

Notwithstanding the revolution already wrought in the technique of wound treatment, I must yet think that no subject more important or practical can be brought before the profession at the present.

Wound infection, in a general way, is fairly well understood, and those who have given special attention to the subject will, at least in a large degree, accept the opinion which I published some years since, that suppuration, supervening in a wound, deliberately made by the surgeon, through healthy integuments, indicates that there has been some avoidable error in its technique. If the conscientious surgeon

accepts this view as the standard by which to criticize his work, and earnestly seeks to determine the cause of the error, he will find a gradual elimination of much that is superfluous, as well as defective in detail. For the scientific skillful surgeon a bacteriologic training is almost a *sine qua non*, since only by such repeated investigations is he enabled to familiarize himself with the special characteristics of the infective material with which he has to deal.

The reparative processes, supervening in the well vitalized tissues of the healthy animal, non-infected by bacteria, are comparatively simple. The necrosis line following a clean incision may be limited to the injured cells, and only a microscopic layer of tissue is involved in the changes which ensue in the impeded surrounding circulation, local stasis, and exudation of lymph. Beyond the line of the exuded lymph which glues the two surfaces together, the changes are very limited, an infiltration of leucocytes and plasma cells supervene, connective tissue cells develop, and a permanent union of the structures is effected. Upon the cutaneous surface the epithelial cells interblend, and this process of healing, even in wounds of considerable size, may go on almost without constitutional disturbance, pain, or edema.

In wounds of important structures and of considerable extent, there is generally a prompt reaction, exhibited by a considerable, more or less, rise of temperature, which is explained probably by the reflex disturbance of the nervous centers. Within limit this may be regarded as a favorable reaction, since within twenty-four to thirty-six hours the temperature falls without serious constitutional disturbance. This must not, however, be confounded with the fever due to septic infection, which usually does not make its appearance until after the third day.

If, on the contrary, the divided structures are not brought into apposition, the space is filled with coagulated blood and serum, and the repair processes become far more complicated. The aseptic blood clot is penetrated by leucocytes and proliferation cells, and, little by little, an organized structure extends through the mass, the so-called healing by blood clot supervenes, which is to say that the regenerative processes, observed in the first instance, take place much more slowly, but effectually utilizing the aseptic blood clot by a metamorphosis of its material in part, and in part by absorption. If in addition to the blood clot we have introduced into the wound a bacterial infection, entirely another class of conditions supervene, dependent upon the character of the infective material. If the wounds are large with much effusion, owing to the development of the bacteria, the blood becomes rapidly decomposed and a large amount of chemic poisoning is produced, the so-called toxins which are absorbed causing a kind of septic intoxication, varying in degree, but which may speedily prove fatal.

In a paper of this limit it is possible to refer only with extreme brevity to the character of the microorganisms with which the surgeon has specially to deal. Fortunately there is less necessity for the description of these organisms than at an earlier period. The staphylococcus pyogenes aureus and albus and the streptococcus pyogenes are almost the only organisms which produce suppuration. The staphylococci in their development produce the typical local suppuration, while the streptococci possess the property of invading the tissues and are, as a consequent, often-

times eliminated with much greater difficulty, causing the acute forms of septicemia and pyemia. Other varieties of microorganisms not seldom develop in wounds, especially the putrefactive bacteria and although their organisms can not penetrate into, or reproduce in, the structures, the toxins which they produce may cause very serious constitutional disturbances. The developing cocci induce a rapid liquifaction of the albuminoids and thus break down the blood clot, and organizing lymph. Thus the toxic chemic material evolved in their growth may act as a local poisoning, devitalizing the surrounding structures, producing coagulation-necrosis. In the surrounding structures a complex process supervenes owing to this toxin infiltration, causing the so-called processes of inflammation, dwelt upon at great length by the earlier writers. There is much yet to be learned in reference to the changes which ensue about the infected wound structures, and from this standpoint the whole subject of wound inflammation needs to be rewritten.

The streptococci extend along the lymphatic vessels and lymph spaces and, when introduced into the blood, growing as they do in long chains, they have a tendency to form emboli in the smaller vessels, and thus set up new centers of suppuration at very considerable distances from their original seat of invasion. On the contrary, the staphylococci, developing locally are soon surrounded by a living wall of leucocytes, which impede the further dissemination of the invading enemy, and the contest goes on *in loco*, and the result of the battle will depend upon the vigor of the antagonists. Hence the practical importance, which must always be apparent, that the surgeon devitalize as little as possible the tissues in operative interference. It is indeed well known that it does not of necessity follow that a few microorganisms thus introduced will reproduce to the detriment of the individual; the superior vitality of the tissues may enable them to destroy their enemies *in loco*, and the processes of primary repair may go on uninterruptedly.

How a certain limited number of microorganisms can be destroyed in a wound, is a question of intense interest which can not be discussed here, beyond the fact that a phagocytic action of cells does supervene under certain favorable conditions and the bacteria fail of development. Of course, much depends upon the vitality of the surrounding structures and the non-presence of the proper pabulum or soil for bacterial growth. It is a fact that any considerable blood clot in the wound infected by developing bacteria prevents primary union.

Inferences of practical importance are clearly drawn from the above facts in regard to the manipulation of wounded structures. Let all incisions be cleanly made with a very sharp knife, avoid the still too common practice of seizing and holding considerable portions of tissue with compression-forceps for the arrest of hemorrhage. Protect the structures carefully from tearing in the separation of wounds, as, for example, in the use of retractors in laparotomy, and perhaps more important than all, be careful in the adjustment and coaptation of like structures when suturing in the closure of wounds.

It is no excuse, however, for careless surgery that bacteriologic demonstrations show that a few bacteria, even of the pathogenic varieties, when planted in healthy tissues, may fail to reproduce, although

this is the probable explanation why some of the so-called "clean surgery" well performed without rigid aseptic precautions is not rarely followed by primary union.

Just at present, the profession is undergoing a transition state by the more or less general acceptance of the influence and power, which certain chemie substances, the so-called toxins produce. Blood serum affected by these is believed, upon that which many accept as good authority, to possess an inhibitory power to prevent in some way the development of the bacteria within the organism. It seems very probable that this fluid in the healthy body is far more potent in the protection of the individual from the invasion of bacterial enemies than was earlier supposed.

The military student may well profit in his studies of defensive warfare from a careful investigation of the wondrous way which nature has in defending her outposts from the invasion of bacterial enemies.

The thoughtful investigator makes the inquiry, wherefrom come these invisible hordes which endanger the individual at every infraction of surface? The aerial ocean in which we live and of which we must ever breathe is, it is true, rarely without deleterious bacterial organisms, but by general consensus of opinion, based upon abundant demonstrative evidence, these organisms are much less potent for ill in surgery than was earlier believed, and it is not less certain that the all-invading bacteria, contaminating clothing not worn upon the person, and water as usually found in hydrant service contain less dangerous elements than was at first supposed.

It is due in large measure to the very valuable experimental researches, carried on in the bacteriologic department of the Johns Hopkins University, that we have the most important demonstration that the all-pervading source of the pyogenic bacteria is found in the dead and dying epithelial cells. Indeed, it appears that nature with a rare temerity has subjugated this all common enemy and drafted it into her service for the purpose of removing the no longer serviceable plates of the armor with which the organism is clothed and protected. Within certain limits these invisible agents are permitted to riot and with insatiable avidity seize upon every dying epithelial cell, the demarcation line existing in the cell whose inherent organic power is greater than that of the overlying enemy. Hence the surgeon finds at the very door the ever-lurking foe, and the problem of their destruction is of comparatively easy solution with the abundant agencies which are at his command. For the destruction or removal of the bacteria invading the skin, antiseptic measures are of the greatest advantage and even necessary. In their use we find the easy explanation of the seeming difficult question of the good results obtained from different methods. One operator cuts short the finger-nails, soaks and scrubs with hot water and soap, until by a process of maceration he has loosened and detached the infected epithelial cells, and stands out as the bold apostle of cleanliness, having demonstrated, as he thinks, that soap and water are sufficient.

Another repeats the experiments of the early great master, Mr. Lister, and declares that the maceration of the skin of the patient, for some hours, with a watery solution of carbolic acid, is ample. Thus the cleansing process has been varied by the use of many substances, to each of which has been ascribed the

protective power. To all this questioning and experience the laboratory investigation gives the one definite answer, By some means remove or destroy the loosened, worn-out, epidermal cells. The demonstration seems conclusive that the great enemy to all surgery, the hand of the operator, is best disinfected as first taught in Baltimore, by the use of solutions of permanganate of potash and oxalic acid.

If it be true, that permanganate of potash in solution does not color the living cell, and that all devitalized epidermal structures are invaded with pyogenic cocci, then the demonstration is ample, that the hands of few surgeons, relying only upon the ordinary processes of washing with soap and water, are likely to be surgically clean. These epidermal cells, however, may remain so adherent even after the processes of washing and scrubbing have been thoroughly practiced, that a prolonged operation may not cause their loosening and transplantation into the operative wound.

From these investigations we also have the knowledge of the more usual forms of contamination found in hospitals and the ordinary bed-chamber. Proliferating epithelium of the skin becomes disseminated and may prove a source of contamination through the infection of both the air and water. In this way instruments, sponges, and clothing are generally infected.

From the above it is easy to determine why the older forms of wound dressing were so invariably productive of suppuration; the bacterial development went on under the watery dressings and especially poultices, these proving hot-beds of infection.

The destruction of pathogenic bacteria during their period of rapid development is comparatively easy. Moderate changes of temperature affect their growth, and various chemie substances, even in weak solutions, produce their death, but those varieties which reproduce by spores are among the most resistant of living organisms. Exposure at the freezing point, immersion in boiling water for a considerable period often have little effect, but fortunately the surgeon very rarely has to deal with the spore-producing forms of bacteria. All the pyogenic cocci do not reproduce by spores; were it not for this fact it would seem almost hopeless to adopt methods of wound treatment which could successfully prevent the most fatal consequences, such as would follow were their common enemies of a type of which anthrax, tetanus, and tuberculosis may be cited as examples. But here also we find the knowledge of the life histories of these comparatively recent known enemies to mankind most valuable, since the spore producing bacteria are of much slower development which renders it easier for the wounded organism to resist their depredations. Comparatively weak solutions of bichlorid of mercury from 1 to 1000 or 2000 or a 2 to 5 per cent solution of carbolic acid are ample to destroy the pyogenic cocci, if the exposure is complete. These pus-forming agents, however, are quite completely protected by the fatty products of the sweat ducts, unless the watery solutions are for a very considerable period retained upon the skin. This is especially true of the mercuric solution, probably the most efficient antiseptic agent in general use, since the power of penetrating the epithelial cells is far less than that of carbolic acid. Hence in skin disinfection we note the importance of soap, alcohol, ether, turpentine, etc., as valuable adjuncts.

The only class of wounds which this occasion affords the opportunity for discussion is that in which the surgeon is enabled to operate through previously unbroken, undeveloped, superficial structures, and where the wounded parts can be brought into complete approximation. Theoretically under such conditions primary union must ensue, and where this fails from the occurrence of suppuration, as I stated in the beginning of this paper, there has been some fault in the technique. The rule prevails in the treatment of the structures after they have been submitted to surgical interference in precisely the same formula as tersely stated for the treatment of a simple fracture, *fixation, retention and rest*, and as in a simple fracture the wounded structures must be without septic infection.

This naturally leads to the discussion of the terms aseptic and antiseptic, used with confusion, without a correct appreciation as to their meaning, and perhaps it would be better if both terms were entirely discarded. The problem is to make and maintain a wound without infecting the structures involved. This surely should leave the parts *aseptic*, that is free from pyogenic organisms.

In order to do this, it is equally clear that the circumference of the wound, the instruments, sponges, suture material, and hands of the operator must be free from septic organisms. To effect this the various means at our disposal, by which we sterilize the materials in use may still be called *antiseptic*, the name first given to these processes by the great master of modern surgery. I have already entered into the discussion of the infective bacteria as much as the time at my disposal permits, sufficient indeed to point out their danger. Important practical deductions from this teaching are comparatively simple, but most definite in character, and, although there will probably remain yet an infinity of variation as to detail, the great fundamental principles of this class of wounds and their treatment may be considered settled. First, and most important is the disinfection of the skin of the patient and of the hands of the operator. It will be remembered that the cocci growing in the skin penetrate as deeply as the devitalizing processes of the epithelial cells; that the sebaceous and hair follicles are yet more deeply invaded, and that they are here protected from destruction to a certain extent by the glandular and fatty products.

It seems almost superfluous to refer to careful experiments, often repeated, which show that soap and water, applied with the minutest care fail to disinfect the glandular structure of the skin, and, if this is true, although these measures are of the greatest importance, the processes of so-called simple cleanliness are not sufficient. Therefore we must call to our aid some of the various antiseptic agents long since proved trustworthy. The first of these is carbolic acid, objectionable because of its irritating character. It is found, however, that this very irritation of the skin is owing to its penetrating power upon the epithelial cells, and the glandular structures. It has an affinity for oily products and easily impregnates fatty substances. In this respect it is much more efficient than even considerably strong solutions of corrosive sublimate, but in the glandular and hairy portions of the body even the 5 per cent. solution of carbolic acid must remain in contact for a considerable period to disinfect these portions. For this pur-

pose a 10 per cent. solution of oxalic acid is far more trustworthy. Cultivations made from the scrapings of the skin after having been treated carefully with oxalic acid solutions show the epithelial *débris* to be invariably sterile, even when the material to be tested is taken from the deep folds of the finger nails.

The use of the razor is important even where there is comparatively little hair to be removed. The repeated soaping of the parts softens and loosens the epithelium, which the scraping of the razor easily removes. To the soap, carbolic acid and bichlorid of mercury may be profitably added. If possible, these details should be carried out before etherization, because of the saving of time and the more thorough manipulation permitted when haste is not demanded.

Instruments are easily disinfected by heat, which is preferable to immersion in disinfectants, since the damage to the instruments is less than by a considerable period of immersion in antiseptics.

The preparations thus far completed, it now remains properly to protect and care for the patient in order that, during the operation, the surroundings of the parts to be operated upon may be also sterile. This is best effected by packing about with towels sterilized by heat, or by immersion in antiseptic fluids. I prefer the latter, towels wrung from a solution of 1 to 1000 of bichlorid of mercury, since they remain in position much better when wet than dry. It is also important to have on a table near the operator dishes containing solutions of bichlorid of mercury in which the instruments and hands may be occasionally dipped.

I use irrigation much less than formerly, but I am very sure I have seen no ill results from the so-called chemic irritation of warm solutions of corrosive sublimate, even in strength of 1 to 1000, and I am confident that much less damage to the injured parts ensues from it than from the irritation caused by frequent sponging. When the proper technique is faultless, it is very likely that sterilized water is of equal efficiency, but my experience teaches me that the damage from the so-called chemicals, if properly applied, has been greatly overestimated. To one who is an imperfect master of technique I can not question but that the use of weak antiseptics and hot irrigating fluids is of great value.

There can be no question but that marine sponges have been a common source of wound infection, and I do not wonder that operators, who can not first supervise details, have learned to rely on the gauze pad as a substitute, since these are easily sterilized by heat during the preparation for the operation. They are, however, far inferior in their absorptive power and a possible source of conveying lint into the wound.

It is very unwise to continue the use of sponges that have been used in septic wounds, but sponges carefully disinfected may be continued in repeated use with safety in aseptic wounds. Sponges should be thoroughly washed in cold water and after repeated washings with soap and water, I prefer soaking them several days in a 5 per cent. solution of carbolic acid, changing the acid two or three times. They are then put into a jar containing this solution and kept until required for use. This process is conveniently varied sometimes by carefully bleaching in an oxalic acid solution. They must, however, be carefully watched, for if kept too long in it the integrity of the sponge is impaired. If preferred, the sponges may be dried

in a muslin bag wrung from a 5 per cent. solution of carbolic acid and kept in a sterilized jar until required for use. They should then be put into a solution of 1 to 1000 bichlorid of mercury at the time of preparation for operation.

I consider it rather disadvantageous than otherwise to delay the operation by seizing every small bleeding vessel with compression forceps. Slight pressure will usually suffice and the tissues are far less devitalized than by the use of the forceps. This careful attention to the arrest of hemorrhage is also much less important, since the closure of the wound with buried sutures acts as a sufficient hemostasis. I seldom use ligatures except for the larger vessels, adjusting the sutures so as to include all special bleeding points.

Since the introduction of antiseptic surgery, little by little the treatment of the wound *per se* has been radically changed. The drainage tube is thought far less important, although unfortunately its use is still far too frequent. It is now judged wiser carefully to coapt the wounded surfaces and by some means hold them in fixed apposition. The still too common practice is, to effect this by the use of interrupted superficial skin sutures, and hold the adjacent parts firmly in place with compression bandages. These are supposed to consist of antiseptic dressings, applied in the form of pads to serve also the purpose of absorbing deleterious wound secretions.

Nearly twenty-five years have elapsed since I began my experimental studies upon the burying of animal sutures for the coaptation of wounded surfaces and fixation of the same at rest during the processes of repair. The results of these investigations are now very generally known, and the adoption of buried animal sutures gives promise of becoming universal. The catgut suture was the first employed and almost the only material used for some years, but a much better substitute is found in the tendon of animals, preferably that from the tail of the kangaroo. In the tendons of animals the ultimate fibers are disposed parallel to each other and in the processes of preparation the cement substance which holds them in apposition should remain unimpaired. In the connective-tissue sheath of the intestine of animals, the function of the parts demands that the fibers should be obliquely interlaced, and this sheath must of necessity be separated from the other coats of the intestine by the macerating processes dependent upon bacterial growths. When subdivided, these flat bands of connective tissue are not unlike oblique strips of the most delicately woven cloth which have been twisted into string and allowed to dry. When dry, it is comparatively firm and strong; when wet, elastic and yielding. The putrefactive processes of maceration have necessarily made it a hot-bed of bacterial growths which, beside being detrimental to its inherent properties, must necessarily be subjected to processes of disinfection. These may be satisfactory, but the resultant product does not furnish reliable material for buried sutures.

On the contrary, the tendon suture softens very slowly in watery solutions and does not swell and become yielding when buried in the structures. As a consequent, the knot, if used as a ligature, is as trustworthy as that of silk, and a tendon of the same weight and size is very much stronger. When properly chromicized, the tendon suture undergoes a very slow metamorphosis when buried in the living

tissues, and weeks after its insertion, the line of suturing is easily traced. It is speedily surrounded by leucocytes and plasma cells which, little by little, invade its structure. This imbedding material is slowly changed into connective tissue cells which replace in large measure the suture material itself, thus coaptating and holding in position the sundered structures by a living bond of a permanent character.

The importance and value of these resultant physiologic processes have, for some reason, never been duly estimated, especially in the restoration of certain portions of the body, as for example, in hernia, laparotomy and in the suturing of tendons; in fact, in any part, where undue strain is likely to supervene in the restored activities of the individual.

The application of the buried suture may be effected in various ways. Where, for instance, it is desirable to coapt and hold at rest all the sundered structures, especially if they are liable to be hemorrhagic, the double continuous suture is of great importance, double, so that the tissue may be equally and evenly included and the coaptation perfect. This is best taken with a stitch similar to that of the shoemaker in his hand-sewing with a double thread. It is my habit thus to suture the peritoneum, the aponeurotic structures in laparotomy, hernia, etc. A continuous suture has a distinct advantage over the interrupted, in that we reduce to the minimum the knots which from their undue size ever act more or less as irritants. A great advantage results from the even adjustment of the parts, since in continuous suturing the compression must be the same along the whole line of stitches.

In the application of buried sutures, it is of the first importance to remember that we do not use undue constricting force, since we are dealing with vitalized structures in which the circulation must not be unduly impaired. The same force applied to a buried suture as is to often, perhaps generally used, in the application of interrupted cutaneous sutures is very likely to be followed by a process of local necrosis, although the included tissues are aseptic.

For the coaptation of the majority of wounds, the single running suture is to be preferred, as in illustration, after the excision of the breast, the amputation of a limb, etc. I find these best applied by the use of the larger-sized, full-curved Hagedorn needles, carrying the suture deeply from side to side. In this way, coaptation is perfect, the suture is buried in undevitalized structures and crosses the wound only at right angles. It is surprising to note the apparent ease with which nature cares for numerous sutures applied in this way. They may be used freely, but should be minimized sufficient for the coaptation of the parts, adjusting, as far as possible, like structures. Such coaptation of the divided structures leaves no open spaces or pockets to fill with blood or serum, and being aseptic, the use of the drainage tube is worse than superfluous. It withdraws from the wounded surfaces the very exudates that nature furnishes for the purposes of repair; it leaves of necessity a wound open to the extent of the drainage material applied, leaving a route for the possible access of infective material. He who drains an aseptic wound where coaptation of the sundered structures is possible, does it invariably to the damage of his patient. Fortunately, this practice is lessened each succeeding year and the time is not far distant, when, under these conditions, drainage will be absolutely abandoned.

Aseptic wounds should be completely closed at the time of operation. Referring to the bacteriologic conditions of the epidermis, it will be readily noted, what are the advantages arising from the closure of the skin itself by a buried animal suture, which I have advocated for these reasons for many years. A sharp Hagedorn needle, armed with a fine tendon should be introduced from side to side of the incision, through the deeper layers of the skin only, parallel to its cut edges. Each stitch must be taken exactly opposite the emergence of the preceding one, the emergence of the last stitch being through the skin at a considerable distance from the extremity of the wound. When the distal ends of a suture thus taken are drawn upon, the coaptation is as perfect as the seam in a well-made garment, and nothing further is required in the way of dressings, except the application of the collodion seal, which is rendered still more effective by its reinforcement with a few fibers of absorbent cotton. An aseptic wound thus carefully treated, even to the major amputations is subsequently very nearly painless, the parts are not edematous, and the collodion dressing is loosened by the exfoliating epithelium in about ten days. The scar is minimized and is oftentimes scarcely perceptible. This fact alone is no slight desideratum, especially in the exposed portions of the body.

My own experience is now ample to emphasize this method of wound treatment which I, some years ago, first introduced to the profession. Step by step it was carried out, as the result of inductive reasoning on my part, reinforced by my experimental studies upon the lower animals. Happily these methods, which were at first critically considered, as belonging to ideal surgery, have been abundantly confirmed by the experience of many surgeons, and are now advocated as practical, yea even obligatory.

It takes rather longer to close a wound as described than by the methods still too commonly in practice. However, the work of the surgeon is finished when the patient leaves the operating table, and the subsequent nursing is minimized. Economy is subserved in the abolition of all clumsy dressings, while the danger of subsequent infection of the wound is absolutely prevented. The period of detention in bed is greatly lessened, perhaps in a large class of wounds altogether avoided, and the subsequent requisite care on the part of the surgeon and his assistants is minimized to a degree in striking contrast with that of ordinary hospital service.

REPORTS ON TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. E. WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

When I first publicly declared that "death is a wholly unnecessary consequence of typhoid fever, and that every case in which proper treatment is instituted sufficiently early in the course of the disease can be aborted," I stated also that "I fully appreciated the disgrace and ignominy which would await me" should I be found guilty of promulgating a false doctrine. I knew that I was speaking a language which would be utterly unintelligible to the greatest thinkers in the profession, and also that it would have been so to me, but for the *éclaircissement* of many years of experience. As it took so much evi-

dence to convince me, 1, that *any* case of typhoid fever could be aborted; 2, that *any severe* case could be aborted; and, finally, that *every* case could be aborted, and that death from the disease could be always averted; I can not understand how, without the most indisputable and undeniable proof, these claims can be admitted by any physician, who had been taught as I was in my youth, to regard typhoid fever as a "specific infection," possessed of some occult power of resistance to all curative treatment, which it was hopeless, if not flagitious, to attempt to counteract, and bestowing the title of "quack" upon any one making any pretension to having succeeded in so doing.

I shall, therefore, endeavor, in this report, to present the strongest available evidence, not only that the declaration is true, but, that which for want of a better name I have designated, antiseptic medicine, has a reserve power for good that I have not even mentioned; for this purpose, I wish to reproduce the verdict of a few of the many physicians who have treated by my method a large number of cases of typhoid fever; and also to note some of the most characteristic or otherwise interesting cases which I have treated since our last meeting.

Desiring to give every facility for the formation of a just estimate of the value of my statistics, I have invited the closest scrutiny of my cases of typhoid fever; have ever held myself in readiness to demonstrate the correctness of my theories in hospital or in private practice; at home or abroad; and I have requested the publication of any failure on my part to do all that I have been teaching the medical profession that it ought to do. I have also promised to present a "Report of Cases" before some great medical society each year, until a general assent has been given to the accuracy and truth of my theories, and death from typhoid fever is unknown; and when long-continued constitution-destroying sickness from the disease shall be regarded as a disgrace to the individual practitioner, and not, as at present, a reproach to the great body of the medical profession.

During the past year, as during the preceding thirteen years, I have had no death from typhoid, malarial or any continued fever, or following any pathologic condition which could by any possibility be mistaken for either of them, and I have failed in no instance in which the patient has come under my care before the eighth day of sickness, to abort the disease.

Since my return from San Francisco last July, I have treated, alone or in consultation, fifty-eight well-marked cases of typhoid fever. Of these cases some occurred in Youngstown, or the surrounding country or towns; some in Pennsylvania, some in northern Ohio and some in other States, and no doubt existed, in any instance, in the minds of the attending or consulting physicians, as to the correctness of the diagnoses. I have, during the same time, aborted the disease in a large number of cases of which no charts were preserved.

During this period, there have been reported to me, as treated by other physicians, acting under my advice, given orally, in consultation at the bedside, by letter or otherwise, about eight hundred cases of typhoid fever, with nine deaths; a marvelously good result when it is remembered that they were sailing on an unknown sea, with no pilot to steer the course; that they had unshipped the rudders, thrown over-

board the compasses and were endeavoring to weather, unaided, the fiercest storm that could ever strike the ship—having learned that all recognized methods of treating typhoid fever are so valueless that the cleverest men deny the possibility of doing what 117 physicians have done and are doing every day, viz., curing the disease;—they abandoned all of the procedures with which they were familiar, and with only a brief outline of my *modus operandi*, which must necessarily have proved a most insufficient guide; yet there were enough earnest and conscientious physicians, whose keen insight and mother-wit enabled them to follow these rather incomplete directions to a successful issue in so many typical cases of typhoid fever as to afford me conclusive evidence that the disease can invariably be aborted and every life saved; and which should also carry conviction to the mind of any intelligent physician who will carefully and impartially weigh these reports with my fuller treatises on the subject.

While neither these accounts nor my own observations have added anything to my knowledge of the power of this so-called "antiseptic medicine" to abort typhoid fever when the treatment is begun early in the course of the disease, they have served to convince me that in my original declaration, I did not place too high an estimate on its value. They have done more—they have strengthened in my mind the belief that even in late stages of uncomplicated typhoid fever it has power to eliminate all ordinary causes of death, save the accidents of hemorrhage and perforation; and to minimize the danger of their occurrence.

An analysis of the failures in a test of any given method is sometimes more instructive than an equal number of successes would be; and as that happens to be quite true in this instance, the following abstract of cases of typhoid fever, coming as they do from disinterested observers, may possess for this reason a higher import than would the report of a much larger number of universally successful cases from my own practice.

In one large hospital in which the observer held an honorable position under the Government of the United States, several exceedingly serious cases were aborted by the "Woodbridge method," but finally a death occurred, for which catastrophe I could find no excuse, until I discovered that the patient had taken at three hour intervals, the extremely minute dose which I had advised to be given every fifteen minutes.

An instance of the lack of that discernment so requisite to success in so difficult and delicate an undertaking, is well pictured in the following quotation taken from the epistle of an apparently conscientious, just and high-minded gentleman: "The patient had been sick several days; had a morbid appetite; complained of being 'so tired,' chilly, headache, etc., before consulting a physician. I gave him a simple laxative pill containing colocynth, podophyllin, aloes, etc., which had a tremendous effect, so much so that I had to interfere with remedies. His temperature rose to 104.5. I 'pushed' large doses of quinin upon him and for two days the fever stayed away, and he got up and walked about the place. This was against my orders and he was soon compelled to go to bed; real typhoid fever tongue; some tympanitis; high temperature. I began giving guaiacal and eucalyptol, as recommended by you, but mixed with bismuth. He was sponged freely and given 4

ozs. Walker's best whisky. He died that night at 11 o'clock."

The writer closes this eight-page account of his experiences with the "Woodbridge method" of treating typhoid fever with: "Now in this case your powder was not used. All your other suggestions were followed." Were they? The patient did not consult the doctor until he had been sick "several days," and he was then given a "simple laxative pill which produced a tremendous effect;" then "large doses of quinin were 'pushed' for two days"—and finally he was given two of the ingredients of my formulas, but not those which to his patient were a veritable "*sine qua non*," i.e., "the play of Hamlet with Hamlet omitted."

Thus in these illustrations one can easily see that not only were the minutiae of my instructions unmistakably disregarded and neglected, but the chief essentials were likewise overlooked to such an extent that neither these deaths nor others occurring under like circumstances should be charged to the "Woodbridge treatment."

Dr. W. T. Dodge, of Michigan, has written me several letters which I consider most valuable contributions to current medical literature, and which I am unfortunately prevented from giving in full, by want of space in the JOURNAL. He says: "I have seen three fatal cases this year, but none of them were uncomplicated cases, though I suppose none of them would have died had it not been for the typhoid element. One case was admitted to the hospital in the second week, as near as we could ascertain. He said he had been sick two weeks; and he had a temperature of 104.5 degrees when admitted. We gave him your formula No. 1, until free catharsis was produced; then the guaiacol and eucalyptol combination in gradually increasing dosage, until he took 5 m. of guaiacol and 10 m. of eucalyptol every two hours. His temperature came down in a few days to nearly normal, but he had severe diarrhea, and pain in the abdomen; became wildly delirious; then comatose, and died about ten days after admission. An autopsy revealed a great many ulcerated Peyer's patches, and a general enteritis as well.

"The next fatal case was also admitted in the second or third week. It was impossible to learn just how long he had been sick. He also had pneumonia when admitted and in the course of a week succumbed to the two diseases. Autopsy showed ulcerated Peyer's patches in abundance. He was given the same treatment as the other case, in the same manner, with addition of appropriate medication for the pneumonic complication. The third case I saw in consultation and was in the private practice of Dr. B. The young man had been sick two weeks, when Dr. B. was called, and had been starved and treated by a 'quack' who 'starves fevers.' He was much reduced and had a hemorrhage the day Dr. B. was called. I have had five other cases that have recovered. Two of them were aborted in the proper sense of the term, and in three, where the treatment was begun about the tenth day, I am satisfied that the course of the disease was modified for the better. I have never before attended cases of equal severity that passed through the disease in so short a time and made so nice a convalescence as did these three cases.

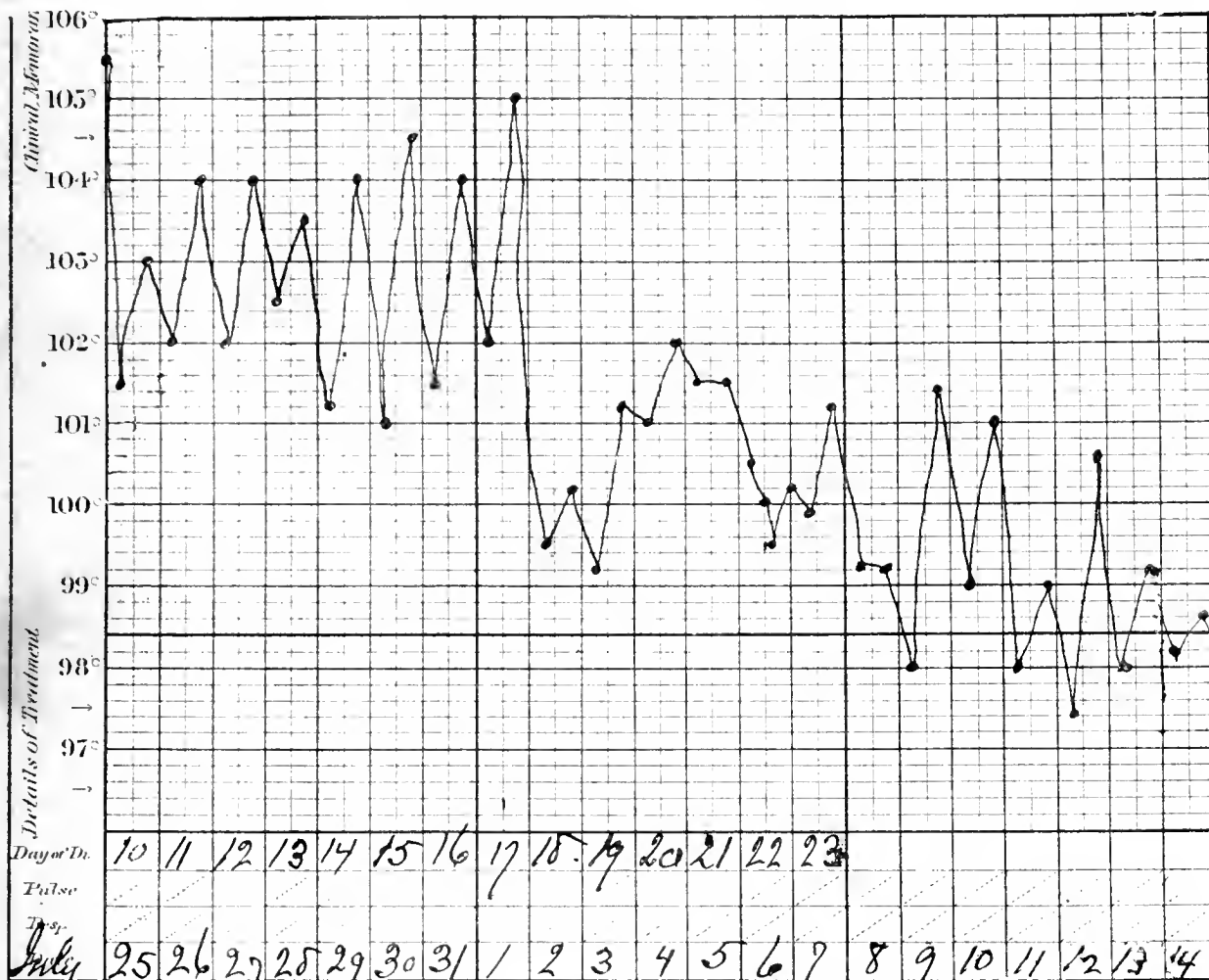
"Two cases (and they were the only two in which I was able to begin the treatment during the first week of illness) were certainly aborted. One of them lived in a neighboring town. I visited him first one

evening, and found that he had been sick four days and had a temperature of 103 degrees. I gave him four grains of quinin, to be taken during twelve hours. The next night he had a temperature of 103.5. I placed him on the powder in half hour doses for twenty-four hours, then 3 minim doses of guaiacol and 6 minim doses of eucalyptol every three hours. I did not see him for forty-eight hours, when he had a temperature of 100 degrees. I did not see him at all after that, but he continued the guaiacol and eucalyptol mixtures steadily and a week later he came to my office, when he had a temperature of 100 or a little less; and had an abundant rose eruption over the abdomen. I ordered him to continue the

this position. I have, however, great faith in the treatment when it can be begun early; even in the second week I think it will generally very favorably modify the course of the disease."

An extract from another letter from Dr. Dodge, dated April 27, 1895, is as follows: "All of the cases of uncomplicated typhoid fever that I have treated in this manner recovered in a much shorter time than such cases have ever done with me before. The two hospital cases that died were complicated, the one with pneumonia and the other with severe enteritis, as the autopsy disclosed.

"The fatal case that I saw in consultation with Dr. B., properly should not be included in your list, as he



Dr. Udell's Case No. 1.—Iva M., age 14 years. Date of admission, July 25, 1894. Treatment: gave alteratives and quinin during first part of sickness; began Formula No. 1 on the tenth day of disease.

mixture as long as he had any fever and I have not seen him since. The other case simply had fever that did not yield to quinin, but was aborted speedily by your treatment. Some might deny this case being one of typhoid fever, as there were no pathognomonic symptoms, but at any rate she had some kind of fever, attended with diarrhea and epistaxis. Quinin had no effect on the temperature, even in large doses, and the fever disappeared two days after the guaiacol mixture was begun. I think the system may be so impoverished by the toxins absorbed in the blood, that no treatment will avail to save the life of the patient, and the three fatal cases I have described may be considered as evidence supporting

had been 'starved' by a homeopath for two weeks and had a profuse hemorrhage from the bowels before Dr. B. was called. He died within forty-eight hours of the time I saw him, and there was no time to get him under the influence of your medicine. Our efforts were principally directed to stimulation and to try to get him out of the state of collapse. Incidentally your formulas were administered but without any idea that it was a fair case to try them in. I merely reported it to you as an instance of the terrible condition in which we sometimes receive these cases. I also rather wished to warn you to dwell upon the necessity of giving your treatment early in the course of the disease, which you have done in

later papers. I found some who thought from reading your articles that you claimed any case might be cured, no matter in what stage the treatment was begun. I was well aware that you had not claimed any such thing, but I desired to call your attention to the fact that some persons had drawn that inference."

Dr. C. N. Udell, of Iowa, wrote me on April 19, 1894, seeking for an outline of my treatment of typhoid fever. This letter was answered in its turn on July 3. On August 25 I received a letter from which I quote the following:

"The first trial was in Case No. 1, Iva M., aged 14 years. The inclosed chart will show you the range of the temperature. This was rather a grave case with bad hygienic surroundings and poor nursing. I did not begin the antiseptic treatment until she had been sick nine days. She made a good recovery, but the case ran some weeks and could not be called aborted.

"Case No. 2, Frank B., was sick when I was called and I then diagnosed typhoid fever. He had the usual prodromic symptoms—with all the phenomena of true typhoid following. I put him on your formula No. 1, and continued that most of the time. In one week he was about well.

"Case No. 3, Mrs. C., was employed as nurse for Case No. 1, in the latter part of her illness. She is now sick with typhoid fever in rather a mild form; yet unmistakably typhoid fever. I think from the present indications, she will run the course in about fourteen days. Treatment: formula No. 1 is given most of the time; No. 3 when the bowels are too loose.

"I have been using the same treatment in cholera infantum with good results. I have procured what is supposed to be pure guaiacol and eucalyptol, but find it difficult to give this to children, the taste is so horribly bad. Some children strangle badly on it even in small doses. I begin to fear impurity. I believe your theory is correct."

Dr. Udell sent me on March 22 another report of cases. He says: "I will give a brief report of a few cases, selected from among those treated with your abortive treatment for typhoid fever. In the management of these, as well as other cases, I relied almost wholly on your prescriptions Nos. 1 and 3, giving a diuretic occasionally when required; also an occasional dose of bromidia when the patient was too restless to sleep at night.

"Case No. 4, A. D., male, aged 42 years, suffered with all the prodromata of typhoid fever for six days without treatment, with the exception of some domestic remedy. I prescribed R. No. 1 for three days; No. 3 for four days; and No. 2 on fourth day. Patient discharged on seventh day, with No. 3 to be continued at intervals of four or five hours for a few days. No relapse. Highest temperature was 103.4. No delirium or eruption.

"Case No. 5, J. C., aged 18 years, taken just as Case No. 4 was, with feeling of weariness, lassitude, constant headache, fever, rigors, foul furred tongue, anorexia, slight nausea, nose-bleed; some diarrhea, tympanitis and tenderness over the abdomen. I was called after the patient had been sick one week, and found that he had taken some cathartic pills. Prescribed R. No. 1 for three days; No. 2 on the third day; No. 3 for one week when the young man began to do light work. No relapse.

"Case No. 6, W. C., aged 20 years (brother of Case

No. 5), with symptoms much the same, so he was treated the same as his brother. No further treatment after six days.

"Case No. 8, D. B., male, aged 21 years, brother to Case No. 7, and taken with the usual premonitory symptoms of typhoid fever. Had taken some cathartic pills on his own motion. I gave him Nos. 1 and 2, and then No. 3 for five days, and he was well, and able to begin light work on the farm. I let him eat anything and all he wanted.

"Case No. 12, Ellen B., female, aged 44 years. Had been sick three weeks with typhoid fever, under the care of another physician. The family and doctor were alarmed and were looking for perforation or fatal hemorrhage. I advised R. No. 1 every half hour for one day; then No. 3 every hour, unless the patient was resting well. Gave bromidia at night if the patient did not sleep. Improvement from the first dose of medicine. Patient sat up in bed on the fourth day of my treatment and was doing some of her own housework in two weeks. I insisted on this patient eating proper food regularly after the first week. Recovery complete. No relapse.

"Case No. 13, Ef. R., aged 23 years, was taken with chills, fever, headache, backache, dyspnea, nose-bleed, anorexia, very dark strong urine; a little blood passed from the bowel. Temperature soon ran to 104.4. Prescribed R. No. 1, with frequent alkaline sponge baths; and flushing the colon every day with an alkaline antiseptic wash. After two days, left R. No. 3, but the patient would not take enough to do any good. Gave very small doses of sugar of milk and was compelled to continue very small doses of No. 3. Patient was up and walked to the dining room on the fourteenth day. Took a relapse and was confined to her room for ten days longer. Continued R. No. 3 in small doses. Patient made a good recovery, but was somewhat fastidious about taking medicine; I could not call this an aborted case. Thus I have given a brief sketch of such cases as would be a fair sample of those treated with the 'Woodbridge method.' The cases I failed to render abortive were those who had endeavored to treat themselves for one or more weeks, or those in which my directions were not carried out according to orders. The one fatal case was doubtless beyond all earthly help when I was called."

On August 13, 1894, I replied to a letter of Dr. H. G. Chritzman of Pennsylvania, giving a detailed account of my method of treating typhoid fever. He wrote me December 20, a letter from which I extract the following: "I have had eighteen cases of typhoid fever this summer and fall. My last case was discharged, cured, last week. In none of these cases was there intestinal hemorrhage, except the first, which I reported to you; and none have died. The most of these cases were not wanting in virulency. I have charts of them and the number of days under treatment was from fifteen to twenty-four. I find also that many of my patients had the disease a week or more before coming under my care. I can not agree with you in reference to the question of giving solid food. Temperature under your method of treatment often becomes normal before the ulcers are healed; care therefore should be used in the administration of solid food. I believe a perfectly clean and normal tongue is the indication for solid food. I found that guaiacol exerts no disturbing influence on any organ except in a few cases; an irritable

stomach rejected it and those cases gave me a little trouble for a while. I believe your antiseptic treatment is the rational treatment for typhoid fever. Under its use the course of the disease is greatly modified; delirium is rare; tympanitis is prevented; the tongue remains moist through the illness; and the intestinal tract is placed in the best possible condition for the healing of the wounds. I am certainly thankful that I discovered your articles in the JOURNAL."

(To be continued.)

IS DIPHTHERIA DOOMED BY THE DISCOVERY OF ANTITOXIN?

Read before the Colorado State Medical Society, June 19, 1895.

BY F. E. WAXHAM, M.D.

EMERITUS PROFESSOR OF LARYNGOLOGY AND RHINOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.
DENVER, COLO.

Probably, with the exception of Koch's tuberculin, nothing has so interested and excited the civilized world as antitoxin, the new remedy for diphtheria. Like all other new advances and discoveries in medicine, it has its advocates who claim it as a specific when properly and timely used, also its enemies who decry its use and proclaim it a huge fraud; others again who admit the value of antitoxin but claim that its dangers more than offset its advantages; still again there are others, and among them Virchow, who acknowledge the dangers of the new remedy and yet claim that the lessened mortality under its use more than compensates for the dangers and risks of its employment. From all this conflicting testimony it is difficult to estimate its true value, but at present date the evidence is decidedly in its favor.

The opponents of antitoxin point to the anatomic lesions found in animals dying during immunization; the changes especially observed in the spleen, liver, kidneys and lymphatics, and also to certain symptoms obviously following the use of antitoxin, the most important being nephritis, skin eruptions, enlargement of lymphatic glands and occasional high and fluctuating temperature. They assert with much reason that antitoxin should prevent rather than produce these lesions and symptoms. They also deny the value of statistics and say that the lessened mortality is due to a lessened virulence of the epidemic at the time of observation rather than to any specific effect of antitoxin. The claim, therefore, that diphtheria is doomed by the discovery of this, one of the most remarkable remedial agents of the present century, can hardly be sustained. If diphtheria were doomed it should no longer exist in those centers of population where antitoxin and other means of controlling the disease are best known and most employed. Diphtheria should no longer exist in Berlin, Vienna and Paris, but on the contrary it is just as prevalent in these cities, although the fatalities may have been somewhat reduced, as before the discovery of antitoxin.

The three great scourges of the human race have been smallpox, tuberculosis and diphtheria; the greatest of all has been smallpox; whole countries time and again have been ravaged and decimated by this disease, and yet while we have an almost certain preventive in vaccination, the disease has never been stamped out. Its ravages have been greatly lessened and an untold amount of suffering and death prevented, and yet the disease still remains and will

continue as long as ignorance and superstition remain in the human breast. This being admittedly true of smallpox, with an almost unfailing and certain preventive, how much more true must it be of diphtheria, for which as yet we have no such panacea.

Antitoxin can in no way be compared to vaccination, for its effect is only temporary, lasting but a few weeks at most. Again, all cases of diphtheria are not applicable for treatment by antitoxin, and I submit that mild cases that would terminate favorably under ordinary treatment should not be subjected to the dangers of antitoxin treatment. Still, again, there are many cases, especially the mixed and septic cases, the most virulent and fatal, that are seemingly unaffected by this line of treatment.

Those who have followed closely the proceedings of the New York Academy of Medicine can not but be strongly prejudiced against antitoxin. Personally, I am convinced of the great value of this new remedy. I believe it is the best remedy that we possess in the treatment of a most dreaded disease, and yet I also believe that it has its limitations. Fancied security is often dangerous; to feel that diphtheria is doomed and that we have an unfailing remedy in antitoxin may lead us to overlook its dangers, to neglect sanitary measures, and to belittle other lines of treatment.

As cases at home are more interesting to us than cases reported at a distance, I beg to allude to the cases treated by antitoxin in Denver. These cases number twenty-one. Fourteen cases were treated by members of the antitoxin committee, appointed by the Arapahoe Medical Society, in conjunction with the attending physicians. Seven are reported to me by the Commissioner of Health, Dr. Munn, to whom I am under grateful obligation. Two cases were scarlatinal and should be excluded from the report, leaving nineteen cases, eighteen of which were proved to be true diphtheria by the bacteriologic examination, with three deaths.

The first death was in the case of an infant of nine months, suffering from surgical diphtheria following circumcision. Antitoxin was employed on the eighth day, and the patient died some five days later. The second case was an infant of seven months; antitoxin was used on the fifth day and the patient died one hour later. The third fatal case apparently recovered from the attack of diphtheria but died of pneumonia seven days after the introduction of the antitoxin. Whether the intercurrent pneumonia was due in any measure to the antitoxin treatment, I am unable to ascertain.

Admitting the value of antitoxin, believing in its efficacy as a most useful remedy, I would still assert that diphtheria is not yet doomed, but will still remain a most dreaded disease. Notwithstanding the new remedy, antitoxin, and its great value as a therapeutic agent, we will still have need of the most rigid sanitary precautions and preventive measures as isolation, disinfection and cleanliness. We shall still have need of all our resources, sanitary, medical and surgical.

One of the latest and most valuable contributions to the literature of antitoxin treatment of diphtheria has been written by Baginsky and Katz, of Berlin. After reporting a large number of cases treated, they conclude "that, while exerting a most favorable influence in the majority of the worst cases of diphtheria, yet antitoxin is by no means a cure all."

While expressing my conviction as to the great

value of antitoxin, while acknowledging the indebtedness of humanity, for the long and patient and scientific investigations which have resulted in the production of one of the most wonderful remedial agents of the nineteenth century, yet I submit that the affirmative side of this question remains to be proved, and that diphtheria, while it may be mitigated and its perils and fatalities lessened, will yet still exist and will still continue to claim its victims.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 204.)

A special report was presented by DR. ROBERT NEWMAN, ON CONSTANT CURRENT GENERATORS AND CONTROLLERS.

The attention of manufacturers has been called to the circular of the Standing Committee concerning primary stationary batteries. Some have even received two or three communications, but out of all notified, the Leclanche Battery Co., and Vetter were the only ones who have submitted their cells. But I have tested all which have come under my observation in other ways.

Some of the other battery companies have answered with the following results: Kidder Mfg. Co. says, "that we would be pleased to send you complete description of same—stationary battery—we fear their size would somewhat prevent their easy transportation." The primary batteries generating the current can be selected as to the wishes of the operator. The secondary batteries in preparation for test referred to Mr. Brown, of our committee.

Queen & Co., Philadelphia, March 20, 1894, that they "have nothing to submit for investigation." However, they advertise the Acme Portable Voltmeter, a new type for portable voltmeter for both alternating and direct current circuits. Why do they hold back the instrument if it is good?

The John L. Gish Ideal Rheostat Co., Jackson, Mich., March 25, 1894, that they have submitted their instruments to Dr. Herdman.

A portable alternating current-meter has been made by the General Electric Co.; it comes in 25 to 50 and 200 ampère sizes.

The result of batteries and cells investigated is as follows—Constant Current Batteries: Portable; Stationary.

The Vetter Dry Cell Portable Battery is a very complete one in itself, being nicely arranged and very convenient, having a milliampère meter attached and a rheostat. At first the battery worked very well and was thought to be a success—giving a soft even current—but after standing for a short time, on being tried, found scarcely any current at all. On a later trial found it to be in a much better condition. For a dry cell battery it is fair, but like them, can not be relied upon. If more electric power is needed, any number of wet cells may be added by attaching the extra cells to a wire on the case.

My assistant reports on the battery as follows: "The Vetter Dry Cell Battery I tested and found I could get just $\frac{1}{2}$ milliampère with the 30 measure and 50 milliampères with the 300 measure using a closed circuit of cord. I took the instrument to pieces and found six or seven cells badly corroded and so, of course, it would work but little. The machine has been carefully handled and I see no reason for finding the instrument in the condition I did, if it only corrodes on being short circuited, which it has not to my knowledge, I being the only one using it. However, that is the condition I find, and it needs some new cells."

The Vetter is a nice piece of workmanship and is complete as a portable battery, but my experience is that dry cells are not reliable and the worst of all are the dry chlorid of silver cells with which I have had my worst experience.

Dry Chlorid of Silver Cell. I had a 50 dry cell Chlorid of Silver Battery on which the pole P, marked as positive was, on investigation, found to be the negative; notwithstanding my protest, the manufacturers insisted they were right. At last the error was acknowledged in a communication, Nov.

16, 1891, and the battery came back from the factory in Baltimore—the P. altered into an N.

After a 50 dry cell galvanic battery had been put in thorough order in Baltimore, I left it standing as received and later on, in a trial, found it would give no current at all. The battery was sent back to the factory and the manager acknowledging the inactivity only said: "It must have been used on short circuit"—and no redress given. I never received the battery back and lost it. I consider there is no reliance in a dry cell chlorid of silver battery; the E. M. F. is small and insufficient for electrolysis.

Stationary Batteries: the Waite & Bartlett, cabinet, galvanic and faradic; 40 cells—Leclanche cells.

Run from November, 1888, for three years until the end of 1891, in perfect order. Was used every day, often for hours, but mostly with light current. After three years constant use the cells were only filled and somewhat overhauled. In November, 1893, after five years, the cells were thoroughly repaired and new zincs put in. The cabinet is very convenient, easily handled while sitting, has reverser, interrupter, resistance and faradic battery. Milliampère meter is attached on top of case. I consider this cabinet most convenient for my use.

The measurement of cells has been made and reported on last year by Dr. Herdman as chairman of this committee with such care and accuracy, that scarcely anything more or better can be added. My own experiments as far as I could pursue the same without the necessary facilities and laboratory confirm Dr. Herdman's measures, and the following is only reported here by order of the chairman of this committee, serving as a supplementary report.

Generating cells—axo cells. (Leclanche Battery Co.) I have now in use the axo cells made by the Leclanche Battery Co., 111 to 117 E. 131st Street, New York, in both my Providence and New York office, which has given entire satisfaction for medical work. The axo has all the advantages of a sealed cell. The flange of the cup closes the jar and prevents evaporation, so that, when once put up, with care the cells may run almost a year without any attention. At the same time there is sufficient room for the escape of gases through grooves in the sides of the carbon. The electromotor force is 1.60. The internal resistance is 1 ohm.

Closed circuit measurements of one cell through the Whitney volt meter and Whitney ampère meter.

Vole Cell. (Leclanche Battery Co.) Warner gage 36; voltage 1.52; ampérage 2.2.

Gonda Cell. (Leclanche Battery Co.) Warner gage 26.5; voltage 1.5; ampérage 1.95.

Sampson Cell. Warner gage 26.5; voltage 1.4; ampérage 4.

Law Cell. (Regular.) Warner gage 7.5; voltage 0.9; ampérage 2.9.

Mesco Dry Cell. Warner gage 17.5; voltage 1.4; ampérage 2.

Edison-Laland Cells. Providence, R. I., Feb. 1, 1894. Present, Newman and C. E. Bourn. Six large Edison cells for galvano-cautery. Room 68 degrees F., 9 o'clock, A.M., Weston A. M. meter.

Rheostat in, gave 4 ampères. Rheostat all out, full current and strength of battery $8\frac{3}{4}$ ampères. Rheostat in to one-half, 5 ampères. Rheostat in $3\frac{1}{2}$ ampères. Hence polarization. Jan. 18, 1894, 11 A.M. The same Edison cells—six—for galvano-cautery in series. Present, Mr. Hughes, C. E. Bourn and Newnman. Weston's voltmeter. 3 cells in front; 2.75 volts; 3 cells in back row 2.75 volts; 6 cells together 5.14 volts. Temperature of room 63 degrees F.

Edison Small Cells. 50 cells galvanic battery. 25 cells, 22 volts; 25 cells (other), 22 volts; 50 cells (all), 44 volts.

Feb. 1, 1894, 10 A.M., room 70 degrees F. Weston's A. M. meter; 50 cells, Edison galvanic battery, 1 ampère. 40 cells, low tension gravity cells. Weston's A. M. meter $\frac{1}{2}$ ampère. Jan. 18, 1894, Weston's voltmeter 33 volts.

The Wottin Transformer has to be investigated. Has been sent to Dr. Herdman. On an alternating current of 52 volts. It can be made for the Edison street current of 110 volts. They have no meter to measure. June 15, 1894. It heated all my platinum burners, some very heavy ones, made for testing more than for therapeutic use. It also heated well my galvano-cautery sound. It can be used nicely for illuminating. It will light two incandescent lamps, and at the same time run two fans or drills where the motors are suitable, and still supply the transformer.

Rheostat and Controllers, etc. The Vetter Rheostat is a very good instrument when weak currents are used. I have not found a better one. However, the disadvantages are, that at strong currents it may burn out; that on looking at it you never know if the rheostat is off or on. It must be

turned and an expert may get used to handling it, but it has no visible starting point and in a hurry you may deceive yourself, and give your patient a heavy shock, thinking the rheostat is all off when in reality it is turned on.

Willms' Current Controller. Has three patents, May 24, 1892, No. 475,529. The principle looks well, but it works irregularly; when it arrives at the last fourth and fifth pegs the current is suddenly interrupted and the needle of milliamperè meter goes back immediately to zero, patient feels a shock, third peg needle runs up again. On April 13 Mr. Brown witnessed the same experiment. Several other irregularities are in the instrument. The fault is, the rubber walks easy and thereby drives the brass pegs below the graphite, causing an immediate interruption of the current. Again, the apparent nicety of the graphite being covered is an objection, because if any corrosion takes place the injury to the instrument is covered up and can not be seen and the irregularity can not be adjusted.

The commendable point in the Willms' rheostat is, that the instrument has a starting point fixed, and increases the current gradually in its circular movement, so that looking at the dial the operator knows how much of the rheostat is in or out, or at least is expected to be.

The same observations about the Willms' rheostat have been made by Dr. W. S. Watson, Riverview House, Fishkill-on-the-Hudson, New York, in a letter to Kidder. It has also been demonstrated to Mr. R. G. Brown, Drs. Gish and Herdman.

I annex here suggestions for more uniform investigations by a manufacturer, which I think are worthy of a perusal. They have been sent me by Mr. T. F. Livingston.

SUGGESTIONS FOR INVESTIGATIONS SENT BY A MANUFACTURER.

As to the electrical test for the cell necessary for therapeutic work, allow me to offer the following suggestions, which would prove, I believe, quite valuable in the matter of test:

The Society should note the extreme distance apart the electrodes are placed, and approximate the resistance, and note this as maximum resistance.

Assuming how close the poles are brought together, noting same as minimum resistance.

Averaging a point between the extremes as mean resistance.

Placing this mean amount of resistance in the series when the cells are tested.

Assuming the greatest number of hours per day, some part of which may be consumed by electric applications; noting this as maximum hours.

Assuming the least number of hours per day, some part of which may be consumed by applications, noting this as minimum hours.

Averaging the number of hours between the extremes as mean number of hours.

Thus you would have the average number of hours of the twenty-four, to close the cells through the resistance as noted above.

Again, taking the greatest length of time for one application, noting this as minimum time of application.

Averaging a point between the extremes as mean time of application. This is the unit of time of application expressed in minutes. You would then have the average number of minutes, of each hour of the twenty-four hours, to close and open the circuit, together with average resistance, thus placing cells in a condition similar to actual applications; calling upon cells to perform work, then allowing cells to recuperate.

REPORT ON SECONDARY BATTERIES

was presented by MR. R. G. BROWN, E.E.

On February 1, a personal letter inclosing a copy of the circular issued by this Association was sent to manufacturers and dealers in storage batteries, calling their special attention to this subject as outlined on page 5 of the circular. The letter was virtually an invitation to send in a sample battery for examination and test and included such information and data as was thought would be of assistance to the party addressed in the arranging of a suitable outfit.

The names and addresses are as follows:

Otto Flemming, 1009 Arch Street, Philadelphia.

Metcalf Storage Battery Co., 417 Myrtle Avenue, Brooklyn.

Franklin Electric Co., Passaic, N. J.

Wadell-Entz Co., 303 Broadway, New York.

American Battery Co., 188 Madison Street, Chicago.

C. B. Eliason, Mount Vernon, N. Y.

Electric Storage Battery Co., Drexel Building, Philadelphia.

Meyrowitz Bros., Twenty-third Street, New York.

Bradbury-Stone Electric Storage Co., 5 Grand Street, Lowell, Mass.

W. A. Vail, 136 Liberty Street, New York.

Pumpelley-Sorery Storage Battery Co., 70 South Clinton Street, Chicago.

Galvano-Faradic Co., 400 Fourth Avenue, New York.

Gibson Storage Battery Co. (W. F. Ford), 315 Fifth Avenue, New York.

Storage Battery Supply Co., Twenty-third Street and First Avenue, New York.

Syracuse Storage Battery Co., Syracuse.

Sorley Battery Storage Co. (Eastern Electric Light and Storage Battery Co.), 37 Market Street, Lowell, Mass.

Hirschmann Storage Battery, 17 Park Place, New York.

Union Electric-Bradley Storage Co., 45 Broadway, New York.

Stephen Miles Electric Co., 182 Elm Street, Cincinnati.

S. S. White Manufacturing Co., Philadelphia.

Jerome Kidder Manufact'g Co., 820 Broadway, New York.

The replies to this letter indicated an earnest desire to accept the proposition, and it was confidently thought at one moment that nearly a dozen outfits would be sent in, but in spite of a brisk correspondence and an extension of the date set for the commencement of the test, only four batteries arrived, namely, Franklin Electric Co., Passaic, N. J.; E. B. Meyrowitz, New York; Electric Storage Battery Co., Philadelphia, Pa.; Otto Flemming, Philadelphia, Pa.

Description of the outfits:

The *Franklin Electric Co.'s* battery is of the Planté type (illustrated on exhibit No. 1). The plate consists of a frame filled with alternated straight and corrugated strips of lead. No pastes or applied oxids are used, the active material being formed entirely of and on the plate itself. The formation of the peroxid on the corrugated strips cause them to expand and thus folding on themselves lock the peroxid firmly into place. The plates are separated by sticks of hard rubber and the whole held together by hard rubber bolts passing through the corners of the frames. The outfit submitted consists of two cells, each having a working E. M. F. of two volts and a capacity of 50 ampère hours. There is a sliding rheostat arrangement for controlling the current. The case and accessories of this particular outfit are decidedly crude, but the cells are of the company's standard type—it was sent in simply as a favor to your committee.

The *Meyrowitz outfit* is shown in the illustrations (exhibit No. 2). Like most of the dealers in physicians' supplies, Mr. Meyrowitz is not the actual manufacturer of the cells furnished in his outfits but supplies those made by the American Battery Company of Chicago. The type employed contains five plates—two positive and three negative, samples of which we have here (exhibits 3 and 4). The plate is made up of a series of horizontal strips of rolled lead, grooved on both sides and securely arranged in a frame of special composition not affected by the acids.

The plate is then submitted to the forming process which oxidizes the surface of the lead strips until the spaces between them are completely filled with the oxid. Thus the plate is made up of alternate layers of lead and active material—the grooved surface of the lead effectually keying the active material into place. The plates are separated by hard rubber combs and the whole bound together with rubber bands. (Exhibit No. 4.)

The outfit consists of two cells—each with a capacity of 40 ampère hours and an E. M. F. of 2 volts. It includes a current controlling device and a switch for throwing one or both cells into circuit.

Three styles are made:

No. 1, containing one cell and sold at \$20.

No. 2, containing two cells and sold at \$35.

No. 3, containing three cells and sold at \$45.

The outfit of the *Electric Storage Battery Co.*—manufacturers of the chlorid accumulator—is shown in these illustrations (exhibit 5). Chlorids of lead and zinc are fused together in certain proportions and poured into molds—the plates so cast form the active material and of which we have here a sample (exhibit 6). It is a quarter of an inch thick, has grooves running horizontally and vertically on each side, and at each point where the grooves intersect there is a perforation. (Exhibit 7.) The plate is then placed in a larger mold—into which is poured a molten alloy of lead and antimony; in this manner a strong frame is cast around the squares of active material on both sides of the plate and the frames are joined together by the union of the alloy through each perforation. To "form" these plates they are placed alternately with plates of pure zinc in a trough containing a solution of dilute chlorid of zinc, thus making a

kept blowing. The gaps are formed between two sets of brass balls, and arrangements are made to connect to the outer ball of each pair any part of a circuit or path which it is desired that the condenser discharge shall take. A plain coil circle or loop of wire, bare or insulated, may form this discharge path. According to the self-induction of this loop and the capacity used in the condensers will depend the rate or frequency of oscillation of the discharges of the condenser crossing the air gaps. A large condenser gives a slower rate, as does also a loop or discharge circuit of larger area or self-induction. Hence, it is easy to make the discharges rapid enough to represent rates of 30,000, 50,000, 100,000 oscillations per second, as desired. It must not be supposed that in such an apparatus we can obtain a continuous unbroken set of waves of current like that of an ordinary alternating current, but of high rate. On the contrary, what we do get is a broken set of discharges in which the time occupied by the discharge itself, oscillating while dying out, is small compared to the periods of rest or no discharge. This is owing to our original source of current used in charging the condenser, which only brings the latter up to the discharging potential, say a few hundred times a second. Had we at hand, instead, a source of continuously sustained potential to charge our condensers, we could obtain continuous waves of high period without the dead spaces or times of no discharge. It is, however, a difficult matter to obtain such a source as is required on a sufficiently large scale for use. If, however, the source of current is of sufficient energy, and the capacity of the condenser not too large, the frequency is high and the dead spaces occupy a smaller fraction of the total time. Some time ago the writer devised an apparatus from which he obtained high frequency discharges from continuous current sources, (such as from a 500 volt railway circuit) but he has not had time enough to apply this method on a large enough scale as a prime source. The continuous current source gave, however, a perfectly continuous unbroken set of waves and not a succession of discharges. It therefore resembled a high frequency dynamo in its effects. The apparatus, however, as used by the writer, with alternating currents, is shown in the diagrams accompanying this paper. It is an induction coil whose primary is fed by ordinary alternating currents of 75 volts, giving about 20,000 volts in the secondary. K is the condenser attached to the secondary; G, G, are the spark gaps or discharge spaces; J, air jets or blast; L, is the discharge loop or coil. No measuring instruments, such as ampère meter or volt meters, exist which are applicable to the rapidly reversing currents, and none are therefore present.

In applying currents to traverse the body, it is convenient to bridge the discharge loop at various points as from *a* to *b* and the nearer these points are to the discharge gaps G, G, the more intense are the effects obtained. Thus, if from *a* to *b* a shunt be made by the body, taking hold at *a* by one hand and at *b* by the other, a certain part of the high frequency discharge is shunted through the body across the loop, and if an incandescent lamp, requiring, say, 100 volts and .3 to .4 ampère is made part of this shunt with the body, it is not difficult to bring the lamp to full incandescence without experiencing any discomfort, and, in fact, without sensation of any kind except perhaps a slight warmth at the wrists. It is only necessary that the surface of metal or damp sponge grasped in the hand be not too restricted. Five or six square inches of contact surface may suffice. If the contact area be unduly restricted there will be a tingling or burning sensation experienced, but only at or near the surface involved. There is no muscular contraction and no sensation whatever above the wrists. The writer has indeed lighted an 8 candle incandescent lamp of 100 volts, 3 ampère, through the little finger by capping it with a metal tube covering the outer half of its length, as one terminal, with the surface of the hand as the other. Also through the two hands laid together an amount of current equal in heating effect to more than 1 ampère of ordinary current has been passed with only moderate sensation, mostly of warmth, at the contact surface of the skin. Results similar to these have been made known through the recent work of D'Arsonval, using similar means for exciting the high frequency currents, and he has more fully examined the different effects or absence of effect upon the animal body. The writer has lately given some time to studying some of the more obvious points involved in the action of these currents, but has not concluded the line of experiments which have suggested themselves. A brief outline of some of the work may be of interest at this time.

The first point to determine was the virtual resistance of the body from hand to hand and to secure, if possible, a pas-

sive substitute resistance which could be used instead of the experimenter himself in further tests where needed. Such resistance substitutes were made by taking boxes about two feet long, one foot wide, and six inches deep, and filling them with sawdust dampened with a weak salt solution. Copper plate electrodes with short heavy cables attached could be inserted into the sawdust at any point in the length of the boxes. Now, placing the body in circuit with an incandescent lamp burning at a given brilliancy it was easy to reproduce the same brilliancy in the lamp by using, instead of the body, the sawdust box and adjusting its electrodes; all other conditions remaining the same in each experiment. A measurement of resistance of the box was made at once after the substitution by passing through it a current due to 106 volts, and measuring the current which passed, gave a resistance of 750 ohms. A similar substitution of a water resistance gave 650 ohms, so that approximately the virtual resistance of the body of the experimenter could be taken at 700 ohms. The contact with the palms of the hand was made by metal surfaces tightly grasped and having about six square inches contact with the palm and fingers.

By substituting a water rheostat for the body, and adjusting it to have the same resistance as indicated by the lamp brilliancy, the increase in temperature of the water during a given time could be made the means for determining approximately the rate of actual heat energy delivery to the body, assuming it to act simply as a resistance, an assumption which, so far at least as the conversion of current energy into heat is concerned, is doubtless well founded.

It was found that the rate of heat delivery to the water was equivalent to 59 watts, or about 2,600 foot pounds per minute. This figure is confirmed by a calculation based upon the continuous current strength required to bring the lamp used to the same brilliancy, and the resistance of the body as found by the substitution method above described. Energy = C^2R , or $(.3 \text{ amp.})^2 \times 650 \text{ ohms} = 58.5 \text{ watts}$, lamp current water resistance.

These results, 59 and 58.5, are near enough to indicate that the high frequency current in lighting the lamp does not, as some have claimed, owe a part of its effect to any bombardment or vacuum action. It appears to act as a simple resistance. It can, therefore, be used as an indicator of the heating effect of the current passing in any of these experiments. The significance of this delivery of heat energy is plain. Heat energy may be delivered to the body or a portion of it without exciting the muscles or sensation. Whether this method would, for the purpose of the physician have any advantage over the application of warmth externally is not yet understood.

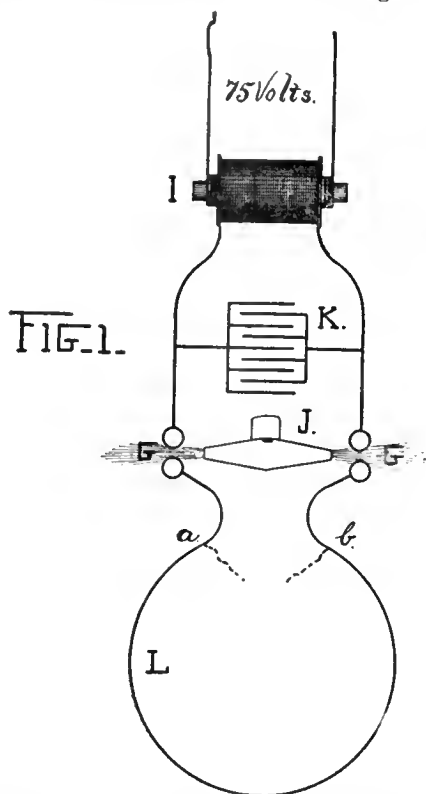
The writer in conducting these experiments often found a sensation of heat or warmth at the wrist when the discharges were such as would give the effect of .5 to 1 ampère in the lamp. This local effect would naturally follow from the comparatively high resistance of the bony mass at the wrist and the small amount of other tissue, together with the relatively smaller section of conducting material.

To get rid of this effect and at the same time to be enabled to increase the current passing through the body, the metallic electrodes were replaced by glass jars partly filled with weak brine in which the hands and part of the forearm could be immersed. The liquid in the jars was connected by metal plates to the terminals of the source. With an immersion to about four inches above the wrist it was found that a lamp current equal in heating effect in the lamp to 1.5 ampères continuous current could be passed through the body without producing any muscular contraction or sensation other than a warming or feeling of warmth in the forearm near to the surface of the liquid electrode or bath. After the experiment, which was continued for ten or fifteen seconds, and repeated several times in immediate succession, there was noticeable a slight feeling of rigidity or sense of friction or weight, difficult to describe, in the tissues of that part of the forearm which had been immersed. This feeling passed off in five or ten minutes and was only just noticeable at any time. This same feeling was confirmed by another observer. The rate of delivery of energy to the body in this case may have been over 800 watts or more than 1 horse power, assuming that the virtual resistance of the body fell nearly a half, owing to the immersion of the arms in the liquid electrodes.

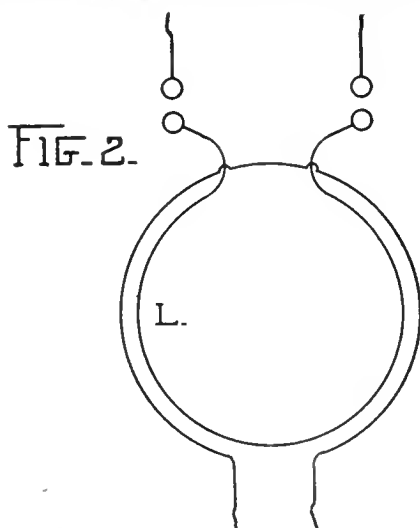
On account of the dead spaces and the nature of the discharges in these experiments, the maximum of current must be high. It is possible that the greater wave amplitude may give 10 ampères or more as a maximum. Examination of spark discharges in the circuit by a revolving mirror would probably render possible a more definite determination as

to how far this estimate approaches the truth. If time permits, the writer proposes to examine the discharges in this way so as to determine the relation of the dead spaces to the time occupied by the discharges, etc.

In some of the experiments, instead of shunting the discharge loop or coil as described, the arrangement was modified by using a secondary or parallel loop or coil, the inductive relation of which to the first or primary could be varied. This was found to be a most convenient arrangement, Fig. 1.



With a single circle of heavy wire, the diameter of which circle was about three feet, constituting the primary or condenser discharge loop, a secondary of three turns of heavy okonite-covered wire coiled to equal diameter with the primary, was sometimes used, Fig. 3, as the source of high fre-

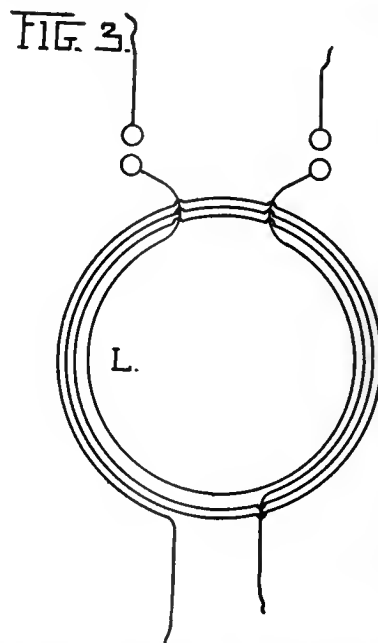


quency discharges to be applied in the tests. By moving the secondary into more or less exact parallelism with the primary the force of induced secondary currents could be regulated at will.

From the terminals of such a secondary, connections are made to the electrodes used in conveying the currents into the body.

By bringing the terminals of such secondary to a distance

of about three-fourths of an inch apart, a torrent of heavy brilliant sparks, accompanied by a very loud roar would be obtained, yet, without altering the conditions such secondary terminals could be bridged by the body, or short-circuited, so to speak, by the hands, with impunity, provided only that the contact surface was not too restricted. It was this coil which when circuiting through the arms immersed in salt solution gave a current of heating effect equivalent to 1.5 ampères as above described. The lamp used in this case was rated at 25 volts, 3.5 ampères, and was brought to redness by the current passing through it and the body in series. The brilliancy being carefully noted could be reproduced by an ordinary current of 1.5 ampères. So far, then, the experiments show that it is not to any peculiar action or distribution of the currents physically that the comparative harmlessness of high frequency currents is due, but rather that the true cause is physiologically, depending on some peculiar relation of nerve excitation to certain stimuli. In other words, nerve matter and muscle seems to be insensitive to such high rates of reversed discharge, and if there be any effects they are certainly different from those experienced at low frequencies, and more different still from the effects of continuous currents.



The normal mental operations and voluntary muscular action were not interfered with to any discoverable extent while the current passed, nor were the involuntary actions affected so far as determined.

In the above notes the writer has endeavored to condense the results of those of his experiments which have had especial reference to the passage of high frequency currents through the body, which experiments have tended to show the true nature of the phenomena in their physical aspect, and has not attempted to discover or confirm the existence of varieties of physiologic effect, or their absence, except incidentally to the other work.

The subject is certainly one of great interest, and one which, from the standpoint of the electro-therapeutic physician deserves the fullest investigation. What will be the limit to the increase of current which may be sustained without injury is not yet known.

(To be continued.)

Emulsion of Castor Oil.—M. Klein, a physician of Kharfa, Syria, reports the following method in use by the Arabs for disguising the disagreeable taste of the oil; fifteen or twenty grams of castor oil are poured into a glass of milk; the mixture is heated, being stirred with a spoon, and in a few minutes there is a perfect emulsion of the oil which can be sweetened with syrup of orange. The oil administered in this manner requires less quantity to produce its effects; thus 15 to 20 grams are sufficient to purge an adult.¹

¹ Bulletin Medical, July 6, 1895.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, AUGUST 10, 1895.

UNIVERSAL ANATOMIC NOMENCLATURE.

Scientific men are gradually coming to a general understanding in regard to the universal scientific language. For years, science has demanded a language common to all nations, and the two languages most favored have been French and English. The spasmodic study of Volapuk amounted to little and the movement in favor of modern Greek seems already dead. In the meantime, scientific bodies go on making a uniform nomenclature in their respective lines. It is neither French nor English, but Latin. Year by year, then, Latin is becoming stronger, and the world's scholars are working to keep it free from corruption. Our last Pharmacopœia is a striking example of the modern effort toward correctness in nomenclature. This effort shows grammatical and etymological changes from former nomenclature, all of which, being more exact, will not require change in future.

The latest advance in this direction has been made by the German Anatomical Society, an account of which we translate in full in another column from the *Deutsche Medicinische Wochenschrift* of July 4, 1895.

The Society appointed a commission composed of some of the most learned anatomists in Europe, and they have now presented their report, after eight years' labor, and although a similar attempt was unsuccessfully made by GASPARD BAUHIN in 1621, we feel reasonably sure that the work of this committee will be generally adopted. All anatomic names have been considered, and they have given Latin designations only, duplicates being dropped.

We believe that this plan is infinitely superior to the one pursued now, whereby every language

has its own designation for most of the separately named parts of the body.

Notwithstanding our individual preference for the French language, as that tongue on many accounts best adapted to become the universal language, with a minimum expenditure of time on the part of those acquiring it, yet it must be admitted that the Latin language, no longer being alive, is changeless; beside that, until the eighteenth century there were few scientific books in any tongue but Latin. A return to Latin in its purity would place the twentieth century international medical literature in line with almost all that has preceded it.

So far as the study of anatomy is concerned, it is manifest that the adoption of the nomenclature, as proposed, will greatly simplify it, and at the same time afford a common nomenclature for medical students the world over.

In the history of medicine there are no more important chapters than those relating to anatomy, and in its nomenclature we have the voice of antiquity perpetuated from the days of Alexandrian supremacy down to those of the Ecole de Medicine.

THE INDEX MEDICUS AND THE BRITISH.

The London *Medical Press* recites with regret that English editors and others are to be the losers in the discontinuance of the *Index Medicus*. Our English friends appear to feel the loss so badly that it is a wonder some one has not thought it worth while to "pass around the hat" and collect the comparatively small sum that is needed, from "the other side," to keep the machinery in motion. The following paragraph contains the gist of an article appearing in the literary department of the *Press*:

"The *Index Medicus* will cease to be the finger-post of medical writers and reference-hunters, unless subscriptions to the amount of £400 per annum are guaranteed by this country to the American publisher. This gentleman, it may be mentioned, announced two years ago that 'he did not see his way any longer to continue losing \$2,000 a year for the sake of the profession,' and we are quite in accord with him that—although an invaluable guide to the few—as the great bulk have shown such a lack of interest in it, they do not expect him to bear the loss for 'their sake.' In 1893 we made an appeal to the profession, hoping to keep the venture alive. MR. MACALISTER, Librarian of the Medico-Chirurgical Society, is now doing the same, but we fear the *Index Medicus* will go the way of all non-paying commercial enterprises."

Another English medical journal urgent for the continuance of the *Index Medicus*, says: "The yearly cost of production is about £1,000, and it is proposed to raise this sum by 200 subscriptions of £5 each. The United States, it is estimated, will supply 120, Great Britain 60, and the continent 20." In other words, this country is accounted to be good for as much as Great Britain and Europe combined. Whether this is to be considered as a tribute to the greater finan-

cial resources, or to the higher standard of intelligence of the American medical profession, it is equally gratifying and very flattering.

We are still of opinion that the AMERICAN MEDICAL ASSOCIATION should take up this matter, effect a satisfactory arrangement with the accomplished editors, and be responsible for the publication of the work.

ON THE INFLUENCE OF SHELL-FISH IN THE SPREAD OF CHOLERA.

DR. R. THORNE-THORNE, of the Local Government Board of Great Britain, has investigated the occurrence of cholera in England in 1893. His report touches upon the cases occurring at Grimsby and vicinity, and holds that the consumption—or reception, at least, at their homes—by persons taking the disease, of oysters or other shell-fish is involved in the history of those cases.

The trade in shell-fish in and near Grimsby is very large, and the arrangements of the traffic are such that the oysters and mussels are exposed to sewage, both on the “beds” and in the storage-docks. Cockles, mostly consumed locally, come from several “beds,” one of which is stated to be “exceptionally exposed to the influence of Grimsby and Cleethorpes sewage.” Some of these shell-fish are not often eaten raw; others again notably oysters, are largely consumed without cooking, and when so eaten the removal from the shell of the liquid in which the oysters lie is a thing that is generally somewhat carefully avoided. The state and sources of the “waters” in which the oysters are grown or kept come, therefore, to acquire importance in so far as the public are concerned; and having regard to the significant indications afforded by some of the cholera histories of last year, DR. THORNE can not avoid the conviction that shell-fish from Cleethorpes and Grimsby must, in some cases, remain under suspicion as having contributed to the diffusion of the disease.

More positively than that, DR. THORNE declines to speak. He closes by saying: “But one thing is certain. Oysters and shell-fish, both at the mouth of the Humber and at other points along the English coast line, are at times so grown and stored that they must of necessity be periodically bathed in sewage more or less dilute; oysters have more than once appeared to serve as the medium for communicating disease, such as enteric fever, to man; and so long as conditions exist, such as those with which the oyster trade of Cleethorpes and Grimsby is shown to be associated, conditions which may at any time involve risk of the fouling of such shell-fish with the excreta of persons suffering from diseases of the type of cholera and enteric fever, so long will it be impossible to assert that their use as an article of diet is not concerned in the production of diseases of the class in question.”

NATURAL HISTORY OF THE KUMBH FAIR CHOLERA OUTBREAKS.

SURGEON-CAPTAIN HERBERT furnishes¹ from Bombay a contribution to the natural history of the cholera outbreaks at the Hardwar fairs on which he bases what he modestly styles the following “suggestions:” 1, the fouling of the water of the Sacred Pool or of the Bhun Ghora tank, or of both, by an unusually large proportion of bathers to the quantity of water available may render these waters a very favorable medium for cholera development, and so determine the origin of far-reaching epidemics; 2, the growth of the organism may be assisted by unusually hot weather; 3, virulent cholera elsewhere in India may be effective from the character or quality, rather than from the quantity, of the virus carried to Hardwar.

These “suggestions” are at variance with the conclusions arrived at prior to 1892, from observations which definitely associated the outbreaks of cholera at Hardwar with but one condition—the overcrowding at the Kumbh fairs. HERBERT shows that the attendance in the “big cholera year, 1892,” was only about one-half the average accumulation of an ordinary annual fair; the season, however, was not only one of the driest—rendering it impossible to keep the sacred waters as fresh as in the previous year, when there were nearly four times the number of pilgrims present and no outbreak—but it was also one of the hottest, on record. Concerning this previous year—the Kumbh Mela, 1891—HERBERT says that while the exemption from cholera attack was then ascribed to the very elaborate sanitary arrangements, for the first time in force, the evidence is strong that it was due rather to a severe and prolonged winter season with a resulting high stage of water. The complete inefficiency of the sanitary arrangements was conclusively demonstrated the following year—the “big cholera year.” He adds: “There were no extraordinary sanitary precautions in 1885, when the number of pilgrims was the same as in 1891; yet cholera did not break out. The winter was severe, as in 1891, and the river consequently high. And there have been other Kumbh and Adh Kumbh years—*e.g.*, 1855, 1861, 1873, with neither sanitary precautions nor cholera outbreaks. It is now fairly well recognized that the essential sanitary requirement for the prevention of cholera spread here [Bombay] is a free supply of fresh water, especially at the most crowded Melas, in very dry years, and when the disease is unusually prevalent elsewhere in India.”

It is quite apparent that SURGEON-MAJOR HERBERT believes in an increased potentization of the cholera organism when sown in an exceptionally favorable culture material; that to this increased morbid potency is due the fact that the cholera which spreads

¹ London Lancet, July 27, 1895.

from the fairs is not that which is carried to them; that the new growth may acquire powers beyond those of ordinary Indian cholera, capable of spreading rapidly and certainly over country where cholera is comparatively seldom seen and of being the origin of European pandemics. The corollary of this hypothesis would be the gradual attenuation of new growths in less favorable culture media, under less favorable climatic and meteorologic conditions, until there resulted the entire loss of morbid potency and the dying out of the pandemic.

CORRESPONDENCE.

Letters to my Hospital Internes, Past and Present.

By CASEY A. WOOD, M.D., OF CHICAGO.

LONDON, July 1, 1895.

Gentlemen:—Undoubtedly there are some forms of service which must ever leave the recipient in the debt of the donor. In looking back at the work done for me by you, during my attendance at Cook County Hospital, the Alexian Bros., the Emergency Hospital and the Hospital of the Post Graduate Medical School it occurred to me that I might at least acknowledge certain obligations of this kind by recounting some of my experiences during a short trip abroad. I shall endeavor to avoid the style of the medical guide book and beg to assure you that I will speak only of those men and those things that came under my own personal observation. I might also explain that, although this visit to the English and continental clinics has been a hurried one, its value to you is possibly somewhat enhanced by the fact that I had gone over more leisurely on two previous occasions, and at an interval of several years, practically the same ground.

The London hospitals have not altered much since my last experience of them. The student has not much to gain from a short stay in the British capital, partly on account of the great distances that must be covered in going from hospital to hospital, and partly because the average Englishman does not take kindly to the stranger until he has become acquainted with him after a proper introduction. But for the man who will settle down for six months or a year and work hard, excellent teaching and numerous opportunities are at the disposal of the visitor. There are admirable post graduate courses, conducted by the best men in London, on all medical and surgical subjects, but it is rather fatiguing to hurry about from one hospital to another, miles apart. Some day these isolated teachers may come together, as with us or as in Vienna, at a common center, and then London will compete on more than even terms with her continental rivals.

These objections do not apply with the same force to ophthalmology or otology. The student, advanced or otherwise, can hardly wish for more or better opportunities than are to be had at the Royal London Ophthalmic Hospital (Moorfields, E. C., three daily clinics, 9 A.M. to 3 P.M., operations eleven to seventeen and Westminster Ophthalmic, Charing Cross, 3 daily clinics, 1:30 to 4, operations two to three). I do not say that other excellent institutions do not also furnish numerous opportunities for work, because large daily clinics are held at the Central London Ophthalmic Hospital (Gray's Inn Road, W. C.) South London Ophthalmic Hospital (near the Elephant and Castle) and in connection with many of the general hospitals, but at the two special institutions first mentioned from forty thousand to

fifty thousand new patients are yearly admitted. In that overwhelming tide of ophthalmic disease, fed by the whole country round about, every possible type and variation of ocular trouble can be studied. It is a comparatively easy matter to attach one's self at Moorfields to the service of Nettleship, Lang, Silcock, Morton, Gunn, Lawford or Couper, or at the Westminster Hospital to the clinics of Jaler, Hart-ridge, Cowell, Dodd, Donald, Gunn, Griffith and several others. After a month or two of probation it is possible to obtain almost complete charge of patients, to do minor operations and to discuss with the chief of the clinic, matters that arise in connection with the conduct of their cases. At Moorfields, instruction on the use of the ophthalmoscope (unusually good, each course six weeks, plenty of cases, fee 2 guineas) is given three times weekly by Gunn, Silcock and Lawford. Classes in refraction are conducted by Mr. Lang (excellent, one month each, 2 guineas) while Mr. Morton gives an instructive course (six weeks, 1 guinea, material from all the clinics) on external diseases of the eye every Friday at 1 P.M. These courses are held during the winter season and tickets are to be had from the secretary at the hospital.

For beginners, Mr. Phillips, the refraction assistant, conducts, when requested, private classes which are, in my opinion, superior to anything to be had on the continent. Indeed, all the continental clinics—especially those in Vienna—are conspicuously weak in courses devoted to the study of refractive errors and muscular anomalies. Mr. Morton also gives an excellent operative course (private, six lessons, 2½ guineas) which is very popular with students. Pigs' eyes and the mask are employed for operations on the globe; pigs' heads for operating on the extrinsic ocular muscles and the lids.

These excellencies in the way of instruction are completed by work in the laboratory under the supervision and help of a very genial man, Mr. Marshall. His predecessor, Treacher Collins, has done and is still doing a great deal of valuable original work and, mainly in consequence of his efforts, the museum possesses by far the best anatomic collection in the country.

I was interested in a plan for using the electric light in the examination of eye patients. As you are aware, my objection (which I had vainly endeavored to remove by various devices) to this light was the difficulty of quickly regulating its intensity so that it could be lowered or raised like gas. Mr. Lang has perfected a plan whereby this can be accomplished and we can now dispense with gas—a decided advance, especially on a hot summer's day in a stuffy dark room.

The study of otology and laryngology is not so satisfactory to the student in London as that of ophthalmology. The London Throat Hospital (Golden Square, clinics every afternoon and evening) with Wolvenden, Hovell and Bond, is perhaps the best known and where, all things considered, one gets nearest the patients—whose name is simply legion. To obtain privileges of any value in this direction it is, however, necessary to take out a ticket of attendance (3 guineas for six months, 5 guineas perpetual, from the secretary) and to wait for a vacancy on the staff of clinical assistants, if there be none at the time of registration.

Dr. Dundas Grant, Mr. Lennox Browne and others hold daily clinics, (beginning at 2 P.M. and lasting until evening, fees 1 guinea a month) where the student may see a large number of ear, throat and nose cases. At irregular intervals lectures are given on otologic and laryngologic subjects. I fear it will be a long time before London is able to hold out inducements to students of otology, and the kindred specialties, equal to those so freely offered by Vienna or, though in a less degree, even by Berlin.

I regret that I was unable to attend the clinic of Mr. Jonathan Hutchinson—a name claimed equally by all departments of medicine and surgery. I am told that every London hospital, whether devoted to general surgery, ophthalmology, diseases of the lungs or what not, furnishes its quota of obscure cases for review by this truly remarkable man. Such fathers of our art should live forever, and one may well wish for a continuance of a life already so replete with useful years.

One of my missions in England was to investigate the subject of the color sense. In my opinion we have as yet, no theory that satisfactorily accounts for all the color phenomena, physiologic and pathologic, commonly met with, and I hoped to find light upon this obscure matter in the work of Mr. Lovibond of Salisbury, who has been engaged in investigating color values and "chromometry" for twenty years past. I have long felt the absurdity of scientific men using such terms as "canary yellow," "magenta," "grass green," "Prussian blue," etc., as their most definite expression of a color sensation. In his search for universal color standards, Mr. Lovibond was confronted with the difficulty of finding a pure white, but at last settled upon a compressed surface of finely powdered lime sulphate as giving the nearest approach to white. When colors are viewed through a tube or box, from which all light is excluded, the slightest difference between them can be readily observed if the colored objects be uniformly illuminated. This, the principle of Chihret's chromophotometer, enables the observer to add, in Mr. Lovibond's instrument uniformly graduated yellow, red and blue tinted test glasses to the white side of the apparatus until it exactly resembles the colored object under examination. When both objects appear exactly alike, the glasses added to the white side are the color measure of the color or shade under examination. The result is always given in, and every color can be resolved into, terms of red, blue and yellow—according to the Lovibond scale. Thus a colored powder is found to be composed of 1.4 standard units of red, 0.9 standard units of blue and of yellow 3.7 units, or a certain fluid (beer, drinking water, oil) is found to be 0.8 red and 0.50 yellow.

Not only have we in this scheme a universal standard of color, but other uses to which the "tintometer" is put ought to interest every medical man. It has been found that the amount and kind of adulteration in most foods and commercial products, as well as the impurities commonly found in drinking water and other fluids can be determined by the deviation, measured by the tintometer, from the normal tint of the pure article. Instead of making a laborious and complicated *chemic* examination of the suspected compound, its color value is determined in a few minutes. Such a chromometric examination is usually found to answer all the purposes of a quantitative analysis. In this way the tintometer is now employed in England and to some extent abroad, by all sorts of commercial houses and it is also used with great success by the health departments of cities for the ready detection of impurities and adulterations in milk, water, beer and other foods. *The slightest departure from purity whether in food or in any other product, is at once shown by a measurable and corresponding variation in color.*

As scientific men the subject of color-music ought to interest you. The July number of the *Nineteenth Century* contains an article dealing with this matter—an attempt to convert musical tones into corresponding color harmonies. I remained one day longer in London than I might attend a concert in St. James' Hall where upon a large canvas beautiful displays of color combinations were given as an interpretation of the music rendered by a good orchestra. Just *how* this was accomplished I could not discover but, *a priori*, it does not seem opposed to our idea of the conservation of energy that sound waves and the cerebral sensations they produce should be convertible into those of color.

PARIS, July 14.

Owing to my acquaintance with the American medical colony in Paris, I was able with their courteous help, to gather many items of interest which would otherwise have taken a much longer time to collect. Drs. Evans of Chicago, Bergeson of Merrill, Wis., and Jehm-Prume of Montreal, are at work here and express themselves as greatly pleased with the opportunities for study in all departments of medicine and surgery. The fees, unlike Vienna, are quite nominal (often excellent courses are free) and every stranger (in contrast to London and Berlin) is welcomed without the least introductory formality.

A students' number of the *Presse médicale* is issued every December and is the best medical guide to Paris I could find and, although intended for undergraduates, is a help to the visitor.

The *Institut Pasteur* (Rue Dutot, 25, open to visitors at 11 A.M., apply to the concierge) was, as you know, built and endowed by subscriptions from all parts of the world and its most useful work, it seems to me, is done in the fine laboratories and research rooms of the main building. There are half a dozen of the former under the care of salaried chiefs of departments who also instruct students, and over twenty-four of the latter given up to advanced workers who are conducting original investigations. The general laboratory courses (50 francs for two months, most of the material free) are said to be the best in Europe. The research rooms are let for the insignificant sum of 50 francs a month and the Institute furnishes all the ordinary apparatus and materials.

The animal rooms contain over one thousand birds, guinea pigs, rats, rabbits, etc. In this appropriate way does France make a generous return to those foreign countries that subscribed money for building the Institute. Pasteur has his private apartments in the buildings, but since the illness of the chief the management of the Institution has fallen entirely into the worthy and competent hands of Dr. Roux. The city of Paris presented them both with medals and a sum of money a few days ago.

Among the most important work done at the Institute and the Children's Hospital is that in connection with diphtheria—by Marmarek. He finds that the disease is not always the result of the diphtheria bacillus, so-called, alone, but that that microorganism is, in many cases, associated with others, notably the streptococcus, and the symptoms may be mixed phenomena due to a composite infection. In certain instances the systemic poisoning may be chiefly a streptococcus intoxication. If this be true, we have an explanation of the irregular action of Behring's heilserum; antitoxin is powerless in a case of diphtheria largely due to poisoning by the streptococcus. Marmarek consequently proposes not only to regulate the dose of antitoxin by the proportion of diphtheria bacilli present in the exudation, but to give doses of streptococcus toxins when that coccus is found. He expects to have the antidote ready for general use in a month or two.

Marmarek is of opinion that the chief danger to which the tubercular patient is exposed is a secondary infection of his lesions by streptococci.

I was also interested in the investigations of Cenarelli in typhoid fever. Most animals can not, under ordinary conditions be inoculated with the disease, but he found that this immunity practically disappears and that they exhibit all the characteristic lesions of enteric fever when they are ill-fed, kept in filthy, badly ventilated quarters or exposed for some time to sewer gas before receiving the typhoid poison. The inference is that human beings are much more likely to resist this form of intoxication if they live hygienically and in a healthy neighborhood—a doctrine taught by our fathers before the days of bacteriologic laboratories. There is a public hydrophobia clinic connected, as an outdoor department, with the Institute, where from eighty to ninety patients are daily treated; the average treatment lasts fifteen days and the method is just the same as that carried out in Chicago by our own Dr. Lagorio. By the way, Chicago is the only Pasteur station except, I think, Havana and New Orleans, marked on the large map of North America at the Institute. I could not discover why New York, with Gibier's station, had been omitted.

I saw the original Pasteur filter, invented by Chamberland, one of the department chiefs at the Institute, and am inclined to think more highly of it than I did of those put on the Chicago market. It is used here for the separation (under pressure) of their toxins from the various microbes. As you are aware, the filter is practically a porcelain cup, dense enough to separate—to a bacteriologic demonstration—even the smallest organism from contaminated drinking

water. I suspect, however, that regular boiling and cleansing of the porcelain cylinder and its attachments would be a useful proceeding in the case of a filter daily employed in the purification of Chicago water.

Some Remarks on Alleged Degeneracy.

ORAN, SCOTT Co., Mo., July 27, 1895.

To the Editor:—This word does not apply to the profession at large (or as a whole). Doubtless there are many physicians who have lost their standing and good name and have ceased to study and improve, but the profession, as a whole, is on gaining ground. Doctors are wiser than ever before. There are more great men in our ranks to-day than ever before, and there are men who know more of medicine than was ever known to physicians of the past. Some of our wisest men undertake to write after their mental powers have begun to weaken, and in this sense may be called "decaydents." Others through sickness or disease may have lost their balance—but to say the profession is losing ground, and that our predecessors were a long way ahead of us is a mistake.

Many of us follow strange gods, but as a whole we are all right. There are many cranks among us on many different subjects, but this is not new; it was always so. Our ability to see ourselves as we are, shows strength instead of degeneracy. Our ability to correct past errors shows mental growth. Our greater control over disease and our ability to cure many maladies that were considered incurable by our fathers also shows progress. Oh, yes; we are all right. No need of the calamity howler in our midst. We are in line with our brethren in other avocations. We are keeping up with the times. Some of us may belittle ourselves by playing hog or dog, but the grand old army marches steadily along, conquering enemy after enemy.

Let not the editor of our JOURNAL join with those who would try to discourage us. Lend your aid in another direction. Never allow yourself to think we are degenerating. The apparent degeneracy is among those who have lost sight of duty and have made medicine a trade. These fellows are not so much degenerates as knaves—they never looked upon medicine as other than a species of merchandize. They, to some extent, have lowered our standing with the laity but have not taken, nor can they take, our lofty and well-earned position from us, and as Dr. Pusey says: "Medicine is not the poor relation of any scientific family."

I am glad the editor joins me in my theory of inebriety, and has a proper appreciation of the so-called *gold cures*. When I was spreading myself out, condemning this fad, only a few men said to me, "you are right," but if the editor joins me, I shall not feel that I am so much in the minority.

Another source of joy to me is the fact that the AMERICAN MEDICAL ASSOCIATION is beginning to set down on the proprietary medicine man. I have had my say on this subject, but somehow editors are a little tenderfooted along this line. These parasites have a firm hold and are hard to unloose, but they will finally have to go. Truth, right and honest dealing must prevail. Secret methods of preparing medicines have no place with us, and the man who refuses to tell anything he knows that would benefit humanity can not last. His time is short. The patent nostrum vender can "hoodoo" the laity and swindle them out of their money, but no man nor set of men can continue swindling us without being exposed. We are "on to" the ready remedy maker's racket, and ere another decade shall pass, his name shall be "Dennis" or "Mud" in "box-car" letters. Very respectfully submitted,

W. D. HOWLE, M.D.

The Nu Sigma Nu Fraternity.

CHICAGO, Aug. 7, 1895.

To the Editor:—Any one who has read the scholarly and very entertaining address published in last week's issue of the JOURNAL, pages 177-180, delivered at Minneapolis, Minn.,

June 3, by Dr. John L. Irwin, President of the Grand Council of this honorable order, can not but sincerely applaud and at heart, at least, extol every sentiment uttered by that worthy gentleman.

For one, I have personally been much interested and delighted at reading his able address; and while I have not the pleasure of knowing Dr. Irwin, nor the honor of being a member of the Nu Sigma Nu, yet knowing something of this fraternity and the character of its members, I am free to state that I am a staunch advocate of its cardinal principles and teachings. It is my misfortune, perhaps, that my name has not, long ere this, been enrolled in this noble brotherhood of our profession. But after all, is it not our duty as honorable men and conscientious physicians, while we live, to follow the precepts of the order of Nu Sigma Nu, whether we are members of this honorable order or not? To sum up the ritual of this order—or rather to summarize Dr. Irwin's address—we should observe and live up to the Golden Rule; to practice charity without ostentation, educate ourselves in our profession, and observe toward each worthy professional colleague and toward all mankind the virtues of brotherly love, purity, honesty, justice, a laudable ambition, temperance and fidelity. As I understand it, these are substantially the teachings in the ritual of Nu Sigma Nu.

If we courteously observe these principles in our professional career, to my mind it does not seem that we have left much undone to "worry" about in the discharge of our duty toward our fellow man.

In Chicago, there are at least three Chapters of the Nu Sigma Nu Fraternity, and I am personally acquainted with nearly every "frater" of the order in this city, for all of whom I entertain high personal esteem. To these gentlemen, and to the members of the Nu Sigma Nu everywhere, I extend my sincere congratulations in having so able and efficient an executive of the Grand Council of their fraternity.

In conclusion, I thank the Great Physician of us all, as well as Dr. Irwin and the JOURNAL for publishing the address, and for being privileged to read it.

I remain sincerely,

LISTON H. MONTGOMERY.

PUBLIC HEALTH.

Subsidence of Smallpox in Chicago.—There were only 2 deaths from smallpox in Chicago during the month of July last, as against 51 for the corresponding month of 1894. There were three cases remaining in hospital at midnight of the 6th inst., as against 117 on August 6 last year.

The Odors of Paris.—The prefect of police has given orders to have a certain number of his inspectors detailed to investigate the sources and causes of the disagreeable smells which incommode the Parisians, especially during the evening. As the number of establishments to be inspected is estimated at 8,000 the work is not yet done. However, from the evidence accumulated it seems probable that most of the noxious odors are caused by the manufacture of bone black.¹

Anti-Vaccinists Not Popular with Politicians.—Before the recent elections in England, the Bristol Anti-Compulsory Vaccination Society approached the various parliamentary candidates for Bristol and the adjoining divisions to ascertain their views on the vaccination question. It is reported that the "cold shoulder" which they received was so unanimous that they could fix on no candidate whom they could support and so abstained from any participation in the campaign and in the election.

¹ Le Progres Medical, No. 25, 1895.

Statistics of the Paris Pasteur Institute.—In the first three months of this year, 345 persons were treated at the Institut Pasteur. Of this number, 23 were bitten by animals proved to have rabies experimentally; 224 were bitten by animals found to be mad after examinations by veterinary surgeons; 98 were bitten by suspected animals. Of the animals, 324 were dogs, 15 cats and one ass. One patient died before the end of the treatment. St. —, a man of 48, from Glasgow, was bitten March 8; treatment began on the 11th. There was but one bite but it was deep, situated in the inferior third of the fore-arm, on the anterior surface. On March 23 the patient, after taking a hot bath, rode on the outside of an omnibus; caught cold, rabiform symptoms appeared in a few days and he died April 1.¹

Scavengers Without Health Officer's Permit.—A regulation of the Health Department of the city of St. Paul prohibited "licensed persons" from doing certain scavenger works "without a permit first obtained from the Health Officer." It nowhere appeared what license was required, or that any persons were prohibited from doing such work without such license. So says the Supreme Court of Minnesota in the case of city of St. Paul v. Lawton, decided July 2, 1895. The defendant in the case was charged with having violated such regulation by doing such work without such permit. It was not alleged or proved that he was a licensed person. Under these circumstances, the court holds that a conviction can not be sustained.

Diphtheria Antitoxin Treatment in Germany.—The results of treatment in 10,240 cases of diphtheria in the German hospitals and in private practice were recently reported to the Society for Internal Medicine by Professor Eulenberg. Of this number 5,790 were treated with the antitoxin serum, with 552 deaths—a mortality of 9.5 per cent. for all ages; 4,450 were treated by other methods with 652 deaths—a mortality of 14.7 per cent. By ages, the mortality was, for those under 2 years, 21.7 per cent. by the antitoxin treatment, 39.7 per cent. without; between 2 and 10 years of age the mortality was 8.8 and 15.2 per cent. respectively; for all cases over 10 years of age the mortality was 4.1 per cent. under antitoxin and 8.8 per cent. under other methods. Professor Eulenberg again called attention to the importance of early recourse to the antitoxin; used within the first forty-eight hours the mortality was only 4.2 per cent.; delayed beyond this period the mortality was increased to 16.8 per cent. These figures must certainly be regarded as a vigorous addition to what Virchow has called the "brute force" of the numerical argument.

Milk Supply of Rome.—The very thorough sanitary regulations as to milch cows which have been in force for some time as to Rome proper have been recently extended to cover the whole commune, which includes most of the surrounding Campagna. All cows and other animals which supply milk in the suburbs and Agro Romano are subjected to rigorous examination by competent veterinarians; healthy animals, capable of furnishing good milk are marked on the horns and licenses issued to the owners. Only milk from such inspected and licensed animals may be sold. The inspections are repeated every year in April, May and June and at such other times as the authorities deem necessary; diseased animals are condemned and slaughtered; those selling milk below the fixed standard are refused license, and cows suspected of tuberculosis are subjected to the tuberculin test at the owner's expense and destroyed if found diseased. The Rome correspondent of the *British Medical Journal* says the extension of these regulations to the whole commune is a great boon to the inhabitants, since all cows which supply milk to the city will now be under

inspection, and this will prevent the sending of tuberculous cows from Rome proper into the Campagna whence they might continue to supply the city.

Disinfection of Tubercle.—The *Public Health* quotes from the *Revue d'Hygiène* an approximate valuation of pyroligneous acid as follows: "Goriansky, of St. Petersburg, has been experimenting to determine the relative value of wood-tar and some of its products. The most active appears to be wood-vinegar (pyroligneous acid), which kills tubercle bacilli in cultures in an hour, in sputa in two hours, and the streptococci and staphylococci in the latter in three hours."

Diphtheritic Specimens by Mail.—According to *Public Health*, the French postal authorities have removed restrictions formerly placed upon the sending by post of the membranes of diphtheria. The precautions that must still be observed are quite elaborate. They may only be sent in a thick glass bottle, tightly corked and sealed, surrounded with wadding and put into a solid metal box, which in its turn is to be inclosed in a well-fitting wooden box. This must be legibly addressed and labelled "Diphtheritic false membranes," and may only be sent to the Institut Pasteur or to one of the recognized provincial laboratories.

New York State Board of Health.—At a recent meeting of this Board, Dr. Daniel Lewis, of New York city, was unanimously elected President to succeed Dr. Florence O'Donohue. Dr. Lewis is an ex-President of the State Medical Society. Dr. Frederick W. Smith, of Syracuse, appointed by Governor Morton as successor to Dr. O'Donohue, sat with the Board. The Board received an opinion from the Attorney General, holding that Dr. O'Donohue could continue as a member of the Tuberculosis Committee for the year, although his term of office as a member of the Board had expired. Dr. Lewis is also an ex-President of the county medical society, editor of the Medical Directory of New York, and member of other medical organizations. He was a strong candidate of the "anti-code people" for appointment as Health Officer of the Port before Governor Morton appointed Dr. Alvah H. Doty to that office. He has now, however, landed on his feet in this very important position, which is destined to have more power for good than has been the case in the past.

City is Not Liable for Acts of Board of Health Employees.—Where the duty of keeping the streets clear of putrid and other substance offensive to the sense of smell, and which tends to imperil the public health devolves, under a city's charter, upon the Board of Health of that city, the Supreme Court of Georgia holds, in the case of Love v. city of Atlanta, decided Dec. 4, 1894, though but recently reported in 22 Southeastern Reporter 29, that the functions of this department of the city government being governmental, and not purely administrative in their character, it follows that if, in the discharge of such functions, and in the discharge of the duties devolving upon this department thereunder, a private citizen is injured by the negligence of one of its servants in and about such work, no right of action arises against the city. But it is to be observed, says the court, that, in order to exempt a city from liability, it is not sufficient to show that the particular work from the negligent performance of which by the servants of the city, a citizen was injured, was being done under the direction of the Health authorities, but it must be shown that the particular work so being done was connected with or had reference to, the preservation of the public health. If the Health Department were engaged in clearing away or removing obstructions from the street which in no way endangered the public health, the responsibility of the city then would rest upon the rule of liability for the work connected with repairing and keeping in order the public highways. It can make no difference in principle as to the character of the agents employed in the discharge of this duty with respect to the public health. The principle of non-liability rests

¹ Bulletin Medical, July 7, 1895.

upon the broad ground that in the discharge of its purely governmental functions, a corporate body to which has been delegated a portion of the sovereign power is not liable for torts committed in the discharge of such duties and in the execution of such powers. It can be no more liable because of the fault to select competent drivers of garbage carts than a city could be held liable for failing to elect a wise, conservative and discreet mayor.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—FOREIGN.

Antwerp: July 1 to 6, 1 case, 1 death.
Buda-Pesth: July 8 to 15, 3 cases, 1 death.
Cairo: June 25 to July 1, 4 deaths.
Calcutta: June 15 to 29, 36 deaths.
Glasgow: July 6 to 13, 10 cases.
Guayaquil: June 29 to July 19, 9 deaths.
Liverpool: July 6 to 13, 1 case.
Madrid: July 8 to 15, 5 deaths.
Montevideo: June 22 to 29, 2 cases, 1 death.
Nogales: July 13 to 27, 3 cases, 2 deaths.
Odessa: July 6 to 13, 2 cases.
Prague: July 6 to 13, 1 case.
St. Petersburg: June 29 to July 6, 4 cases.
Trieste: July 6 to 13, 3 cases, 1 death.
Warsaw: July 6 to 13, 1 death.

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, July 20 to 27, 1 death.
Michigan: Detroit, July 22 to 29, smallpox reported; Battle Creek, July 20 to 27, 2 cases.
Missouri: St. Louis, July 20 to 27, 1 case.
New York: Brooklyn, July 27 to August 3, 1 case.
Texas: Eagle Pass, August 3, 55 cases, 3 deaths.

YELLOW FEVER.

Cuba: Cienfuegos, July 21 to 28, 2 cases at the Municipal Hospital. Other cases in town. Havana, yellow fever increasing. Sagua-la-Grande, July 20 to 27, 1 case.
Mexico: Vera Cruz, July 18 to 25, 13 deaths.

CHOLERA.

India: Bombay, June 26 to July 2, 1 death; Calcutta, June 15 to 29, 36 deaths; Madras, June 22 to July 5, 3 deaths.
Russia: Volhynia Government, May 26 to June 8, 79 cases, 20 deaths.
Turkey: Constantinople, June 20, 2 cases, 1 death; Tarsus and vicinity, June 9 to 29, 41 cases, 34 deaths; Adana, June 10 to 29, 180 cases, 105 deaths; Sis, June 10 to 29, 87 cases, 58 deaths; Hatschni, June 10 to 18, 9 cases, 6 deaths; Pajast, June 16 to 29, 17 cases, 6 deaths; Mesis, June 17 to 29, 27 cases, 8 deaths; Karatasch, June 17 to 29, 89 cases, 44 deaths; Kara-Isdali, June 17 to 24, 17 cases, 4 deaths; Jumurtalik, June 18 to 24, 1 case, 1 death; Bulanik, June 21 to 22, 5 cases, 5 deaths; Messina, June 28 to 29, 3 cases, 2 deaths; Marasch (Vilayet Aleppo), June 10, 2 cases; June 18 to 30, 25 cases, 17 deaths; Djaul, June 26 to July 1, 15 cases, 7 deaths.
Arabia: Mecca, June 9 to 14, 17 deaths; no new cases from June 15 to July 1; Taif, June 19 to 21, 24 deaths. (Also 17 cases and 16 deaths among 906 Arabian pilgrims who had arrived at Camaran on board the S. S. *Memphr*.)

SOCIETY NEWS.

American Electro-Therapeutic Association.—The American Electro-Therapeutic Association will hold its fifth annual meeting at the College of Physicians and Surgeons, of Ontario, in Toronto, Canada, on Tuesday, Wednesday and Thursday, Sept. 3, 4 and 5, 1895.

DR. EMIL HEUEL, Secretary.

352 Willis Avenue, New York city, U. S. A.

Minnesota State Medical Society.—The twenty-seventh meeting of this Society was held at Duluth, Minn., June 19 to 21. The following officers were elected for the ensuing year: President, Dr. Frank Allport, Minneapolis; First Vice-President, Dr. J. H. Dorsey, Glencoe; Second Vice-President, Dr. E. Y. Chilton, Howard Lake; Third Vice-President, Dr. D. N. Jones, Gaylord; Secretary, Dr. Ignatius Donnelly, St. Paul; Treasurer, Dr. Richard J. Hill, Minneapolis.

American Association of Obstetricians and Gynecologists.—The eighth annual meeting of this Association will be held at Auditorium Hotel, Chicago, Sept. 24, 25 and 26, 1895. The preliminary program is as follows: 1, President's annual address, J. Henry Carstens, Detroit. 2, Relation of pelvic suppuration to structural changes that may occur in the Fallopian tubes, A. P. Clarke, Cambridge. 3, Nephrorrhaphies, George Ben Johnston, Richmond. 4, Detached fibroids, George H. Robé, Catonsville. 5, A clinical contribution to lateral displacements of the uterus, Edward J. Ill, Newark. 6, Appendicitis, A. Vander Veer, Albany. 7, Intermediate treatment of puerperal sepsis, A. B. Miller, Syracuse. 8, Kraurosis vulvae, a contribution to its pathology and therapeutics, H. W. Longyear, Detroit. 9, Report of three recent cases in gall bladder surgery, Edwin Ricketts, Cincinnati. 10, Subject to be announced, H. E. Hayd, Buffalo. 11, Intestinal obstruction following peritoneal operations, A. H. Cordier, Kansas City. 12, Subject to be announced, S. Y. Howell, Buffalo. 13, Cure of tubal distension without laparotomy, F. A. Glasgow, St. Louis. 14, Subject to be announced, W. B. Dorsett, St. Louis. 15, Subject to be announced, C. C. Frederick, Buffalo. 16, Hysterectomy in bilateral diseases of the appendages, giving remote results, Florian Krug, New York. 17, Discussion: Vaginal hysterectomy *vs.* Abdominal section for pus tubes. (a), title unannounced, (affirmative,) X. O. Werder, Pittsburgh. (b), when shall hysterectomy accompany bilateral removal of the appendages? Reuben Peterson, Grand Rapids. (c), pathologic and surgical contra-indications of the vaginal route in dealing with puriform diseases of tubes and ovaries, Joseph Price, Philadelphia. (d), title unannounced, (affirmative,) Geo. H. Robé, Catonsville. 18, Discussion: Eclampsia gravidarum. (a), etiology, Frederick Blume, Allegheny. (b), pathology, George F. Hulbert, St. Louis. (c), title to be announced, W. H. Taylor, Cincinnati. (d), prophylaxis, H. W. Longyear, Detroit. (e), puerperal convulsions *vs.* Insanity, W. P. Manton, Detroit. (f), treatment, J. M. Duff, Pittsburgh; A. H. Wright, Toronto; Thomas Lothrop, Buffalo. 19, Exhibition of various types of rectal papillae, R. T. Morris, New York. 20, Subject to be announced, E. Arnold Praeger, Los Angeles, Cal. 21, Ruptured interstitial pregnancy, L. H. Dunning, Indianapolis. 22, Has gynecology received just recognition as a specialty? M. B. Ward, Topeka. 23, Indications for operation in puerperal sepsis, L. S. McMurtry, Louisville. 24, Pneumo-peritoneum, James F. W. Ross, Toronto. 25, Subject to be announced, J. B. Murphy, Chicago. 26, Subject to be announced, Charles A. L. Reed, Cincinnati. 27, Subject to be announced, M. Rosenwasser, Cleveland.

The regular program will be issued September 1.

J. HENRY CARSTENS, President.

WILLIAM WARREN POTTER, Secretary.

NECROLOGY.

LEVI D. MILLER, M.D., of Newton, N. J., died July 21. He was one of the oldest and best-known physicians in Sussex County, and was a graduate of the College of Physicians and Surgeons, New York, in the year 1855. He practiced medicine for twenty-seven years, was surgeon of the Fourth New Jersey Regiment in the late war, a member of the Grand Army and Legion of Honor, and secretary of the Sussex County Medical Society.

EZRA GRAVES, M.D., of Amsterdam, N. Y., died July 1, 1895, aged 56 years. He had served as coroner of Montgomery County, and also as city physician of Amsterdam. He was a graduate of the Buffalo Medical College, of the class of 1865. A widow survives him.

WILLIAM C. JARVIS, M.D., professor of diseases of the throat at the University of the City of New York, July 30.—Henry Shimer, M.D., of Mt. Carroll, Ill., July 30, aged 65.—Walter C. Overstreet Jr., M.D., of Monmouth, Ill.—Solomon C. Salter, M.D., of Lena, Ill., August 1, aged 64.—J. W. DeHoog, M.D., of Chicago, August 1.—C. Plummer, M.D., of Wooster, Ohio, July 27, aged 74.—Harlow Williams, M.D., of Centerburg, Ohio, July 27.—Sheppard Lowrey Van Valzah, M.D., of Milton, Pa., July 28, aged 59.—L. S. Zeiner, M.D., of Easton, Pa., July 27.

MISCELLANY.

Dr. S. Weir Mitchell of Philadelphia, has been honored with the degree of LL.D., conferred upon him by the University of Edinburgh. As he has this title from another university, he is now, indeed, a double LL.D.

Large Charitable Bequests at Hartford.—The will of Mrs. Sarah Tuttle of Hartford, Conn., gives \$10,000 to the Old People's Home, \$5,000 to the Hartford Hospital, \$5,000 to the Hartford Orphan Asylum, \$6,000 to the Larrabee Fund, \$2,000 to the Union for Home Work, and \$1,000 to the Church Home.

Condensed Milk Swindlers.—A recent report by Dr. Bernard Dyer, Public Analyst, and Mr. Cassal, made to the *British Medical Journal* shows that of seventeen samples examined, fourteen are prepared entirely from skimmed milk. It is a source of pleasure to note that of the brands of milk examined none were from American manufacturers.

A New Professor of Bacteriology in the University of Minnesota.—F. F. Westbrook, an instructor in bacteriology at Cambridge University, England, has been elected to a similar position in the College of Medicine and Surgery University of Minnesota. His duties will be assumed with the completion of the new laboratory building in October.

College of Physicians and Surgeons.—Dr. Bayard Holmes, Librarian of the College of Physicians and Surgeons of Chicago, requests all authors who have reprints made of their articles to send a copy of each to the Library, 813 W. Harrison Street, Chicago. Each reprint will be put in a stiff cover and treated in the catalogue as a book.

The Neanderthaloid Man of Java.—The discovery in Java, by Dr. Dubois, a surgeon in the Dutch-Indian Army, of the remains of prehistoric man has now been fairly well discussed by the anatomists of two continents. Prof. A. S. Packard, of Dartmouth College, has given in the *Independent* a digest of the opinions, concerning this discovery, by some of the chief of the authorities in anthropology.

Can Correct Registration of License.—Where, instead of registering his license as a physician with the county clerk, as required by law, a physician filed it with the Board of Health, the general term of the New York Court of Common Pleas holds (Mayor v. Bigelow, June 3, 1895) that due registration made after suit had been begun to recover the penalty imposed for a failure to make proper registration, but before trial, was a defense to such action for the penalty.

University of Pennsylvania.—This institution has invited Dr. John S. Billings, U. S. A., to take its professorship in hygiene. It is stated that he has accepted the offer to take the position before many months, after he shall have completed his mammoth undertaking, the Index Catalogue of the Army Library. It is reported that a subscription paper is in circulation, for the benefit of Colonel Billings, as a substantial recognition of his labors in the interest of medical science.

An Enterprising Midwife.—A French contemporary¹ clips the following "ad" from *L'Indépendance Bretonne*, which shows the thrifty spirit of the French peasantry: "Mdlle. Guezennec, oyster culturist at Lezardrieux, has the honor to make known to the public that her oysters will be sold in the Halls of St. Brieux every Friday. There will also be a depot in the Hall of Guingamp the first of next April. Moreover, Mdlle. G. always practices her profession of midwife of the first class and places herself at the public's disposal."

Postponed to 1896.—It has been decided by Dean Smith of the Yale Medical School that the lengthening of the course shall not take place this year as was originally the plan, but will go into effect September, 1896. This fall's entering

class will be the last to take a three-years' course; beginning with the class entering in 1896 a four-years' course will be required. Several important changes are announced in the faculty of the Medical Department of Yale: Dr. Charles Bartlett, Dr. Louis De Forrest, and Dr. H. L. Swain have been added to the list of professors, and Assistant Professors T. Osborn, H. B. Ferris, and Graham Lusk have been promoted to the positions of professorships in full.

Reports of Committees.—The *British Medical Journal* of July 27 is largely devoted to the reports of the regular and special committees of the British Medical Association, intended to be presented at the annual meeting. It appears that the regulations for the conduct of annual meetings require that all reports of the committees of the Association shall be printed in the *Journal* before the annual meeting. Our own ASSOCIATION might wisely adopt this plan, the benefits of which are so obvious as scarcely to need enumeration. One point in its favor is that by this plan every member has ample opportunity to become familiar with the reports, and to prepare intelligently for their discussion should he so desire. Notices of motions are also similarly printed in advance in the *Journal*.

Hansen's Bacillus in the Blood of Leprous Patients.—Fischella has instituted a series of experiments to determine under what conditions we may find Hansen's bacillus in leprosy blood. He has arrived at the following conclusions: (a), positive result in blood from an incision or puncture near a leprosy tubercle; (b), a uniformly negative result in blood taken at some distance from the leprosy manifestations; (c), negative result in leprosy blood submitted to treatment by Koch's lymph; in the blood of tuberculous patients treated by Koch's lymph we may, on the contrary, find the tubercle bacillus, which ordinarily is not found in the blood; (d), by injecting leprosy bacilli into the blood of rabbits the author found that they disappeared about ten hours after inoculation.¹

"Struck the Keynote."—Commenting editorially on what it styles the "most excellent article of Dr. Julius Kohl, of Belleville, Ill.," the Physician of the Past, the Present and the Future—A Definition of His Social Position, published in this JOURNAL, June 22, 1895, the *Medical Review* of the 3d inst., says: "Dr. Kohl advocates a thorough classical education and examination by the State before a student is admitted to any medical college. A student equipped with the knowledge required by such an examination, is too intelligent to allow himself to be 'taken in' by the bogus medical colleges so that the latter would be compelled to close their doors. The idea is a most practical one, and Dr. Kohl does by no means stand isolated in his views upon this subject. He has struck the keynote and suggested the only remedy against bogus colleges, the cancer of the medical profession. He has applied his ax to the roots of this malignant growth."

Tuberculosis of the Cecum.—MM. Pilliet and Thiery state that tuberculosis localized in the cecum may be disseminated in several directions and it is useful to know these in order to judge the contra-indications for operating. 1, by the peritoneum; this may be slow, localized and of but little gravity; the peritoneum enveloping the tumor is generally adherent to it, and we know from this that the tumor and the intestinal wall form one mass. 2, by the intestines; the majority of the lesions are descending; the maximum is found at the end of the cecum, thence tapering off into the colon; the small intestine, contrary to the usual opinion, is but rarely affected. 3, by the ileo-cecal glands, when we observe sometimes an infection of the mesenteric and mesocolic glands, sometimes an infection of the vertebral glands

¹ Le Progres Medical, July 6, 1895.

¹ Rev. Int. de Med. et Chir. Prat., 1895, No. 11.

reaching to the diaphragm; exploratory laparotomy will enable us to ascertain which condition is present. 4. by the iliac glands; this form is usually accessible to the touch and constitutes a contra-indication.¹

Veterinary Surgeons must Prove Qualification.—A physician, surgeon or dentist, it has been said, undertakes in law to supplement his reasonable care and honest endeavors with ordinary professional skill. The same is true, according to a decision of the Supreme Court of Michigan rendered July 2, 1895, in the case of *Conkey v. Carpenter*, of a veterinary surgeon, because it requires education to be able to treat diseases of dumb animals as well as diseases of men. There is no presumption of qualification. A "quack," without education or experience, employed upon the representation that he is a qualified veterinary surgeon, can not recover for services. Professional employment stands upon a different basis from other businesses. It is, therefore, the common practice, when a professional man sues for services as such, to prove his qualification. This is done by showing his admission to practice under the statute, his graduation from some reputable college or school, or his study and experience, if his right to practice is not regulated by statute.

Pneumonia a Disease.—By the terms of a certain insurance policy, if the death of the insured was from "pulmonary disease," the beneficiary could recover only \$32.50; otherwise, she would be entitled to \$65. The insured died of acute lobar pneumonia, conceded to be a pulmonary affection, but denied by the beneficiary to be a disease. Strangely enough she found an "expert" to testify and a judge to decide that a mortal pneumonia was not a disease. In reviewing the case on appeal, the general term of the Court of Common Pleas of New York city and county says (*Kiernan v. Metropolitan Life Insurance Company*, June 3, 1895) it hardly consists with judicial gravity to argue against a proposition of which the absurdity is self-evident, which involves at once an affront to common sense, a misconception of the plain sense of a plain word, and a contempt for the uniform and universal signification of scientific nomenclature. That pneumonia is a disease is a notorious fact, and so a fact of judicial cognizance. As the court takes notice of the fact, no proof of it was requisite, and no issue could be joined upon it. In support of these points the court cites a number of authorities, and modifies the judgment to \$32.50.

Clinical Results of Double Castration.—In summing up the results of 111 cases of the operation for the relief of senile enlargement of the prostate, as proposed by Dr. J. William White about two years ago, the author says² that the theoretic objections which have been urged against the operation of double castration have been fully negated by clinical experience, which shows that in a very large proportion of the cases (87.2 per cent.) rapid atrophy follows the operation and disappearance or great lessening in degree of long-standing cystitis (52 per cent.); and that more or less return of the vesical contractility (66 per cent.), and a return of the local conditions not very far removed from the normal (46.4 per cent.) may be expected in a considerable number of cases. The deaths have been 20 in 111 cases (18 per cent.); excluding those cases which died from uremia alone the mortality is 7.1 per cent. It may be interesting to note that the desperate cases which make up the series of deaths showed improvement of symptoms or shrinkage of the prostate before they died. Comparison with other operative procedures seems to justify the statement that, apart from the sentimental objections of aged persons on the one hand, and the real, entirely natural and very strong repugnance to the operation felt by the younger patients, castration offers a

better prospect of permanent return to nearly normal conditions than does any other method of treatment.

Fake Patent Medicine Men.—From the *Minneapolis Journal* we learn that fake patent medicine men are working the country districts in the vicinity of that city quite successfully. They sell their medicine and take the farmers' notes in payment, the notes returning for payment in a much different form from that in which they were signed. Deputy Sheriff Megaarden received a letter from C. W. W. Dow, of the Interstate Sheriffs' Association, recently, giving the following description of a man who gives his name as H. Miller and who purports to represent a Buffalo Medicine Company: "He is working among the farmers, taking their notes and discounting them. He is described as follows: Height about 5 feet 6 inches; age about 45, perhaps 50; dark hair, but bald in front and on top of head; a trifle gray; dark eyebrows; had no mustache, may have now; dark complexion; Jewish cast of features; nose slightly Roman; weight about 160; talks broken English, and claims that he can not write English—has his victim do the writing. Had on a black or brownish derby hat, dark coat and vest; laced shoes. He hires a team with a driver, and has driver witness signatures. Had three grips with him. He has operated in southern Nobles County, Minnesota, about June 6, 7 and 8. Last seen at the depot at Little Rock, Iowa." The police are warned to be on the lookout for Miller.

Failure of Emmerich's Antitoxin of Carcinoma.—The Berlin letter of the London *Lancet*, for July 13, refers to the acrimonious debate that has been had in the Berlin medical journals over Emmerich's treatment for cancer. The letter gives a brief description of the present status of the discussion, as follows:

"The article communicated by Professor Emmerich and Dr. Scholl to the *Deutsche Medicinische Wochenschrift*, which was mentioned in my letter inserted in *The Lancet* of May 4, was received here with general skepticism. That this feeling was justified is now proved by the published observations of Professor Bruns (Tübingen), and Professor Augerer (Munich). Professor Bruns was quoted by the authors as vouching for the efficacy of the treatment, but he now states that in no instance was a curative effect remarked, while in some cases the general state of the patients was very unfavorably influenced. Cardiac trouble and raising of the temperature were very frequent, and must have been due to a septic condition of the fluid. To this suggestion, Professor Emmerich answered that the antitoxin was originally aseptic and must have been spoiled by Professor Bruns or his assistants. Professor Bruns replied that the fluid was examined immediately after its arrival in the bacteriologic laboratory of the University, and numerous streptococci were found in it. Professor Augerer stated that two of his cases were attacked with real erysipelas during the antitoxin treatment. The controversy between Professor Emmerich and his opponents sometimes assumed a very personal character and continues to fill the columns of the medical papers. The general impression is that the real carcinoma antitoxin has not yet been discovered."

Not Liable for Mutilations by Post-mortem Examinations.—A widow brought suit to recover damages from the coroner who ordered, the physician who conducted and the college which furnished a room for, the post-mortem examination of her deceased husband, on account of the alleged wrongful mutilation of the body and its unlawful detention from burial when demanded for that purpose. The damage alleged to have been caused by those acts was great mental excitement and distress and bodily suffering on the part of the widow. Death occurred in the Baltimore City Hospital one day, after the man, a brakeman, had had his right leg mashed below the knee. The college in question supplied the medical and surgical service to the hospital, and the coroner who ordered the post-mortem examination and the physician who made it were connected with the college.

¹ *Gaz. Med. de Paris*, No. 27, 1895.
² *Annals of Surgery*, July, 1895.

Judgment was given in behalf of the defendants in the trial court, and the Court of Appeals of Maryland affirms it (Young v. College of Physicians and Surgeons of Baltimore, June 18, 1895) on the ground that the post-mortem was a lawful proceeding, the coroner being required to hold inquests whenever a person is found dead and the manner and cause of death shall not already be known as accidental, or in the course of nature, and the accident preceding this man's death, and disabling him not being, in the coroner's opinion, sufficient to cause the death of a healthy person, while in the coroner's judgment and that of other professional witnesses, proper and sufficient inquiry could not be made without an autopsy. If anything irregular or improper occurred in the prosecution of the post-mortem, the court says that the college took no part in it. Neither did the coroner. The question regarding the charges which alleged the wanton mutilation of the body, the court holds, was fairly left to the jury in an instruction that if they believed that the medical examiner who performed the post-mortem did it at the order of the coroner, as the city examining physician, and in performing the same treated the body with ordinary decency, and did not wantonly disfigure it, he acted within the scope of his official duty and was not liable for damages.

Protection for Purchaser of Good Will.—A dentist who had carried on his business at a certain place in New York city for a period of ten or twelve years, sold out the business and good will thereof for \$1,500, agreeing not to re-enter the practice of dentistry for a period of four years from date of sale within certain territory within the city. He thereafter violated the covenant by opening and maintaining a rival establishment within the restricted territory. The claim that he did not understand the nature and effect of the covenant, or that it was without consideration, the special term of the superior court of New York city said (Niles v. Fenn, decided May 25, 1895), was not borne out by the testimony. A card issued by him in December following the sale, containing his name, address, and the word "dentist," showed that he was, to an extent at least, still in the same business close by the "old stand." This presented a case calling for equitable interference, and to preserve and enforce the covenant an injunction, it was held, should be granted. Although the business sold was a professional one, the court said that the law recognized the fact that it had a good will, which might be sold as an incident of the business. If the customers declined to go to the "old stand," this would be the purchaser's misfortune, but the seller must not interfere to his prejudice.

Treatment of Foreign Bodies in the Uterus.—Albertin of Lyons, having had two cases of foreign bodies in the uterus—one a laminaria tent, the other an electrode,—has collected some data bearing thereon. All authorities except Poulet, he says, are silent on the subject. Foreign bodies may come from within—polypus, fibroma or mole calcified; fetal *débris*; or from without—the introduction of instruments for producing premature birth or abortion or for therapeutic purposes as dilatation, cauterization, replacement, etc., or for purposes of masturbation. Among the objects found are needles, catheters, wooden knitting needles and above all hairpins. From the standpoint of symptomatology there are two classes: 1, when the uterus is enlarged, as in abortion or premature delivery, by perforation or separation of the membranes—if the body is aseptic, no infectious phenomena; metropéritonitis, if it is septic. 2, when the uterus is not gravid there is often long tolerance of aseptic foreign bodies *e.g.*, large sponges mentioned by Pichevin; infectious metritis follows from septic objects; lesions of neighboring structures by propagation—salpingitis, pelvi-peritonitis, sal-

pingo-ovaritis, and disorders of menstruation, amenorrhea and menorrhagia. The process evidently will differ when the foreign body produces a wound of the uterus—initial hemorrhage, perforation, fistula, abscess opening in the groin or perineum. The principal diagnostic elements are inquiry into the history, vaginal touch, examination per speculum and with sound, and, if need be, the use of Sims' small curette. The prognosis is variable; if the object is tolerated it is good; if septic phenomena are present it is of course, grave. As regards treatment: the diagnosis being positive and the body loose, Albertin advises immediate extraction; if it is fast, and local antiseptics is possible, expectant measures should be resorted to, awaiting spontaneous expulsion; if these are contra-indicated dilate by tents and intra-uterine irrigation; as a last resort, use either uterine dressing forceps or Sims' curette or, in exceptional cases, incision of the cervix. The strictest vaginal and uterine antiseptics must be observed before, during and after any manipulations. The patient must be kept under surveillance for some time after extraction of the body, since late septic complications may ensue.¹

The New Anatomic Nomenclature.²—(Karl v. Bardeleben in *Deutsche Med. Wochens.*, July 4, 1895.) At its ninth meeting in Basle April 17 to 20, 1895, the Anatomical Society accepted the "Nomina Anatomica," arranged by the Commission intrusted with this work, and recommends to all professional associates the use of the names included in the list.

In obedience to the request of the editor of this JOURNAL to explain the new nomenclature briefly, I note first, historically, that at the business session of the first meeting of the Anatomical Society, in April, 1887, in Leipsic, the board of directors (at that time v. Kölliker, Gegenbaur, His, Waldeyer, K. Bardeleben) proposed the following plan: "The Anatomical Society desires to begin the regulation of a general anatomic nomenclature. . . ." After the acceptance of this proposition the directors were commissioned to undertake the necessary preliminaries before the next meeting. After it had been proved that the directors could not carry on this business in addition to other work, a special nomenclature commission was elected at the third meeting, in Berlin, October, 1889 (chairman, v. Kölliker; members, O. Hertwig, His, Kollmann, Merkel, Schwalbe, Toldt, Waldeyer, Bardeleben). This commission chose next an editor, W. Krause, and sought then to obtain the necessary funds. Beside 3,800 marks which the Society gave, over 8,000 were contributed by the Academies in Berlin, Vienna, Munich, Buda-Pesth and the Society of the Sciences in Leipsic. The commission later, at least temporarily, associated others with them: Braun, Henle, v. Kupffer, v. Mihalkovicz, Buda-Pesth; Rüdinger, Zuckerkandl, Leboucq, Ghent; Thane, London; Turner, Edinburgh; Cunningham, Dublin; Romiti, Pisa, and others. For some parts of the work, special committees were chosen: for veins and lymph vessels, Merkel, Thane, Toldt; for regions, Merkel, Rüdinger, Toldt; for syndesmiology, Toldt. Finally, a special publication committee took care that the whole work should maintain a uniform character.

Fixed limits were established for the extent of the undertaking; only the descriptive, that is, the systematic³ and the typographical, human anatomy, and this only so far as it is the subject of macroscopic examination, should constitute the object. Secondly, it was resolved that the terms

¹ Rev. Int. Med. et Chir. Prat., No. 11, 1895.

² Die anatomische Nomenclatur. Nomina anatomica. Verzeichniss der von der Commission der Anatomischen Gesellschaft festgestellten Namen, eingeleitet und im Einverständnis mit dem Redaktionsausschuss erläutert von Wilhelm His. Mit 30 Abbildungen im Text und zwei Tafeln. Sep.-Abzug a. Arch. f. Anat. u. Physiol. Anat. Abthlg. Suppl.-Band, 1895, 183 S. Die obige Darstellung schliesst sich an die "Einleitung" von His an.

³ The two expressions, "descriptive" and "systematic," are frequently applied erroneously, as having the same significance, whereas the former is the more comprehensive.

should be in one language, that is, Latin designations only, and to permit the individual nations to translate these eventually into their languages. The following principles were recognized in applying the names: each part shall have but one name. The names shall be Latin and etymologically correct. They shall be as short and simple as possible. They shall be mere tokens for the memory, and not contain descriptions or interpretations. Connected names shall be as far as possible analogously framed (for instance, femur, A. femoralis; V. femoralis; N. femoralis). Too firmly fixed names have made exceptions necessary, so M. sternocleidomastoideus has remained, Valv. ceceespidalis is to be used together with Valv. mitralis, pyramis and pars petrosa, vola and palma, nates and clunis. As regards proper names, a compromise has been decided upon; that is, many remain, others not. For some parts the proper names have been temporarily retained in addition to the other names, and the final decision for the time relinquished.

One very weighty question was, to what extent attention should be paid to the anatomic nomenclature of the specialties in medicine, psychiatry and neurology, the aurists, ophthalmologists, laryngologists and others. Here the decision was restrictive, that the specialists had been forced to the creation of their nomenclature through necessity and that anatomy, as a collective science, has to follow this. The student, who goes out from his anatomy into the clinics, can demand that he receive those ideas and the language which he needs in his more advanced studies, and that it should not be necessary for him to learn a new anatomy in place of an antiquated one.

The original plan, to proceed in a purely conservative way and to select from the already existing designations the most suitable, could not be adhered to. Not only antiquated expressions, but also such as are vague and used with various meanings must be excluded; or, on the other hand, they must be clearly fixed in their significance. The latter was only possible many times by specially devised means, where literature was inadequate. The writer chooses only certain examples from single headings in systematic anatomy in illustration of what has been said:

Osteologia. Scapula:

Facies costalis, Lineæ musculares, Fossa subscapularis, Facies dorsalis, Spina scapulae, Fossa supraspinata, Fossa infraspinata, Acromion, Facies articularis acromii, Margo vertebralis, Angulus inferior, Angulus lateralis, Angulus medialis, Cavitas glenoidalis, Collum scapulae, Incisura colli scapulae, Tuberositas infraglenoidalis, Tuberositas supraglenoidalis, Incisura scapulae, Processus coracoideus, Margo axillaris, Margo superior.

Splanchnologia. Pulmo:

Basis pulmonis, Apex pulmonis, Sulcus subclavius, Facies costalis, Facies mediastinalis, Facies diaphragmatica, Margo anterior, Margo inferior, Hilus pulmonis, Radix pulmonis, Incisura cardiaca, Lobus superior, medius, inferior, Incisura interlobaris, Lobuli pulmonum, Rami bronchiales, Bronchioli, Bronchioli respiratorii, Ductuli alveolares, Alveoli pulmonum, Lymphoglandulae bronchiales, Noduli lymphatici bronchiales, Lymphoglandulae pulmonales.

Angiologia. A. radialis:

A. recurrens radialis, Rami musculares, Ramus carpeus volaris, Ramus volaris superficialis, Ramus carpeus dorsalis, Rete carpi dorsale, A. metacarpeæ dorsales, Aa. digitales dorsales, A. princeps pollicis, Aa. volaris indicis radialis, Arcus volaris profundus, Aa. metacarpeæ volares, Rami perforantes.

Neurologia. N. medianus:

Rami musculares, N. interosseus (antibrachii) volaris, Ramus palmaris n. mediani, Ramus anastomoticus cum n. ulnari, Nn. digitales volares communes, Nn. digitales volares proprii.

Organa sensuum. Apparatus lacrimalis:

Glandula lacrimalis superior, Glandula lacrimalis inferior (Glandulae lacrimales accessorie), Ductuli excretorii (Glandula lacrimalis), Rivus lacrimalis, Lacus lacrimalis, Puncta lacrimalia, Ductus lacrimales, Papillae lacrimales, Ampulla ductus lacrimalis, Saccus lacrimalis, Fornix sacci lacrimalis, Ductus nasolacrimalis, Plica lacrimalis (Hasneri), Lacrimae.

Aus der topographischen Anatomie:

Regiones colli:

R. colli anterior; R. submentalis, hyoidea, subhyoidea, laryngea, thyroidea, suprasternalis, Fossa jugularis, R. submaxillaris, Fossa carotica, R. sternocleidomastoidea, Fossa supraclavicularis minor; R. colli lateralis: Fossa supraclavicularis major, Trigonum omoclaviculare; R. colli posterior: R. nuchæ, Fovea nuchæ.

We will now hope that the new anatomic nomenclature, called to life with the expenditure of so much toil, time and money may be a common source of agreement not only for anatomists, for investigators and teachers of different nations and languages with one another, but also between teachers and pupils, between anatomists and physiologists, pathologists and practitioners, also between theory and practice! Then will the long and toilsome work of the commission not have been in vain.

Hospital Notes.

THE LONG ISLAND STATE HOSPITAL FOR THE INSANE is the name under which the two asylums of Kings County, in which Brooklyn is located, will hereafter be known. These asylums, located in Flatbush, and King's Park, Suffolk County, have passed into control of the State by virtue of an Act of the Legislature of New York; but the new board of managers to be appointed by Governor Morton, will not take formal possession until October 1. For the purpose of carrying out the provisions of the Act, the county authorities will, under direction of the board, execute a quit-claim deed to the State, in consideration of the sum of \$1. The asylum property in Flatbush will only be leased to the State for a period of five years, with the privilege of extending the time from year to year, not exceeding five years additional. At the end of the leasehold, the old asylum buildings will be converted into general hospital purposes.

The transfer of the insane asylum to the State will save the county an annual expense of about \$300,000.

THE new hospital pouches have been issued to the Regimental Hospital Corps of the Connecticut National Guard. Each pouch contains the following: 2 roller bandages, 2 ounces boracic wool, 2 ounces patent lint, 1 Esmarch tourniquet, 1 first aid packet, 1 medicine glass measure, 1 pus basin, 2 small sponges, 4 ounce bottle chloroform, 1 ounce bottle aromatic spirits of ammonia, book of diagnosis tags, 1 ounce carbolated vaselin, 1 No. 8 catheter, pair scissors, paper sorted pins, one-half dozen assorted safety pins. One pouch to each corps, to be carried by the acting hospital steward, contains the following articles in addition: medicine case containing tablets and a hypodermic syringe with morphin, and cocaine tablets. The medicine case contains the following in tablet form: bichlorid, acetanilid, brown mixture, quinin pills, opium and camphor pills, cathartic pills. The pouches are made of brown canvas and weigh about five pounds.—St. Joseph's Hospital at Providence, R. I., is to be improved by the addition of a laundry to cost \$2,000.—The Rev. William L. Bull and his mother, Sara R. Bull, of Whitford, R. I., have given \$8,000 to the management of the Chester, Pa., County Hospital, to be used in erecting a memorial building to Mrs. Bull's daughter, Annie.—The report of the German Hospital for the period from June 20 to July 23 shows the number of patients on June 20, 136; admitted since that time, 226; discharged, 205; deceased, 18; remaining in hospital, 139. The number of cases treated in the dispensary was 2,827.—The house physician of St. Luke's Hospital at Jacksonville, Fla., announced on August 1 that no more patients would be received at the hospital. The closing of this charitable institution is caused by lack of adequate financial support by the citizens of that city, and it is to be hoped that this condition of affairs is but temporary.

Washington Notes.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officer for the week ended July 27 is as follows: number of deaths (still-births not included): white, 60; colored, 47; total, 107. There was improvement in the health of the city last week. The number of deaths as reported at the Health Department was 107, as against 159 in the preceding week. The death rate fell 33 per cent., reach-

ing 20.5 as compared with the previous report of 30.5. The deaths of children under 5 years of age declined from 70 to 53. It is thus seemingly indicated that the intensity of the annual rise in the mortality from summer maladies reached its climax last week, and the outlook for a gradual improvement during the balance of the summer may be considered favorable. There was but one death from diphtheria and none from scarlet fever nor from any of the dangerous contagious diseases reported, while there were four deaths from typhoid fever last week, and four from the same disease in the former week.

THE CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The annual report of the Central Dispensary and Emergency Hospital for 1894 is being distributed. It contains, beside the record of its extensive work for the past year, an interesting history of the institution from its organization.

FIRE ESCAPES OR NO LICENSE.—As the only way of reaching hotel keepers who do not comply with the regulations of the fire-escape law, the Commissioners have decided to refuse a license to all proprietors who decline to provide fire escapes for their establishments after sixty days' notice. The enforcement of this law will prevent a repetition of the preventable loss of life and limb which has so frequently shocked the community recently. The law is very perfectly drawn and is a good and necessary one.

DIED FROM SWALLOWING GLASS.—A 13-year-old colored boy died last week under circumstances which caused the parents to suspect poisoning. The boy said he had been given beer to drink which contained arsenic or strychnin. Upon investigation by the coroner no trace of poison could be found. A perforation of the intestines by a piece of glass and resulting peritonitis was discovered. The glass is supposed to have been in the beer he drank.

Louisville Notes.

PERSONALS.—Drs. Henry E. Tuley and S. G. Dabney have returned from a summer vacation. Drs. J. M. Mathews, J. B. Marvin and J. A. Oetelony are still absent.

UNIVERSITY OF LOUISVILLE.—The Medical Department recently elected Prof. H. A. Cottell to succeed Dr. E. R. Palmer in the chair of physiology. Dr. H. M. Goodman was elected professor of chemistry to succeed Dr. Cottell.

MILK.—Much commendable work is being done by Health Officer White, in his endeavor to obtain pure milk for Louisville. The question of milk supply of cities was first brought to the notice of the local profession in a paper read by Dr. Tuley, before the Louisville Academy of Medicine; a paper was later read by Dr. J. A. Larrabee and a general discussion had upon the question of legislation. A committee was appointed from the Academy to draft suitable resolutions recommending to the local council the passage of a new ordinance, creating a milk inspector, and new laws under which he could work. The committee has met with no encouragement from the Mayor who states he will oppose any ordinance in which a new office is to be created. Dr. White has been doing excellent work under the present inadequate laws, and has secured samples of milk from dairymen, the offending ones being arrested, a fine of \$50 being imposed upon one, and \$25 each upon two others, for watering and otherwise tampering with the milk. One dairyman in his defense very ingeniously said that he added two gallons of water to every twenty gallons of milk; in the first place to cool it, and in the second to prevent its becoming "stringy." He was fined.

TEXAS (SPLEENIC) FEVER.—The cattle at a number of points near Louisville recently became afflicted with this disease, and indications pointing to a severe and disastrous epidemic, the State Board of Health appointed as State Veterinarian, Dr. F. T. Eisenman who has been making vigorous efforts to

stamp out the disease. In this he has been nearly successful, as only isolated cases are heard of from time to time.

MEDICAL LEGISLATION.—The board of aldermen have passed the contagious disease act and it will shortly become a law. It provides for the placarding of houses in which there is diphtheria or scarlet fever; quarantining of other children from school; proper isolation of children after convalescence; in case of death, early and private funerals, the body to be buried in a sealed casket. It has been decided to erect urinals over the sewer catch basins at the street corners for the G. A. R. Encampment.

DEATH REPORT.—For the week past there was a total of 55 deaths; of these 24 were male, 31 female; 37 white, 18 colored; 34 single, 16 married, 5 not stated. For the month of July there were only 294 deaths, while there were 333 deaths in July 1894. Annual death rate per 1,000, 15. White death rate per 1,000, 164,261 population, 14. Colored death rate per 1,000, 35,739 population, 23. For month, white, .013; for month, colored, .022.

Samples of milk examined, 82; diseased cattle killed, 48; diseased cattle condemned and sent to the country, 85.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 27, 1895, to August 2, 1895.

Capt. W. FITZHUGH CARTER, Asst. Surgeon U. S. A., is granted leave of absence for one month.

Major C. K. WINNE, leave of absence granted for seven days, is hereby extended twenty-three days.

Capt. JUNIUS L. POWELL, Asst. Surgeon U. S. A., is hereby granted leave of absence for one month, with permission to apply for an extension of one month.

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended July 31, 1895.

Surgeon W. H. H. HUTTON, to proceed from Washington, D. C., to Pensacola, Fla., on special duty, July 18, 1895.

Surgeon J. B. HAMILTON, granted leave of absence for three days, July 30, 1895.

Surgeon W. A. WHEELER, detailed as chairman of board for physical examination of candidate, revenue cutter service, July 23, 1895.

P. A. Surgeon D. A. CARMICHAEL, detailed to make physical examination of candidate, revenue cutter service, July 26, 1895.

P. A. Surgeon L. L. WILLIAMS, granted leave of absence for ten days, July 20, 1895.

P. A. Surgeon G. M. MAGRUDER, to proceed from Galveston, Texas, to New Orleans, La., for temporary duty, July 27, 1895. Order to proceed to New Orleans suspended, and directed to proceed to Eagle Pass, Texas, for special duty, July 31, 1895.

P. A. Surgeon J. C. PERRY, granted leave of absence for twenty days, July 16, 1895.

Asst. Surgeon E. H. SRAQUE, to proceed from Mobile, Ala., to Key West, Fla., for temporary duty, upon completion of which to rejoin station at Mobile, July 18, 1895.

Asst. Surgeon A. R. THOMAS, to proceed from Buffalo, N. Y., to New Orleans, La., for temporary duty, July 20, 1895.

Asst. Surgeon H. S. CUMMINGS, detailed as recorder of board for physical examination of candidate, revenue cutter service, July 23, 1895.

Asst. Surgeon J. B. GREENE, to report at Bureau for temporary duty, July 16, 1895.

LETTERS RECEIVED.

Allen, Dudley P., Cleveland, Ohio; Axtell, E. R., Denver, Colo.; Atkinson, W. B., Philadelphia, Pa.

Burr, C. B., Flint, Mich.; Barrie, Geo., Washington, D. C.; Brown, E. M., Chicago, Ill.

Chandler, H. S., New York, N. Y.; Doliber-Goodale Co., Boston, Mass.; Doyle, J. T., Green Bay, Wis.

Frank, Chas. T., Detroit, Mich.; Feick Bros., Pittsburg, Pa.

Griffith, L. M., Bristol, England; Holleman, P. W., Roseland, Ill.; Hummel, A. L., Philadelphia, Pa.

Ishester, R. T., Chicago, Ill.; Knox, C. S., Superior, Wis.; Kinyoun, J. J., Washington, D. C.;

Kierle, N. G., Baltimore, Md.; Latta, S. W., Philadelphia, Pa.; Lower, M. O., North Manchester, Ind.;

Lord & Thomas, Chicago, Ill.; Maas, F., Detroit, Mich.; McNitt, G. F., Racine, Wis.; McEnroe, J. F.,

Schenectady, N. Y.; McKie, Thos. J., Woodlawn, S. C.; Newman, H. P., Chicago, Ill. (2); Niven, J., Staples, Minn.

Post-Graduate Medical School, Chicago, Ill.; Parke, Davis & Co., Detroit, Mich. (2); Pring, Ernest, San Francisco, Cal.

Raymond, J. H., Brooklyn, N. Y.; Rosenthal, Jacob, Chicago, Ill.; Rubber Tire Wheel Co., Chicago, Ill.; Russell, L. B., Goodwin, Ill.; Rochelle, W. F., Jackson, Tenn.

Sander, Enno M. W. Co., St. Louis, Mo.; Sweeney, Wm., Milwaukee, Wis.; Straw, J. R., Ashland, Wis.; Spaulding, W. C., New York, N. Y. (2);

Shearer, J. Y., Sinking Springs, Pa.; Scherling & Glatz, New York, N. Y.; Sanitarium The, Battle Creek, Mich. (2).

Trowbridge, L. S., Detroit, Mich.; Totman, D. M., Syracuse, N. Y.; Taylor, W. S., Livermore, Cal.

Warner, W. R. & Co., Philadelphia, Pa.; Woodbridge, L. D., Williamstown, Mass.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, AUGUST 17, 1895.

No. 7.

ORIGINAL ARTICLES.

HYSTERECTOMY FOR SUPPURATIVE DISEASE OF THE PELVIC ORGANS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. M. BALDY, M.D.

PHILADELPHIA, PA.

When on the evening of Oct. 5, 1893, I read before the Obstetrical Society of Philadelphia, a paper entitled "Removal of the Uterus and its Appendages for Pelvic Inflammatory Disease," and for the first time proposed this procedure as a matter of election, my remarks met with a strong protest and almost universal disapproval. At almost the same time, Polk made a similar proposition in a paper read before the New York Obstetrical Society, which was received by an almost equal amount of condemnation.

During May, 1894, I read a paper on the same subject before the American Gynecological Society at its Washington meeting, and it proved to be a matter of considerable surprise that in the short interim so large a number of the members had already practiced and approved the new procedure, as was developed by the discussion. Since that time, I have had many opportunities of demonstrating the feasibility and advisability of this operation to many physicians visiting Philadelphia from all sections of the United States, and find that many of them on returning home have adopted the method.

To-day the operation is established on a sure and firm basis, and many women who were before doomed to a partial recovery are now blessed with a complete return to health. My object in again encroaching upon the time of the profession with this subject, is not that I believe anything is needed to establish its feasibility, but rather to again freshen the minds of those who may feel that hysterectomy is either a more difficult or more dangerous operation in these cases than salpingo-oöphorectomy. For this purpose it may not be out of place to once more review certain general considerations arising in this connection which were formulated in my paper before the American Gynecological Society one year ago. I there propounded the question, "Is the uterus essential or useful after the ovaries have been removed?" At that time I assumed, and still assume, that this query can only be answered in the negative. If it is granted that the uterus, deprived of its appendages, is a useless organ in the human economy, as far as its relation to this matter is concerned four questions are pertinent:

1. Are all patients cured after an operation requiring double salpingo-oöphorectomy?
2. Are patients cured after hysterectomy when double salpingo-oöphorectomy has failed?
3. Does the operation of hysterectomy increase the

mortality over that of double salpingo-oöphorectomy?

4. Is the retention of the uterus of any disadvantage or danger to the patient?

As to the first and fourth questions nothing can be added in answer, other than was advanced in the paper to which reference has already been made. There is no one who has practiced gynecologic surgery to even a limited extent, but who knows that patients suffering from chronic pelvic inflammatory disease are not always cured of their symptoms by the removal of the tubes and the ovaries alone. The matter is so notorious that it is hardly necessary to more than call attention to the fact to quiet any criticism from this direction. As to whether or not patients are cured after hysterectomy, when double ovariectomy has failed, as stated in my former paper experience must decide. I there said: "In my paper read before the Philadelphia Obstetrical Society, Oct. 5, 1893, two cases are reported in which the uterus had been removed subsequent to a simple extirpation of the appendages. After the primary operation these patients had continued to suffer from leucorrhæal discharges, bleeding and pain. The secondary operation for removal of the uterus proved that the appendages had been thoroughly and completely extirpated at the first operation and that no such cause as incomplete removal existed to account for the continued suffering. The removal of the uterus in both cases cured the patients, and at the present writing they both remain in good health.

"Two other similar operations have been performed since that time with like results."

It may be stated that these four patients now, a year and a half later, remain in good health without any return of their old symptoms. I am at this time able to add two cases to this list, with like results, making a total of six patients who have been rescued from chronic invalidism by a hysterectomy subsequent to a double salpingo-oöphorectomy. During this period, from fifteen to twenty patients have passed through my hands on whom the salpingo-oöphorectomy had failed to relieve the symptoms, but whom I was unable to persuade to try the hysterectomy, on account of their suffering at their former operation and a sentiment against losing the womb, which many women by reason of false professional teaching appear to consider a vital organ. These facts seem to answer my second question most emphatically and in the affirmative.

The whole subject must after all hinge upon the answer to the third question, "Does the operation of hysterectomy increase the mortality above that of double salpingo-oöphorectomy?"

If the mortality be increased and the relief be not commensurate, the proposed procedure must fall and we must return to the old one of double salpingo-oöphorectomy, or seek for a substitute in some other direction. That much greater and surer relief of

symptoms are obtained has already been demonstrated. In my paper of last May there are reported twenty-two patients who were suffering from chronic pelvic inflammatory disease, upon whom I had performed hysterectomy. In that report I said: "Of this number all recovered from the operation, and the great majority have been cured. My highest mortality in the past has always followed removal of the appendages in this same class of patients. At no time have I been able to pick out anything like twenty-two successive successful double ovariectomies in cases of the same character as those upon whom I have found it advisable to perform hysterectomy. Not only has hysterectomy, in my hands, lessened the mortality very markedly, but it has rendered the convalescence infinitely smoother, easier and more satisfactory."

At the present time, I have twelve more to add to the list, making in all thirty-four cases without a death.

In addition to my own cases, I may submit in evidence the work in this same direction by other operators to date: Baldy, 34 cases, no deaths; Kelly, 70 cases, no deaths; Polk, 20 cases, 1 death; Pryor, 9 cases, no deaths; King, 65 cases, 4 deaths; Penrose, 25 cases, 1 death—making a grand total of 223 cases with 6 deaths, a mortality in the hands of six operators of 2.7 per cent.

What better argument can one possibly offer in favor of any new procedure? A greatly lessened mortality, a surer and more thorough relief of symptoms, an easier and shorter convalescence, a freedom from any possible future disease of the womb! Can there be any who are yet skeptical?

Hysterectomy being determined to be the proper procedure in certain chronic pelvic inflammations, it remains to determine in what cases to choose this operation. In this connection, I can not do better than quote *verbatim* from my last paper on the subject:

"It is well-known in pelvic inflammation the disease first affects the mucous membrane lining the womb and, secondarily, invades the Fallopian tubes and the pelvic peritoneum. In many cases not only is the endometrium affected, but the inflammatory products invade the deeper structures which go to make up the uterine walls. These infiltrates undergo the same changes as do the same elements in the walls of the Fallopian tubes whether it be suppuration or partial organization; in either case the process is apt to become a permanent one.

"With Fallopian tubes and uterus, both of which are diseased by the same factor and to the same extent, is it reasonable to suppose that a cure is to be always obtained by the removal of the tubes alone? Theory and practice both combine in this matter to force the conclusion.

"It must not be understood that the removal of the uterus together with the Fallopian tubes and ovaries is recommended in all cases of pelvic inflammatory disease. I am forced to dissent at this point from the views of some other surgeons with whose opinions in other respects I am thoroughly in accord. In many cases the uterus, possibly on account of its anatomic relations which are so favorable to good drainage, has succeeded in throwing off the original infection and is comparatively healthy, if not entirely so. Under such circumstances, hysterectomy is not indicated. But where an abdominal section has been

performed for the removal of the uterine appendages and the womb is found enlarged and diseased, especially if it has been surrounded by extensive adhesions, the destruction of which leaves large areas of denuded peritoneum, hysterectomy should be the operation of choice. Even when the uterus is not greatly diseased, if during the course of the operation it be largely denuded of its peritoneal covering, it is best to complete the operation by its removal.

"The sole objection which could be urged against this procedure is an increased mortality; but, since this has been proved fallacious, opposition from any standpoint must necessarily be withdrawn. It is freely granted that in accepting this practice, uteri will often be removed which might safely have been left behind. Even in the face of this possibility the procedure is fully justified, in view of the possibility of future harm on the one hand and the certainty of no extra risks on the other.

"The decisive *pro* or *con* is at times a difficult one at the time of the operation, in which case the patient should be given the benefit of the doubt and the uterus should be removed. In all cases it is assumed that both ovaries must of necessity be sacrificed. Except in the presence of malignant or tubercular disease, the womb should never be disturbed if even a portion of one ovary and a Fallopian tube can be preserved. Nor is an operation to be extended to the performance of hysterectomy, where the double salpingo-oophorectomy will even temporarily answer the purpose, should the patient be in such condition that the prolonged manipulation might render the result of a given case doubtful. Common sense must be used in the application of this principle, as in all other surgical procedures."

VAGINAL HYSTERECTOMY FOR SUPPURATIVE DISEASE AND ITS RESULTS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY I. S. STONE, M.D.

WASHINGTON, D. C.

Since we have found that the uterus may be removed by the vagina with less shock to the patient than by the abdominal method, we may consider the operation of abdominal hysterectomy as well applied to other diseased conditions than cancer, for which the operation was first designed.

Dr. Engleman has well set forth the historical facts in papers recently published (Trans. Southern Surgeons and Gynecologists' Association, 1893-94). The uterus has been successfully removed so often for cancer by various surgeons as to no longer admit of doubt in any respect as to its low rate of mortality, or the vast number of complete and permanent cures.¹ This satisfactory result has induced the writer in common with many others, to remove the uterus and the adnexa by the vaginal route for the following reasons:

1. In cases where partial hysterectomy had been done by the supravaginal method, leaving a sinus or fecal fistula.

2. Where operations have been performed for salpingitis or purulent collections within the pelvis,

¹ The writer has only one return of the growth in his experience, a case in which the bladder was involved at time of operation. The patient, however, is still living in comparative comfort, although slight return nearly three years after operation.

leaving extensive adhesions and often an irritative endometritis and vaginitis.

3. In sepsis of the uterus (septic metritis) as after abortion, etc.

4. In purulent collections outside the uterus, pelvic abscess especially when the disease is extensive.

This classification indicates the evolution of the operation in the writer's hands. Every operator of experience must have encountered difficulties when he attempted to deal with fecal fistula or old sinuses after operations for pus, when there may or may not be tubercular disease of the region involved. I have myself encountered peculiar and insurmountable difficulties on a second opening of the abdomen in such cases. For these conditions the writer finds in vaginal hysterectomy a solution of the problem, and to which he resorts with the utmost confidence.

The second class of cases also affords a degree of comfort to the operator, and relief to the patient in no other way so safely and satisfactorily obtained. In a large number of these cases the uterus was intensely septic when the tubes and ovaries with their purulent contents were removed. Adhesions must frequently follow in the wake of such conditions, giving pain to the patient and at times anxiety to the surgeon.

In addition to these results of operations for disease outside of the uterus, we occasionally find patients who after an ideal operation do not have a satisfactory recovery. They may continue to menstruate. They may have a decided endometritis and vaginitis. I have had my share of these cases, and without hesitation advise hysterectomy to complete the cure, for I know of nothing more annoying than these post-operative symptoms which have their origin chiefly within the uterus, and which no amount of local treatment will cure.

In the third class we must likewise give the preference to the vaginal method for many reasons: 1, because of less traumatism and consequently less shock to the patient; 2, because the time required is less, and because we can secure thorough drainage, and if necessary we can complete the operation without prolonged or profound anesthesia. The abdomen must always be closed with the patient under profound anesthesia if we would avoid all danger of catching the omentum or loops of bowel in the sutures, as may happen at the close of the operation, especially if the patient vomit. In many cases we may be in doubt as to the extent of sepsis outside the uterus and here we can remove diseased adnexa, or separate intestinal adhesions, with the positive certainty that only good can follow such surgery, if indeed any surgery can save the patient. In a recent case I lost a patient after supravaginal extirpation of the uterus when the vaginal method might have succeeded, in a case of sepsis following abortion. The vessels of the broad ligaments were loaded with thrombi, plainly seen at the time of the operation. The case was exactly parallel to one reported by Dr. Baldy in the *New York Journal of Gynecology and Obstetrics* for March. My patient, like his, developed croupous pneumonia, and died two weeks after the operation. In my case I made a very unfavorable prognosis, and the patient died, as I predicted, of pneumonia. Dr. Baldy says his patient would have recovered but for the pneumonia; I was not so sanguine about my own case. It is worthy of note that these two cases, reported so nearly at the same time,

should have died of croupous pneumonia and not septic or pyemic embolic pneumonia. In view of this, and other reasons, I shall hereafter regard the vaginal route as offering many advantages over the abdominal in such cases.

Lastly, we shall consider the removal of the uterus for the purpose of entirely eradicating septic foci from the pelvis of women who have had gonorrheal or other sepsis which has extended into tubes and ovaries or even beyond this limit. When Dr. Baldy read his paper in Washington before the American Gynecological Society in 1893, I was not prepared to take this step, for the reason that I could not believe so many uteri were the seat of septic disease in the body of the uterus itself. I was confident that the endometrium was almost entirely and alone the seat of the disease. A curetting ought to cure this, and I argued that if we sealed up the cornua of the uterus, no further infection of the peritoneum could or would probably occur. But increasing experience has shown that the position assumed by Dr. Baldy and others is right, at least in a majority of cases. If we examine uteri removed in operations for purulent collections in the pelvis, we will often find abscesses in the uterine wall. These pus collections may give the appearance of small fibroids under the peritoneum, and even with the uterus in my hand in one case, I was about to demonstrate to visitors a small fibroid, and found an abscess containing one-half drachm of pus.

In conclusion, then, the writer would in many pus cases, and especially where we have very ill patients and extensive suppurative disease, suggest a trial of this operation. In the technique of the operation I can not yet follow our German and French brethren, who so confidently resort to the morcellement operation, and use the forcep clamp to the exclusion of the ligature. But I do find the operation wonderfully facilitated by amputation of the lower third of the uterus, as soon as the broad ligaments are separated thus far. The fundus uteri can then be readily turned forward, and the operation at once becomes simplified and facilitated, because it is completed in full view, permitting the separation of remaining bowel adhesions with the help of the sight added to that of touch.

Of one feature of the new operation I can not speak with experience. The pus sacs, according to Jacobs, may be left and merely washed out and packed with gauze; this gauze to remain four to six days. This feature is repugnant to my taste, and not in accord with surgical experience. To remove the uterus and leave these pathologic and wholly useless organs appears unsurgical. We are told that actual results show the innocuousness of these pus sacs if properly drained. Again, in nearly all the cases where gauze packing is used, and comes in contact with peritoneum, we will find it firmly adherent in twenty-four to forty-eight hours, and requiring decided force for its removal. Hence many surgeons are avoiding the use of gauze for drainage. It surely drains for a short time only, and then it becomes an obstruction to drainage, and when removed denudes the peritoneum over the intestine or elsewhere of its epithelium and invites the formation of adhesions.

After reciting these reasons for extirpation of the uterus, we may well ask, Why not remove the uterus in all cases where it is now only useless, as without the appendages, but is also dangerous when it is the seat of numerous abscesses. We may therefore con-

clude that when the uterus is to be extirpated for any purpose, the vaginal route is to be preferred to the abdominal. There is less danger of peritoneal infection, less traumatism and shock, and the resulting cicatrix is not a permanent source of annoyance to the patient. The writer confidently asserts that in the future there will be relatively more vaginal and fewer abdominal extirpations of the uterus for pelvic disease.

INDICATIONS FOR TOTAL HYSTERECTOMY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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I can vividly recall to mind the able discussion which took place at Washington in 1887, during the meeting of the Ninth International Medical Congress, on the subject of extirpation of the uterus for relief of carcinoma. Since that time my attention has been more particularly directed to the subject.

At the time that the treatment of cancer by extirpation of the uterus was brought before the congress, I felt that the advocates of the measure had taken an advanced step. We all now recognize that the various procedures necessary in abdominal surgery have been more carefully considered and that the individual experiences have tended to do much toward placing that kind of work on a firmer basis. So far as statistics are concerned, as to the results of the different cases treated, they can not afford any very definite help, for in dealing with any case in which hysterectomy is indicated we shall find that the result will depend on many and often upon diverse factors, often upon the individual skill of the operator, upon a wise selection of the case, careful discrimination and accuracy of diagnosis, upon a full appreciation of the fact that the morbid process to be relieved is the chief offending cause of the illness, and that there is not some more obscure and dangerous lesion that may give rise to the suffering. Assuming that these conditions have been met, the success of the case may often depend upon the facility with which the method of technique can be carried out.

The results achieved by the method of operating by the employment of the hysterectomy staff have led to the consideration of the use of other means for overcoming the difficulties encountered in a total hysterectomy. We are still more fortunate in having brought to our attention the perfection of other devices, the proper employment of which can greatly facilitate the most difficult part of the operation and give assurance that the entire cervix in a vagino-abdominal hysterectomy may be removed without incurring danger to the paracervical structures.

By means of the intra-uterine stem attached to a disk or cap, as a center for hermetically sealing the parts from the foci of infection, and also of a staff to assist in elevating the uterus and the morbid mass to be extirpated, as devised by my friend, Dr. A. H. Tuttle, we are enabled to remove by total hysterectomy many tumors, neoplastic developments, and to relieve other conditions that have been deemed most difficult to overcome by the older operative measures. From the help that may be thus gained, and from

experiences in other directions, it is not unsafe to say that total hysterectomy is indicated, *cæteris paribus*, in cases in which the uterus may be in a position opposite to that of prolapse and in such a state of immobility, superinduced by previous inflammatory processes affecting the adnexa and producing such adhesions of those parts, as to necessitate for relief operative interference. In an operation for overcoming the adhesions, it will be found that the appendages, by the previous morbid condition that had been set up, have undergone destructive degenerative changes. In deciding in such cases that total hysterectomy should be attempted, the question of moral consideration will not be involved, for the reason that the uterus itself will in all probability be found to have lost its functional activity. By the facility with which the whole organ can be removed by the operator's adopting the improved methods of technique, the dangers usually attendant on the carrying out of such radical measures will be greatly lessened.

Total hysterectomy should be had recourse to in cases of rapidly growing interstitial fibroids, or in cases of large subperitoneal growths developing from a broad sessile base. The operation is indicated, not only from the hemorrhage which they occasion, but also from the pressure which may take place upon the surrounding parts, and from the obstruction they may produce in the vascular tissues in the abdominal and pelvic organs. Palliative measures of treatment, including employment of electricity, may be helpful in overcoming hemorrhage, but the adoption alone of such a course of procedure must necessarily prove disappointing. The importance of resorting to total hysterectomy will be appreciated when the real history of the degenerative processes of such tumors has been more carefully considered.

If a large and rapidly growing fibroid should take on a retrograde process, either spontaneously or through the influence of regular and systematic treatment by electrolysis, or otherwise, the positive ultimate dangers arising from the presence of such a growth will be far from being wholly removed, for in such a stage, when the patient is seemingly improving, the morbid growth may afford a culture chamber into which other disease cells may migrate and then undergo a malignant degeneration. In such a condition, total hysterectomy is the only expedient that will afford a complete and permanent cure. A fibroid tumor developing in the interstitial and parietal portions of the uterus may so extend as to involve the entire body of the organ, overlapping and inclosing in large measure the adnexa, and taking a downward course, include and bury the cervical structures also. In this condition the morbid growth involving the uterine structures may elevate itself from the lower pelvic cavity and thus afford a greater facility for removal through an abdominal section. This was the special feature in one of Dr. Tuttle's cases, to which I was also called, when total hysterectomy was accomplished by a vagino-abdominal incision.

The removal of a fibroid should not be deferred because it appears, or is first observed, at or near the menopause, for it is not infrequent for such a tumor to continue to develop long after the occurrence of that period, and it may assume all the phases and present all the untoward results that are attendant on one that has had an earlier beginning. Treatment of fibroids by a resort to salpingo-oöphorectomy, to

say the least, is of doubtful utility; this method for awhile may give seemingly beneficial results. When it does so, it is evidently because the growth is principally sustained by the ovarian artery; in other cases the results following this method are so unimportant that an operation would seem to offer but little advantage. There are undoubtedly many cases of fibroids in which the nourishment is at certain periods of their growth derived chiefly from the uterine artery. There are also cases of uterine myomata, in which the physical condition of the patient will not warrant a resort to hysterectomy. In this class of cases the method adopted by our President, Dr. Franklin H. Martin, of ligating these vessels has proved to be of considerable service. With our advanced knowledge, however, of the pathology of these neoplasms, and with our increasing experience and achievements in abdominal surgery, we should not advise a woman who is comparatively free from disease, except from the effects which a fibroid may have occasioned, to rest content with merely submitting to such an uncertain surgical measure.

A nodular fibroid of the slower growth should not be regarded with unconcern, for the pressure that may be made by the mass upon the surrounding parts, and especially upon the ureters, may cause chronic edema and finally contracting kidney, as did once occur in one of my own cases, in which the autopsy showed that had the growth been removed the renal lesion would undoubtedly have been avoided and the patient's life been saved. In this connection it might be remarked that the effects of pressure are to be considered, aside from malignancy, as among the most baneful influences that are attendant on the presence of uterine and ovarian tumors. Uterine myomata in all their various stages call for removal; this should be effected as early as possible. In certain cases the curette can be advantageously employed; if this method is unsuccessful, hysterectomy should be the next surgical expedient. In one case in which a multilobular fibroid appeared, there was but little enlargement of the uterus. Hegar's method for removal of the uterine appendages was performed by a distinguished surgeon resident in another State; the patient, however, did not recover until after the lapse of six years, when she submitted to total hysterectomy.

The ordinary methods of treatment of the more extended forms of adenoma frequently prove unavailing. The study of the pathology of adenomatous formations shows that the hypertrophy of the glands of the lining membrane often extends throughout the entire cavity of the mucous lining. When a uterus has once been affected with this kind of morbid process and the condition does not speedily yield to curettement and to other milder measures of treatment, a more radical course should be instituted. Total hysterectomy offers the best advantage for permanent relief. After sarcoma in any part of the uterine system has been suspected to exist it should be an indication for action; its malignant nature and its unfavorable tendencies when viewed according to the present light afforded by the pathologic history is unquestioned. As in the early stages of cancerous disease, before the para-uterine tissue has become involved in the morbid process, so in sarcomatous developments partial removal by the supravaginal method will prove inadequate; nothing less than total ablation of the uterine tissue, including

the entire cervix as well as the fundal portion, should for the most part be deemed sufficient for a cure.

The question has been asked, Should hysterectomy be resorted to for ovarian tumors? In answer to this it may be stated that carcinoma appearing in the ovary is almost always dependent upon the disease previously occurring to some extent in the uterine tissue. Not long since I was called to a case in which the adnexa had a year before been removed for what then appeared to be a malignant condition of those parts. Since that time the uterus and the parametrian tissue had become extensively involved. Had total hysterectomy been carried out at the time of the first operation, before the cancerous elements had advanced, the patient could undoubtedly have been saved. According to later observation and experience, sarcomatous developments occurring in the ovary should be promptly removed; this can best be effected by total hysterectomy. When papilloma and fibroma occurring as ovarian tumors are recognized at an early stage of their existence, and before they have extended downward to the neighboring tissues, they should be thoroughly and promptly removed, even if it has to be done at the sacrifice of the uterus and its appendages.

It should be here stated that carcinomata and sarcomata in all their various forms call for immediate and thorough removal as soon as a diagnosis of the condition can be made. Experience, however, shows that the results following the removal by hysterectomy of a sarcomatous growth, when the operation is undertaken in a late stage of its existence, will prove to be more satisfactory than will those that may be attendant on the removal, by this method, of a cancerous mass at a similar stage of its existence.

Total hysterectomy is absolutely necessary for uncontrollable prolapse, after anterior and posterior colporrhaphy and other plastic operations have been repeatedly tried, but have failed to produce permanent relief. In such cases the vaginal method is the operation to be preferred. Total hysterectomy is the only safe surgical expedient to be adopted in cases of hemorrhagic polypi which present suspicious microscopic appearances after removal, and which leave as a result an enlarged uterus, as may be determined by palpation or by the sound.

Hysterectomy is called for in ectopic pregnancy; in such cases the hemorrhage can be more safely controlled, and the patient is enabled to make a more rapid recovery than by the other methods of procedure. This method of treatment should be undertaken in ovarian abscess, in pyosalpinx, in old inflammation of the appendages, in a post-clinical severed uterus which has been productive of pain and has been a source of disablement. The operation should be resorted to in all suspicious diseases of the adnexa and in cases of large cysts, as well as in papillomatous developments and in otherwise irremovable cysts and intraligamentous fibroids and tumors of the broad ligaments.

Later experiences show that total hysterectomy can be accomplished with as little danger as may be attendant on many other important surgical measures. When properly performed, there is often but little tenderness left about the vicinity of the broad ligaments. When done in ectopic pregnancy, in ovarian abscess, in pyosalpinx and in purulent liquifaction of a uterine fibroid better drainage can be established. On the other hand, when the uterus or

a portion of it is left, the condition resulting is liable to be followed with many complications, with uterine catarrh, malignant degeneration, certain neuroses and with other sequelæ of a painful or of a clinically depressing nature.

Another advantage total hysterectomy insures is that the posterior and anterior folds of the pelvic tissue can be brought together and united by suturing so as to secure better results than when other surgical methods are employed. In bringing these folds together after the uterus has been totally removed, their margins can be turned outward and downward; this arrangement of the parts will thus practically invest the operation with all the advantages that can be secured by the choice of the extraperitoneal method.

I have already stated that the vagina is the natural avenue through which an uncontrollable prolapsed uterus may be removed. This avenue for removal should be especially chosen when the uterus is not enlarged, or when the condition of prolapse is not complicated with the presence of a fibroid or other tumor. In such cases the technique of the operation may not be as difficult to carry out and the patient may not be exposed so long to the influence of the anæsthetic as by other methods. The consequent shock will, therefore, not be as great. The same method may occasionally be recommended when hysterectomy is indicated for a cancerous affection which has not extended beyond the cervical portion of the uterus. In those cases, however, of cancer in which the fundus is involved, total ablation of the uterus can best be effected by the vagino-abdominal method. I am not unaware that statistics have been brought forward to show that the adoption alone of vaginal hysterectomy when undertaken by certain operators has yielded exceptionally good results. In all reports in which such records have been established by work accomplished on a large number of cases I have often felt that the many favorable terminations were, after all, but mere coincidences, or that only those cases for operation were selected that would be advantageous to the showing.

TOTAL HYSTERECTOMY BY A NEW VAGINO-ABDOMINAL METHOD.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ALBERT H. TUTTLE, S.B., M.D.
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Those of you who have seen much of the work in total extirpation of the uterus, have watched the progress of the cases through convalescence, and have studied the after results will, I believe, no longer express a doubt of the greater value of the total over the partial methods of hysterectomy, but will agree that the now important question for consideration is in regard to the method to be pursued and to the detail of operative finish.

Owing to the variety of conditions for which the operation is indicated, and the great diversity of circumstances under which the operation is performed, no one method will entirely do away with all others, but improvements in the technique of any one will give it a wider range of usefulness, which must necessarily be at the loss of some other.

In determining the value of an operation for total extirpation of the uterus, statistics of mortality, the

principal items formerly considered are important, but now they can not be entirely relied upon, because owing to the improvement in methods, and the increased skill of the operator, death should be unusual, and depend much more on the disease and condition of the patient than on the operation *per se*. The fatal cases should first be considered individually, noting their differences in strength and natural vitality, the variety and extent of the pathologic conditions and complications, and the ability of their several operators to deal equally well with a given technique. They should then be compared with those nearest alike that have recovered in the same series, and again with like cases in the series of other operators who have selected another technique. Finally, one should reason *a priori*, like a skilled mechanic who studies a problem set before him for the first time, noting the dangers and difficulties in each movement necessary to attain a given result, comparing the various means which the method offers for reducing the amount of technical skill necessary for the operator and for obviating the danger of injury to contiguous parts during the dissection, as well as for furnishing the requirements of the patient's life, health, and rapid convalescence, expressed in a short operation, little ether, diminished shock, etc.

It was after a careful consideration of these various circumstances, and a review of the advantages and disadvantages peculiar to the several techniques of vaginal and abdominal hysterectomy that I have conceived the following operative method, selecting the best parts in each other operation, avoiding, so far as possible those attended by greater difficulties, and meeting the new requirements by special means.¹ I have developed it by careful study of every case, slightly modifying the order of detail procedures and now and then improving the instruments in such manner as to require the least possible time for their manipulation.

I have repeatedly put the method to a practical test, under most trying circumstances, inviting the inspection and criticism of many members of our profession, and now in a more mature condition it affords me pleasure to offer it for the consideration of this honorable body.

The vagino-abdominal method of hysterectomy is characterized by a division of the labor into two parts vaginal and abdominal.

The vaginal part consists of:

1. Sterilization of the cervix and vagina and their maintenance in this condition by closure of the uterine canal with a metal stem which also serves as a guide for the limits of the cervix and for the attachment of an elevating staff.

2. Abcision of the vagino-uterine attachment; dissection of the cervix from the bladder in front and the peritoneum behind, and the packing of the cavity thus formed with gauze.

3. The closure of the vaginal vault from below.

In all, except cases of cervical cancer, the order of items 1 and 2 are partly reversed.

The abdominal part consists of:

1. Opening of the abdomen by a median incision.
2. Ligaturing and section of the ovarian vessels and lateral folds of the broad ligament.

¹ First communicated to the Gynecological Society of Boston in the early spring of 1894, and later presented in a paper at the June meeting of the Cambridge Medical Improvement Society. ("Total Extirpation of the Uterus by a New Method," *Boston Medical and Surgical Journal* Oct. 18, 1894.)

3. Incision of the peritoneal covering of the uterus in front and behind and its separation, with the bladder, to the lines of vaginal dissection.

4. Clamping of the uterine vessels, abscision and removal of the uterus.

5. Eversion of the flaps of peritoneum, with the ovarian stumps, and closure of the lower abdominal opening with concealed sutures, the serous surfaces in contact.

6. Closure and hermetically sealing of the external abdominal wound.

The special instruments employed in the operation are the uterine stems and the elevating staff. The uterine stem is a device used to cork up the contents of the uterus; to give support and attachment to a staff used for elevating the uterus; and to serve as a guide for determining the position and limits of the cervix. It consists of a cap to cover the cervix, and a central stem that fits into the canal, the whole being cast and turned from one piece of metal. The cap is concave on one side and convex on the other, has a groove in the edge to serve as director, and a number of T-shaped slots about the periphery for holding sutures. The central stem, two inches long, is either smooth or has a thread cut upon it, and is held in place either by the thread or by a line of sutures. Perforating the stem for the depth of an inch is a conical shaped cavity which receives the staff and holds it by a simple slip joint. The staff is a steel rod bent on the curve of a prostatic catheter, except that the point is directed a little more outward, and is made to fit the cavity of the stem. Both instruments are inserted through the vagina, but the stem is removed with the uterus from the abdominal opening.

Preparation of the Patient.—When the result of an examination determines for the first time the requirement of hysterectomy, the physical and constitutional condition of the patient is carefully noted, and unless this is favorable for an operation she is placed on tonic treatment and the heart beat regulated. Especial attention is paid to the examination of the urine and kidneys, which almost always show some defect, and unless there is about the normal secretion of solid constituents, operation is deferred. If the uterus is enlarged and filled with soft cancerous or sarcomatous material, and for some time previously has been emitting a serous or bloody discharge, a preliminary thorough curettement, followed by rest in bed, will result in a very short time in the temporary improvement of the physical condition of the patient.

For a few days before the operation the patient is given a liquid diet and kept quiet in bed. By packing the vagina daily for a week before the operation it will be stretched and softened considerably and give greater facility for the after manipulation. The day before the operation the bowels are thoroughly cleared of all fecal matter and made less septic by the administration of 10 grains of calomel in one dose, about noon, followed by teaspoonful doses of magnesium sulphate every hour until several movements have occurred. The hair over the pubes is then shaved away; the patient given a warm bath, and scrubbed with soap, rinsed with bichlorid solution (1 to 5,000), which is allowed to dry on, dressed in sterilized clothing, and put to bed, with a bichlorid pad over the abdomen, between sterilized bed clothing. For supper is given a hot drink of malted milk or similar food. On the morning of, and at least four hours before, the operation, rectal enemata of warm water are re-

peatedly given until the return is clear, then a vaginal douche of bichlorid (1 to 1,000). The lower limbs are clothed with woolen wraps; 2 ounces of whisky and 20 minims of freshly prepared tincture of digitalis are administered by the rectum before the patient is taken to the operating room, and at the beginning of the operation 1-4 gr. morphin, 1-150 gr. atropia, and 1-10 gr. strychnia are given subcutaneously in one dose. In order to avoid all unnecessary length to the period of anesthesia, the ether is not given until the preliminaries are nearly completed, and in the beginning is often substituted by the use of chloroform, either pure or in the form of the A. C. E. mixture.

Operation.—A short speculum is introduced into the vagina and the perineum depressed. With the help of vaginal retractors the cervix is exposed to view, and drawn as far as it will come into the introitus by means of tenacula forceps. A probe is now passed, and the direction, shape and size of the uterine canal determined. Unless the canal is freely patent it is dilated, and treated with equal parts tincture of iodine and carbolic acid, applied on a cotton stick. If the character of the disease is other than cervical cancer, a circular incision is made, simply cutting through vaginal structures about the uterine neck, keeping as close to the os as possible, yet at the same time sufficiently remote to include all diseased tissues, as in the usual manner of performing vaginal hysterectomy.² The uterus is now separated from its anterior and posterior attachments and coverings as freely as possible, by means of the finger or handle of a scalpel, and then the cut margin of the vagina is caught with forceps and loosened sufficiently to allow it to be drawn together and sutured. A line of continuous suture is taken about a quarter of an inch from the cut margin, and is like the ordinary purse-string suture except that the first stitch which is placed at the back, is carried around the vaginal artery, the suture drawn so as to leave both ends of even length in the vagina, the threads crossed, and then one side of stitches taken with one end, and the other with the remaining end. In this manner the principal vessel is caught in a loop and when the ends of the suture are drawn tight, not only is the vault of the vagina closed in, but also any tendency to hemorrhage from the vaginal artery is obviated.

The patient is now placed in position for abdominal section, with means ready for obtaining the Trendelenburg posture. The usual incision is made and of variable length to meet the requirements of the case. The peritoneal cavity is opened at the upper angle of the wound, in order that the position of the bladder can be determined before the opening is completed and injury to it avoided. The incision is carried close to the pubes to gain as much room as possible for working in the pelvis. The contents of the abdomen are carefully inspected and the method of dissection determined. If the case is a simple enlarged uterus with appendages approximately normal, the tumor is drawn out of the wound and to one side; the fold of broad ligament, including the tube and

² In most cases this maneuver is comparatively simple, but with a large tumor in a single woman, somewhat advanced in age, with a rigid vagina narrowed and elongated by long continued upward traction exerted by the uterus as it is forced out of the pelvis to seek room for the growing tumor, and with a cervix perhaps almost entirely "taken up" by the distension exercised by the new growth; or, with a senile uterus firmly fixed by old adhesions in the upper region of the pelvis and nearly hidden from external inspection by the contraction of the vagina that often occurs after a certain age, it is a matter of great difficulty, and contrary to what might be expected, little help will be gained by incision of the sphincter vaginae.

ovary of the other side is put on the stretch, and a row of sutures passed below the ovary from close to the side of the uterus to the free margin of the ligament, so as to include the ovarian artery. This line of sutures is inserted by means of a perineal needle; is taken like a shoemaker's stitch, but each stitch—which includes but a small amount of tissue—is drawn tight and secured by taking a turn of the loose end of the suture about the other, so as to form a series of single knots. The uterus is then pulled over to the other side, and the remaining tube, ovary, vessel and ligament secured in the same manner. The ligaments are cut away above the ligatures; and between the points of their excision, across the uterus in front and back, about an inch above the attachment of the bladder anteriorly, and an inch above the cervix posteriorly, the peritoneal covering of the womb is incised. With the help of a scalpel handle, the bladder and peritoneum are now rapidly dissected up from the uterus in front until the line of former vaginal dissection is reached; the posterior layer of peritoneum is treated in the same manner; the sides of the uterus are freed from peritoneum as much as possible; when the lateral attachments, including the uterine artery, can be easily clamped, and the organ cut away, and removed. In cutting away the uterus keep as close to that organ as possible.

During the dissection an assistant holds up firmly the uterus by means of the staff which shortens and defines the neck, and enables the operator to quickly and easily perform what is usually the most difficult part of the operation, the enucleation of the cervix. An uterine stem is then selected, according to the length of the cervix and size of the canal; with a soft uterus and large easily dilatable cervix, one with a wide thread is used, but with a cirrhotic organ, one with a fine thread or even smooth stem is preferable.

The uterine stem is inserted and forced into place, after filling the cap with iodoform either by simple pressure, or in case one with a thread is used, by turning it up with a screw-driver, at the same time holding the cervix firmly by means of tenacula forceps fixed into the anterior and posterior lips. If the case is one of cervical cancer the stem must be inserted before any incision is made, and the contents of the uterus and infective parts tightly sealed by sewing the vagina to the edge of the metal cap with sutures taken through normal vaginal structure, and sufficiently remote from the uterus to include all diseased tissue. One should then proceed as above described for non-infective cases.

It is often advisable to tie a smooth stem into the cervix with one or more sutures to prevent slipping. The staff is now inserted into the central cavity of the uterine stem and held in place by an assistant; the parts sponged clean and dry; tampon of iodoform gauze packed into Douglas' pouch, under the peritoneum, and between the cervix and bladder; and the ends of the purse-string-like suture drawn tight and tied, closing in the vault of the vagina below the cervix, gauze and uterine stem, except for a small opening through which the staff passes.

In exceptional cases, already mentioned, not only is this careful toilet of the vagina very difficult or impossible, but unnecessary and time consuming, and should be omitted. In these cases it is better to simply make a circular incision through the vagina, free the cervix, and then pack hard about the cervix and the whole vaginal cavity with sterile gauze.

This elevates the uterus, pushes the ureters further away to the sides of the pelvis, and serves as a guide during the dissection in the abdominal cavity.

The gauze packing acts also as a guide, and is of material assistance during this dissection. The uterine vessels are firmly ligatured with kangaroo tendon, the clamps removed and all oozing of the blood from the pedicles stopped by suturing. The anterior and posterior peritoneal flaps are brought together; the cut edges are turned in so as to bring the serous surfaces into contact, and the stumps containing the ovarian arteries are folded in at the angles so as to become extraperitoneal, the whole being closely united by a line of blind sutures, which when drawn tight are situated outside of the peritoneal cavity. All clots are removed by dry sponging, the abdominal wound closed layer by layer with animal ligature, and finally sealed with cotton and collodion.

Although ordinarily it is preferable to remove the ovaries, should one or both be found firmly bound down by old adhesions and in a cirrhotic condition, it is better to leave them *in situ* than to delay the operation by such time necessary for their removal. They will, as a rule, give rise to no further symptoms, as has been repeatedly demonstrated by vaginal hysterectomy, where often they must necessarily be left behind.

When a large multiple fibroid mass is encountered, the topography of the parts must be carefully studied and the position of the bladder and, if possible, the ureters, determined. If the growth forms with the uterus a single tumor, the same directions for operating as above described hold good, but where there are several distinct tumors, which are sessile in attachment and appear to have a large pedicle, a sufficiently long cross incision is made through the peritoneal covering, and each tumor is enucleated as far as possible. By this means the pedicle will usually be found much smaller than expected, forming a part of the uterine attachment, and easily included in the clamp employed for securing the uterine vessels of the same side. Care must be taken in cutting and dissecting back the peritoneal covering not to tear or injure the ureter, the position of which can not always be recognized. If it is determined passing over the tumor it should be dissected up and carried to one side with the overlying flap of peritoneum, but if it can not be distinguished, any and all tissue which resembles it should be treated in the same manner, and as the clamps are applied prior to the final abscision, bear in mind the watchword of this operation, *stick close to the uterus*.

If, upon opening the abdomen, bladder, omentum, bowels, uterus, tubes and ovaries present as a confused and conglomerate mass, firmly bound together by adhesions, the uterus can still be removed subperitoneally, as follows: a point is selected on the fundus of the uterus that is not obscured by adherent viscera, and a small cross incision made through the peritoneal covering. The edges can then be picked up with forceps; the opening intelligently enlarged without injury to the adherent organs; and the peritoneum dissected from the uterus in every direction, well down on the sides and sufficiently to admit of the easy adjustment of the clamps. The organ is cut away, the vessels secured, and the peritoneal openings closed as before, leaving the tubes and pelvis under the peritoneum to drain *per vaginam*. In other words, the uterus is removed by the

combined method with the same consideration for its surroundings which the French operators have when they extirpate by the vaginal method.

The advantages of the vagino-abdominal method over the vaginal method are:

1. The peritoneal cavity is completely closed, and left with no raw surface for subsequent adhesion with viscera.

2. Primary union is the rule and convalescence rapid.

3. The subsequent complication of rectocele or vesicocele is avoided.

4. The uterine vessels in all cases can be perfectly secured and there is no danger of secondary hemorrhage.

5. Abscesses of the tubes and ovaries are more completely removed.

Over the abdominal methods:

1. Complete subperitoneal drainage can be established.

2. The length of time which the peritoneal cavity is exposed is greatly reduced by the previous vaginal dissection, and shock is consequently diminished. (A large uterus can be removed in from twenty to thirty minutes.)

3. The limits of the cervix are closely defined and the necessary extent of the dissection readily determined.

4. The sepsis is more complete and there is less danger of subsequent infection.

Over both:

1. The dangers of hernia are reduced; vaginal over the vaginal method; ventral, over the extraperitoneal treatment of a constricted stump.

2. Danger of injury to the ureters is avoided.

3. The manipulation is easier in the most difficult parts of other operations.

4. There is less danger of injury to the bladder and other viscera.

5. Hemorrhage from the vaginal artery is avoided.

6. The operation is practically bloodless.

7. It offers a means for removing large uterine tumors with extensive adhesions, which could only be done with great difficulty or not at all by the other methods.

8. Its greater perfection of the principles of modern aseptic surgery.

Appended are the reports of six consecutive cases, all of which made a good recovery, that illustrate the principles of the method:

Case 1—Sarcoma of uterus. Vagino-abdominal hysterectomy. Recovery. Family physician, Dr. E. de la Granja. Mrs. L. W., nullipara, several miscarriages, married. First seen, February, 1894. Age 60 years, housewife. Family history not ascertained. Previous history; good health until a few months ago; tumor detected a year ago; later, watery and bloody discharges, progressive weakness, emaciation, attack of la grippe, circumscribed peritonitis, and distress with pressure symptoms. Previous treatment with ergot and tonics. Present condition extremely weak and nervous, tumor reaching to umbilicus; bloody and watery discharges; emaciated; frequent attacks of pain; insomnia; requires much opium. Physical examination; enlarged uterus, short cervix, long, narrow and rigid vagina, clean os; sound passes four and one-half inches; lungs, heart and kidneys normal. Urine low sp. gr., 1015; no albumin. Preliminary treatment: removal of nearly a quart of soft, friable, sarcomatous tissue by curetting in two sittings, the second necessitated as the great loss of blood and feeble condition of the patient during the first attempt would not admit of it being finished. Tonics and stimulants. Curettings February 12 and March 17.

Operation of hysterectomy April 10, 1894. The patient

made a good recovery, enjoyed fair health during the summer and moved out of town, thus passing out of my hands. I learned that she died with symptoms of renal disease during the early winter.

Case 2—Multinodular fibroid uterus. Vagino-abdominal hysterectomy. Family physician Dr. F. C. Osman, of Dorchester, Mass. Mrs. S., married, 1-para, no miscarriages, first seen, April, 1894. Age 42, housewife. Family history negative. Previous history; a slowly developing tumor of the right broad ligament, cystic, causing such disturbance that its removal was advised and performed by Dr. Wm. T. Lusk, six years previous, and at the same time both ovaries were also removed. Small multiple fibroids had been recognized before, and the diagnosis was verified at the time of operation. The health improved, but there was constant pain, discomfort and disability up to the present time, with swelling of left leg of recent origin. She had received various anodyne, stimulating, tonic, and local treatment, without much benefit. Perineorrhaphy seven years ago. At the time of operation she was pale, emaciated, feeble, but of a cheerful and hopeful mind. Good steady pulse, and no evidence of renal disease. Menstruation (metrorrhagia) regular to time of hysterectomy. Physical examination showed an enlarged uterus, nodular, and lying back against the promontory, and somewhat low in the pelvis. The os was clean, the canal four inches deep, and there was nothing peculiar about the vagina.

Operation for hysterectomy was performed May 1, 1894. The details of the operation were carried out carefully in every particular, according to my previous description. There was no appreciable shock and the patient made a complete recovery and has since been perfectly free from pelvic pain and discomfort, although she still suffers from some cystitis. Urine 1031; no albumin or sugar.

Case 3—Fibro-cystic disease of both ovaries. Enlarged uterus. Vagino-abdominal hysterectomy, recovery. Family physician, Dr. Rich. Hogner, Boston, Mass. Mrs. N. O., married, nullipara; no miscarriages; first seen August, 1894. Age 29 years, housewife. Family history shows a sister, 2-para, about 40 years old who died in June, 1893, from sarcoma-cystica-ovariorum. Previous history: for several years she has suffered from excessive and long continued menses, occurring about every two weeks. Last May after heavy lifting she had an attack of pelvic peritonitis, with metrorrhagia, so extensive as to threaten the patient's life, complicated with slight nephritis and acute endocarditis as well as embolic pneumonia. For a year and a half, menstruation has been regular, except for two periods. Previous treatment consisted of gynecologic kinesitherapy, according to the method of Thure Brandt, and Swedish medical gymnastics. Her condition at the time of operation was excellent as far as the general health was concerned. Examination showed a tumor reaching nearly to the umbilicus and closely connected with the uterus. The fundus could not be determined. The urine was normal. The cervix was normal, uterine canal four and one-half inches, and vagina roomy.

Operation Sept. 11, 1894, was unusually long, owing to numerous adhesions. Very little shock followed; the urine of the first ten hours was smoky and albuminous. Recovery was perfect, and the patient has remained well since.

Case 4—General interstitial fibroid uterus, submucous fibroid, ovarian fibro-cystic tumor on the right side. Vagino-abdominal hysterectomy, recovery. Family physician Dr. Mary E. Bates, Boston, Mass. Miss E. A.; single; nullipara; no miscarriages; first seen April, 1894. Age, 43 years. School teacher. Family history; mother has suffered for years with an abdominal growth. One sister and brother well. Previous history: dysmenorrhea from childhood, steadily growing more severe, and especially during the past ten years. Ten years ago it was claimed she had a misplacement of the uterus and a ring pessary was worn for several months with relief of symptoms. For several years she has had flatulent dyspepsia with headache occasionally. Five years ago she was cured by Dr. Marcy. For several years menstruation has occurred nearly every two weeks and very profuse. A watery discharge has been noticed most of the time and required the constant wearing of a napkin for two years. She is extremely feeble and exhausted on slight exertion, although well nourished. There is pallor and discoloration of the skin. Heart, lungs and kidneys normal. Uterus considerably enlarged; cavity four and one-half inches deep, tender; os clean. Vagina somewhat close; right ovary painful to pressure; urine normal.

Preliminary treatment by curetting in May, 1894; rest in bed, tonics and sent to seashore for the summer. Came

back with increased tone and weight, but incapable of work. Operation Oct. 25, 1894. Primary union of parts but some bladder catarrh followed with occipito-cervical neuralgia. Steady improvement from the beginning and she resumed her occupation as teacher April 1, 1895.

Case 5.—Large uterine myomata. Vagina-abdominal hysterectomy. Recovery. Family physician, Dr. John E. Somers, Cambridge, Mass. Miss M. R., nullipara; no miscarriages; single. First seen December, 1894. Age 32 years; domestic. Family history: both parents living; of thirteen children one sister died from uterine tumor, and two others in confinement. Previous history of excellent health until the summer of 1893, when a large bunch, at first pulsating, but not later, was discovered in the lower abdomen. It was not tender to touch, and did not increase in size for a year. Menorrhagia was severe after the tumor appeared, requiring two dozen napkins at a period. It was painless. There was some leucorrhœa but not enough to require the wearing of a napkin. Previous treatment with tonics. At the time of operation she was pale and cachectic looking with a doughy condition of the face. The heart was irregular and there was an indistinct systolic murmur. The urine has a sp. gr. 1020; no albumin, but many squamous and pavement epithelial cells with some mucus. She was well nourished and without evidence of emaciation. The uterus reaches above the umbilicus, is symmetrically enlarged with a cavity six inches deep, and a clean os. The vagina is roomy.

Operation Jan. 17, 1895. While on the table patient was at times considerably cyanosed and the pulse could not be determined. She reacted well, however, and made a rapid convalescence with primary union. After the operation the urine showed traces of albumin, and some hyalin casts. The mind gave indications of impairment but there is improvement in this particular.

Case 6.—Large uterine myomata. Vagina-abdominal hysterectomy. Recovery. Family physician, Dr. John E. Somers, Cambridge, Mass. Miss Lily B. A., nullipara; no miscarriages; single. First seen December, 1894. Age 37 years, school teacher. Habit of taking long walks. Family history negative. Previous history: well until the summer of 1891, when after a long and fatiguing walk on a very hot day menstruation occurred, a week before it was due. After this event, frequent and profuse metrorrhagia followed and continued at irregular intervals to the date of operation. In the fall of 1893 and spring of 1894, the attacks of hemorrhage were especially severe. In January, 1894, phlebitis occurred in both legs and confined her to bed and room several weeks. The tumor was first discovered in June, 1894, and in the fall of the same year a watery discharge from the uterus appeared, so profuse as to necessitate the use of a napkin constantly. Previous treatment of tonics and electricity since July, 1894 relieved, to a certain extent the exhausting hemorrhage. Her present condition in general is fairly good, pallor being the worst symptom. There is some edema of the limbs; the urine is increased in quantity, with a sp. gr. 1020; the solids are in normal amount. Heart, lungs and kidney are free from disease. The uterus is symmetrically enlarged and reaches above the umbilicus; the cervix is short and "taken up" high in the pelvis. The os is clean and the vagina long and narrow. Sound passes nearly five inches.

Operation March 7, 1895. A stem could not be inserted and after freeing the uterus from the vagina, the parts were packed with gauze and the operation finished from above in the usual way. Twenty-five minutes only was consumed in making the incision and removing the uterus, and the toilette of the peritoneum and closure of incision was finished in the same time. The patient rallied quickly from the operation and made a good recovery. This was the first case in which I had been obliged to leave the vagina open from above, and although the recovery was as complete as the others, a daily variation of 1 to 2 degrees of temperature and slight vaginal discharge showed the cavity at the vault of the vagina healed by second intention with granulation.

The Red Cross Society of Japan.—The Japanese branch of the Red Cross Society was founded in 1877. At the beginning it had only 38 members. At present it has 141,000 members and an income of \$380,000, besides possessing a hospital. On Sept. 2, 1889, it was officially recognized by the International Committee.

HYSTERECTOMY FOR PUERPERAL INFECTION.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The advances which have been made in the science of bacteriology and the discovery that the same germs are responsible for wound infection and puerperal sepsis, has given a new impetus to the consideration of certain surgical procedures looking to the cure of various forms of sepsis met with during the puerperium. During the past few months the question of removal of the uterus, as a method of treatment for certain conditions arising during the course of puerperal infection, has been discussed by some of the prominent gynecologic societies of the country and much difference of opinion in regard to the advisability of this mode of procedure has been shown to exist.

In spite of the diminished mortality from puerperal sepsis, brought about by the introduction of antiseptic and aseptic measures, probably many thousands of women die annually from puerperal septicemia. The favorable results have been obtained in the large maternities, where perfect technique can be secured. Outside of these hospitals, on the other hand, there exists still a large amount of septic infection, following abortion or labor at full term. It is next to impossible to gather accurate statistics relative to the mortality from this disease, because of the inaccuracy of the death certificates. The public have learned to blame the attending physician for any death resulting from septic infection subsequent to labor, from which naturally arises the discrepancy between the actual and reported diagnosis. If to this be added the sepsis arising from accidental and induced abortions, it will be seen that no effort should be spared to perfect all methods of treatment for the relief of this condition. The present paper is offered as a slight contribution to the study of the subject.

A clear conception of the bacteriologic and pathologic changes in the birth canal is highly essential to the evolution of correct principles of treatment. Bumm describes two forms of endometritis, putrid and septic. The germs which are active in producing septic endometritis are the streptococcus pyogenes aureus, the staphylococcus pyogenes aureus and the streptococcus erysipelatus. The septic process may be localized and the germs shut off from the underlying tissues by a granulating zone, or this zone may be absent and the pyogenic cocci be found distributed in the lymphatics leading to the peritoneum. In septic endometritis although putrefactive germs may be present, they do not predominate, hence fetid lochial discharges are apt to be absent in the more septic processes, a fact of much significance as a point of diagnosis.

In putrid endometritis there is always to be found decomposed material within the uterine cavity and a necrosis of the epithelial layer. The granulation zone is also present in this variety, and acts as a barrier to the penetration of the germs and their products into the lymph spaces of the uterus. The putrefactive focus within the uterine cavity favors the development of certain toxins, the absorption of

which into the blood gives rise to a form of systemic poisoning termed sapremia, the symptoms of which differ in many respects from those accompanying septicemia.

Generally speaking, cases of puerperal sepsis may be divided into two large classes: 1, those where by means of the lymphatics, a large number of germs have found their way into the general circulation without giving rise to localized inflammation in the broad ligaments, adnexa or peritoneum; and 2, where the septic process has resulted in areas of localized inflammation in and about the birth canal, the general circulation containing, as the case may be, many or few of the pyogenic cocci.

Considering the second class first, we meet with a variety of local manifestations. The septic inflammation may spread from the interior of the uterus to the peritoneum and a localized peritonitis result. The germs may travel by way of the uterine lymphatics or Fallopian tubes. These are the cases which offer the best results from operative interference, because the products of inflammation are walled in and shut off from the general peritoneal cavity by adhesions. This variety of inflammation results in localized collections of pus, which often assume such large proportions as to be mistaken for, and reported as, cases of general septic peritonitis cured by celiotomy and drainage.

The broad ligaments may be involved by an absorption of the septic germs by way of the pelvic lymphatics. Here we meet with true pelvic cellulitis and abscess, the evacuation of which often results in a subsidence of the puerperal symptoms and a cure. Again we may have a general purulent peritonitis resulting from absorption by way of the lymphatics. This usually proves rapidly fatal and where fully developed is probably not amenable to treatment, the system being overwhelmed by the poison absorbed from the large amount of surface involved in the septic process.

In speaking of the pathologic conditions found in septic endometritis, it was stated that in a certain class of cases the granulating zone, shutting off the necrotic endometrium and offering a barrier to the invasion of the germs into the underlying tissues might be absent. Then the pathogenic cocci are absorbed directly by the lymphatics and veins and find their way directly into the general circulation setting up a virulent septicemia. These are the cases belonging to the first division mentioned above. Localized inflammatory processes in the cellular tissue, adnexa and peritoneum are absent or only appear secondarily just before the fatal issue brought about by the general systemic poisoning. Even in those cases of septic endometritis where a granulating zone is primarily present, active absorption may take place if, through the injudicious use of the sharp curette, this protective zone is removed. To recapitulate, we may divide puerperal sepsis into two large divisions:

1. Where general infection predominates, and localized inflammatory processes appear only secondarily and are of minor importance compared with the general septic condition.

2. When the septic absorption results in the formation of localized inflammation either in the adnexa, pelvic cellular tissue or peritoneum. General infection, however, may accompany or result from these inflammatory collections.

There should be no difference of opinion in regard to the proper treatment to be instituted for the relief of the cases coming under the second division, except where absorption has resulted in general purulent peritonitis. All collections of pus in the adnexa or cellular tissue should be evacuated with the least possible delay, and the tubes and ovaries removed if necessary. It will usually be found best to reach the pelvic abscess by way of the vagina, but so much more can be learned in regard to the condition of the peritoneum and uterus by the abdominal incision, that it would seem preferable to remove the appendages by this route, when the general condition of the patient presents no contra-indications.

Surgery has scored some brilliant successes in the treatment of localized puerperal septic inflammatory deposits, as a review of the reported cases will reveal. What confronts the surgeon to-day is the treatment of the other class of cases, where absorption is taking place from the interior of the uterus by way of the lymphatics, and the resulting infection is becoming general and not local. Medical treatment for these cases is practically valueless. Can surgery prove of any avail?

The cases of general infection now under consideration are of two descriptions, as might be supposed from a study of the two varieties of septic endometritis, which have been pathologically considered:

1. We have those cases where the veins and lymphatics at the placental site are loaded with germs; and 2, where the zone is present and impedes to some extent the further penetration of the cocci. Clinically, it is extremely difficult, if not impossible, to differentiate between these two conditions, which a histologic study of the endometrium has revealed to us. The symptoms of both are pronounced and denote a general septic absorption. The lesson to be learned is that a dull and not sharp curette should be used in intra-uterine treatment, if we would preserve nature's barrier which has been thrown out in the form of a granulating zone. The treatment of these septic cases must be rigorous and thorough, if it is to prove of any avail. The source of infection must be got rid of at once or else the blood will become so loaded with the poisonous germs that any treatment will be valueless. Could we differentiate between the two conditions clinically, it would be advisable to curette and pack the uterus with gauze in the second class of cases and exchange this method for more radical procedures for those of the first class. But inasmuch as a differentiation is almost impossible, the plan of treatment just suggested should be employed in all cases.

A careful examination has already revealed the fact that the beginning septic infection is not complicated or has not given rise to localized inflammatory deposits. The main diagnostic symptoms to be relied upon are the high fever, rapid pulse, possibly chills and the history of the case. A careful curettage will remove everything from the uterine cavity which can give rise to septic absorption. If the curettage and packing with gauze causes no amelioration of the symptoms within twelve or eighteen hours, the only logical procedure that remains to us is to remove the source of infection, namely, the uterus. If this be done early enough the patient may live. In other words, provided the organ, whose lymphatics have been shown to be loaded with germs, can be removed before too many have found an entrance into

the general circulation there would seem to be no reason why a cure should not be effected. It may be urged that such a procedure is too radical and that it is useless, because the disease is general not local, hence the removal of the uterus can have no effect. It is a radical procedure but not more radical than the disease is fatal, if allowed to proceed unchecked. The outcome must be fatal, unless the source of infection be removed. If the absorption has progressed to a certain point, hysterectomy is a useless operation, because we are then dealing with a general and not a local disease. The plea that is made here is for the radical operation while the disease is still local. The writer is convinced that by early operation a certain number of cases may be saved. It is not right to condemn hysterectomy in these cases because it has failed when undertaken too late. Successful cases have been reported and will become more common as we become more skilled in diagnosis and more expeditious in treatment. The writer has arrived at these conclusions from a careful study of the following case, which is reported in full because of its bearing on the subject under discussion:

Sunday afternoon, Feb. 3, 1895, the writer was asked by Dr. A. J. Pressey to see in consultation Mrs. W. The attending physician gave the following history of the case: the patient was 28 years old and married. She had had two children. The doctor had attended her for a number of miscarriages. January 28 he was called to see her and found her with a temperature of 105. She had been flowing according to her statement, for four days. The next morning the temperature was 102 and the next 106. She then confessed that she had brought on a miscarriage, the method employed not being stated. She was immediately placed under an anesthetic and the uterus thoroughly curetted with a sharp curette. A putrid placenta, half the size of the hand was brought away, the uterus carefully douched with bichlorid solution and packed with gauze. The next day the latter was removed and showed itself free from any odor. The temperature ranged from 101.6 to 102.2 and the pulse was over 100. During the next three days there was but little change in the patient's condition except a gradual rise in the temperature, in spite of liberal doses of antipyretics. A number of intra-uterine bichlorid douches were administered, although there was absolutely no odor to the vaginal discharge.

At the consultation, February 3, the temperature was found to be between 104 and 105, pulse 110. There was no abdominal tenderness and no signs of peritonitis. Vaginal examination revealed a slight thickening in the right broad ligament, otherwise the examination was negative. There was no odor to the vaginal discharge. The patient's general condition was excellent and she expressed herself as feeling perfectly well and as not seeing the necessity of a consultation of physicians. It was decided to curette again the following morning if the patient's condition was not improved. This was thoroughly done at the appointed time, as the temperature was still high, and the uterus again packed with gauze. The following noon, Tuesday February 5, as the temperature was over 104 degrees and the pulse high, it was decided, as the last chance, to open the abdomen, prepared to remove the seat of the infection, even if a hysterectomy should be necessary. The entire peritoneum was found to be deeply congested. Espe-

cially so was the surface of the intestines and broad ligaments and the peritoneum over the fundus of the uterus. The appendages were found to be normal in size and position and the bunch felt in the right side of the pelvis was seen to be a true puerperal cellulitis. The question that arose in the operator's mind was, Shall the uterus which is or has been the seat of infection be removed, or shall the incision be closed and no further attempt made to save the patient? A hysterectomy was decided upon, for reasons which will be stated later on, and the uterus and appendages removed entire in a comparatively short time, if it be taken into consideration that the surroundings were unfavorable, the operating room being little better than an attic.

There was little or no shock after the operation, but it proved of no avail, for the septicemic symptoms became more and more pronounced and the death of the patient occurred two days later. An autopsy showed that general purulent peritonitis had developed subsequent to the operation.

This detailed description of the case has been necessary, in order that certain deductions might be drawn which may help us in future cases. It would seem, in all probability, that the high temperature and other symptoms which were present just prior to the first curetting were indicative of the presence of a powerful poison within the blood. In other words, we had to deal here with a sapremia and not a septicemia, the toxins being produced because of the presence of the putrid retained placenta. It is also probable that the sharp curette, while it removed the foul placenta, may have opened the uterine sinuses and veins and allowed the entrance of the pathogenic cocci themselves. At any rate, the curetting and packing with gauze did no good, if no positive harm were done. In the opinion of the writer, the second curetting was a mistake. The history of the case should have been taken into consideration and the celiotomy performed then and there. If it had been done at that time or better, just after the first curetting had failed to accomplish any good, there is every reason to believe that the removal of the uterus would have saved the patient's life. The moment should have been seized when the germs were within the uterus and but few had penetrated into the general circulation. Could such a time be chosen and the uterus, which is the source of the infection, be removed, there seems no good reason why the septicemic process might not be aborted. The mistake that is made is delaying until the system is so overcharged with the poison that the removal of the source of the infection can not avert the fatal termination.

SUMMARY.

1. Puerperal sepsis is still a common disease, although in the hospitals the mortality from this source is practically *nil*.
2. There are two forms of puerperal endometritis: (a), putrid; (b), septic.
3. In the septic form there may or may not be present a granulating zone, acting as a barrier to the further penetration of the germs.
4. Putrefactive germs may be absent, hence fetid lochia may not be present.
5. Putrid endometritis signifies necrosis of the lining membrane of the uterus and the presence of decomposed material.

6. This variety is prone to develop toxins, the absorption of which gives rise to sapremia.

7. Clinically, cases of puerperal sepsis may be separated into two large divisions: 1, where general infection predominates; 2, where localized inflammatory deposits are present, the general infection being secondary and less important.

8. The areas of septic inflammation may be in the adnexa, pelvic cellular tissue or peritoneum.

9. This class of cases present the most favorable field for operative procedures.

10. It is almost impossible to make a differential diagnosis between those cases of septic infection having a granulating zone in the uterine tissue and where this is absent.

11. These cases should be curetted with a dull instrument and packed with gauze.

12. If there is no improvement in the symptoms within twelve or eighteen hours the source of the infection, namely the uterus, should be removed.

13. Hysterectomy should not be condemned because of its failure when performed too late.

14. If this operation be done early enough it will be the means of saving a number of lives.

DISCUSSION.

DR. A. LAPHORN SMITH, of Montreal—said that when we have to deal with a case of puerperal fever which, in spite of careful curetting and irrigation continues to grow worse, an operation should be resorted to. He was among the first to open the abdomen for this condition. In such a case the infective process has invaded the walls of the uterus itself and the lymphatics that run along its side, and the only rational thing to do is to open the abdomen and remove the uterus. He is strongly in favor of the abdominal method in preference to the vaginal, as it gives us a better opportunity to completely eliminate the source of infection.

DR. HENRY P. NEWMAN, of Chicago—commended the two papers as they were in the line of better work in this very distressing ailment, puerperal septicemia, following birth at full term, and following abortion. He expressed the opinion that by merely curetting the uterine cavity we accomplish very little. Curettage, as it frequently done, was in his opinion extremely faulty in puerperal cases. We can do comparatively little in covering the entire endometrium with an ordinary curette. It is his practice to supplement the curetting by swabbing out the uterus with a 95 per cent. solution of carbolic acid, subsequently packing the uterus with iodoform gauze.

DR. L. H. DUNNING, of Indianapolis—desired to place on record his cases of pus in the pelvis, antedating delivery and leading to the development of peritonitis. The first case was one of pyosalpinx, resulting in death three days after delivery, immediately subsequent to operation. Preceding and following the operation there was a discharge of pus from the uterus, due without doubt to suppuration in the uterine walls. The second case was one of tubo-ovarian abscess, following a miscarriage at four and a half months. After the miscarriage, evidences of septic peritonitis occurred. An operation was advised, but declined, and post-mortem examination showed that the abscess had ruptured.

DR. J. HENRY CARSTENS, of Detroit—said that in certain cases, where the puerperal symptoms are due to the presence of small pieces of placenta or membranes in the uterus, curetting and swabbing with strong carbolic acid are all that is necessary. He is not in favor of packing the cavity with gauze after curetting, believing that freer drainage will take place without it. There are other cases of puerperal septicemia, coming on late, that is, about the ninth or tenth day after delivery, which are the result of some peculiar kind of infection and often end fatally.

DR. W. H. HUMISTON, of Cleveland, Ohio—referred to two cases of puerperal septicemia that had come under his observation during the past year, in both of which he advised hysterectomy, and in both cases the operation was refused. One of the patients died after a prolonged illness, while the other recovered.

DR. JOHN MILTON DUFF, of Pittsburg—believes that if the pulse still keeps rapid, and only a slight decrease in temperature follows curettage and irrigation of the uterine cavity,

the patient, if let alone, will die. Under such circumstances hysterectomy is necessary.

DR. L. S. McMURTRY, of Louisville—said he thought it would be a great misfortune to have the statement go out from this meeting that in every case of puerperal fever which does not yield to ordinary treatment a hysterectomy is demanded. Puerperal fever is very common, and the majority of the cases recover under an expectant plan of treatment. In his opinion, hysterectomy should only be resorted to on the same principles that it is done in other conditions. When there are some demonstrable lesions in the pelvis, then it is proper to resort to an operation.

DR. M. PRICE, of Philadelphia—said he never employs the curette, the use of which he regards as very injurious in any form of puerperal fever. Tamponing the uterus with gauze should also be avoided. As regards the performance of hysterectomy in puerperal septicemia, it should be considered nothing less than a criminal procedure. The woman is already septic, and to create an additional raw surface can only add to the danger. If this operation is done in such a case and recovery follows, it is the result of a happy accident and not the surgeon's skill.

DR. J. M. BALDY, of Philadelphia—said there was not an authentic case on record in the literature of medicine, of general suppurative puerperal peritonitis that had been cured by operation; no surgeon had ever gone on record as strongly as the Prices, of Philadelphia, that surgery should be done where there is pus, and when one of these gentlemen makes the statement that he has had two patients in bed for two months with pus and tells us not to operate in such cases, there is something wrong. They say, operate when you put your fingers on disease; in other words, remove the tubes and ovaries, but if there is disease or pus in the uterus ignore it. He would ask, Of what service is it to remove the tubes and ovaries only, when the pus is in the uterus? If the patient be left alone, she will probably come again into the hands of the operator for a secondary operation. It would be much wiser to perform the primary operation, and save the patient months of a dangerous condition.

DR. W. E. B. DAVIS, of Birmingham, Ala.—believes that surgeons sometimes make a mistake in peritonitis, in that they do not consider the germs which produce the disease. While the germ of gonorrhea was the most prolific cause, there were other germs than the gonococcus which sometimes entered into the production of the disease. He agrees with the essayist that cases of general suppurative peritonitis are not cured by surgery. He fails to see how cases of peritonitis, which have gone through the different stages with pus formation, can get well by surgical interference. By this time the system is thoroughly infected, and it is impossible for surgery to relieve the condition; in other words, the patient is septic, and even if the peritonitis was cured by operation the patient would die. He was aware that some surgeons had made the statement that they had removed pints and even quarts of pus from the peritoneal cavity and cured the patients, but he did not believe it.

DR. J. C. D'ACOSTA, of Philadelphia—had never done hysterectomy for puerperal septicemia, and almost every case he had known to be operated upon had died. If we take a woman with puerperal sepsis, with a temperature of 104.5 degrees, thoroughly curette the uterine cavity, remove the debris, etc., and wash it out; we will find the temperature will come down to 102 degrees; and a second curettage, followed by thorough packing with iodoform gauze so as to distend the uterus and drain it, will cure some of the cases if they are not too far advanced.

DR. CHARLES P. NOBLE, of Philadelphia—said Dr. Carstens had made the statement that if the uterus is curetted early and swabbed over with carbolic acid the patient would recover. The position he took in his paper was that hysterectomy should only be performed when these measures failed. He went one step further and recommended that hysterectomy be done in cases in which the general condition of the patient was such that she was in imminent danger.

DR. REuben PETERSON, of Grand Rapids, said the class of cases he had mentioned and dealt with in the paper were among the most embarrassing and perplexing cases with which the gynecologist had to deal, largely because our studies had not led us to definite conclusions. Yet, it seemed to him, that the indications for surgical interference were clear. It is unreasonable for us to wait until we get palpable disease in the pelvis before operating. In the cases touched upon, nothing could be found of a definite character on either side of the uterus; the appendages were normal; and bacteriologic examination is apt to show that the lochia are not even involved. There is no tenderness; apparently no

symptoms of peritonitis—indeed, nothing except we know that the woman is lying at the point of death. He could not agree with Dr. Carstens that by using the curette early in cases where there was pus collection and swabbing out the uterus with carbolic acid they would get well. He believed that ninety-nine of every hundred would die.

DIAGNOSIS OF URETERAL AND RENAL DISEASES IN WOMEN.

Read in the Section on Surgery and Anatomy, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HOWARD A. KELLY, M.D.

PROFESSOR OF GYNECOLOGY AND OBSTETRICS IN THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

It is my purpose in this paper to consider in outline the new methods of ureteral examination in women which I have developed recently. I shall therefore pass over those important diagnostic points which are already well recognized, such as clinical history, urinalysis, and ureteral and renal palpation.

My method lays stress upon three steps in the investigation, namely:

1. Inspection.
2. Catheterization of the ureter.
3. Catheterization of the pelvis of the kidney.

It will be observed that each of these procedures gives direct and positive information in marked contrast to the inferential methods of diagnosis of ureteral affections hitherto deemed sufficient.

I.—INSPECTION.

Inspection is limited to the orifices of the ureters and notes: 1, the appearance of the orifice and its immediate surroundings; 2, the character of the fluid discharged from the orifice; and 3, the character of the flow, whether absent, intermittent, or continuous.

Inspection is accomplished by placing the patient in the knee-breast position, or elevating the pelvis, and introducing a cylindrical speculum, 10 millimeters in diameter. The bladder at once fills with air, and all parts of its lining mucosa are accessible upon directing into it the rays of a good light held over the sacrum, by means of a head mirror. The ureteral openings are found at the base of the bladder, about 2 cm. from the internal ureteral orifice, and at an angle of twenty-five to thirty degrees to the right or left.

1. The appearance of the orifice in inflammatory disease of the ureter and kidney is often characteristic; being deeply injected, or pouting, mammillated, or swollen and edematous. A small area of ulceration may sometimes be seen in the bladder at the orifice. In tubercular cases, when the disease descends from the kidney down to the bladder, the first infection is apt to be distributed about the ureteral orifice over a triangular area with its apex at the ureter. The explanation is obvious; this is the area which comes first into contact with the urine from the infected side in its concentrated form, before dilution with the opposite urine and before distribution over the wide area of the bladder.

2. The character of the fluid as it is seen issuing from the ureteral orifice may be sufficient in itself to settle the diagnosis and determine the treatment, but before reaching a decision it is necessary to examine both ureteral orifices, watching them for a few minutes, until there is an escape of fluid. If no discharge takes place from one side, it may sometimes be started, when there is a renal tumor, by bimanual compression of the tumor in the flanks.

I recall in this connection, cases of hematuria in which bloody urine was seen flowing out from one side while the other discharged clear urine. In one case there was a layer of blood over the floor of the bladder, and the first and natural suggestion was that the vesical mucosa was the source of the hemorrhage. But upon cleansing it with a little pledget of cotton, the mucosa was discovered to be normal. Both ureteral orifices were surrounded with blood, but on one side the flow of normal urine kept clear a little path of uncovered mucosa, immediately in front of the opening, showing that that side was sound.

In a case brought to me by Dr. H. B. Marriott of Battleboro, North Carolina, we saw thick pure pus

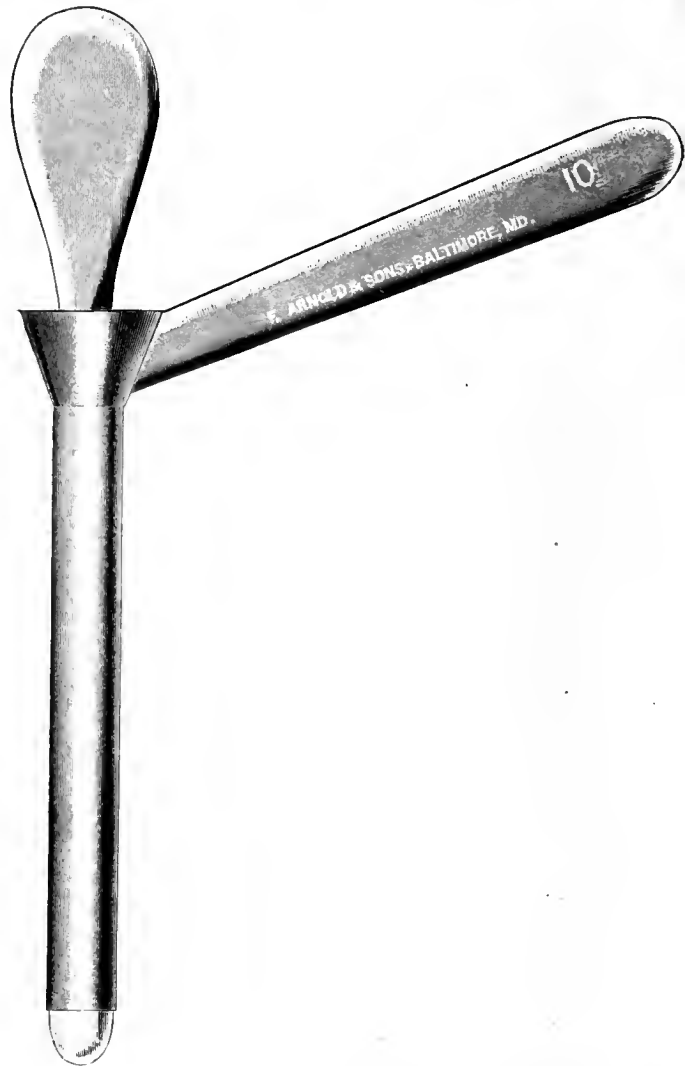


Fig. 1.—Cystoscope.

issuing from the right ureter, and limpid urine from the left. I operated and removed a large number of stones from the right kidney. I have repeated this experience many times.

3. Normally, with the patient in the knee-breast position, the urine flows in clear jets, spurting out and often down the speculum. If there is a prolonged delay in the discharge from one side, there must be some stoppage there. When the discharge is purulent, it simply oozes from the opening and may continue to run out for a considerable time without intermission.

I would call attention to the important fact that,

with the patient in the knee-breast position, the fluid escaping from the ureters can be collected for microscopic and chemic examination, as it trickles down the speculum, without catheterizing either ureter.

11.—CATHETERIZATION OF THE URETERS.

Catheterization of the ureter is but a step beyond inspection, and by my method the ureter can be catheterized almost as easily as it can be seen. I must insist upon careful attention to aseptic details throughout this procedure. These are in brief:

1. A clean external urethral orifice.
2. The introduction of an aseptic speculum.
3. A ureteral orifice cleansed with a pledget of cotton saturated with a boric acid solution.
4. A sterile ureteral catheter not contaminated by handling.
5. Avoidance of contamination of the catheter during introduction.
6. Placing the sterile end of the catheter in a sterile test tube to collect urine as it flows from the ureter without contamination.

In order to catheterize the ureters the patient kneels upon a table or a bed with a board under the blanket to keep the surface flat. Then with the speculum introduced into the bladder the right or left ureteral orifice is found and kept within the lumen of the speculum, while the metal catheter is taken up by its outer end and slowly passed in. The end of the catheter is pushed on up to the ureteral orifice under constant observation, until it touches it; it is then engaged and gently pushed in toward the pelvic wall. Any resistance felt must not be overcome by force, but by withdrawing the catheter slightly and pushing it in a little different direction. It will generally be found, after the catheter has advanced 2 or 3 centimeters, that it is necessary to draw the speculum out a little, and then carry the point of the catheter more directly outward toward the pelvic wall.

The speculum is then wholly withdrawn and the catheter left in as long as desired. If the patient is turned over on her back, this must be done with extreme care, to avoid striking the end of the catheter and wounding the ureter.

To secure uncontaminated urine for bacteriologic investigation, the outer end of the sterilized catheter should be protected by a sterilized piece of rubber tubing before introduction. This can be taken off after the catheter is in place, and the urine which flows over the end can be collected without admixture with extraneous elements. I sometimes sterilize the end which has been touched during the introduction, by holding an alcohol flame under it until the escaping drop of urine boils on it.

Although the simple metal catheter is easier to handle in the introduction, I prefer, as less dangerous and therefore more to be recommended for general use, flexible silk ureteral catheters which I have had made, 30 cm. long and $1\frac{1}{2}$ to 2 mm. in diameter (see Fig. 5). These have a large eye below a conical point which is easily pushed up 15 or 20 cm. beyond the ureteral orifice. If kept in a cool place the catheter is stiff enough to push up the speculum and into the ureter without the aid of a stylet, with which a soft catheter may also be easily introduced.

Short metal catheters 6 cm. ($2\frac{1}{2}$ in.) long, with fine rubber tubing on the end, introduced on a stylet, is also often convenient when both ureters are to be drained.

To put a catheter into both ureters, one may be catheterized first and the speculum taken out entirely and reintroduced alongside the catheter, when the opposite ureter may be exposed and catheterized in the same way. The patient may then be turned on her back without fear of the catheter coming out, and the urine drained from right and left ureters into separate receptacles. It is important to note the time of the flow, so as to establish a relation between the kidneys which is quantitative as well as qualitative. To collect uncontaminated urine from these and the renal catheters, to be described, a piece of sterile fine rubber tubing is slipped over the end to

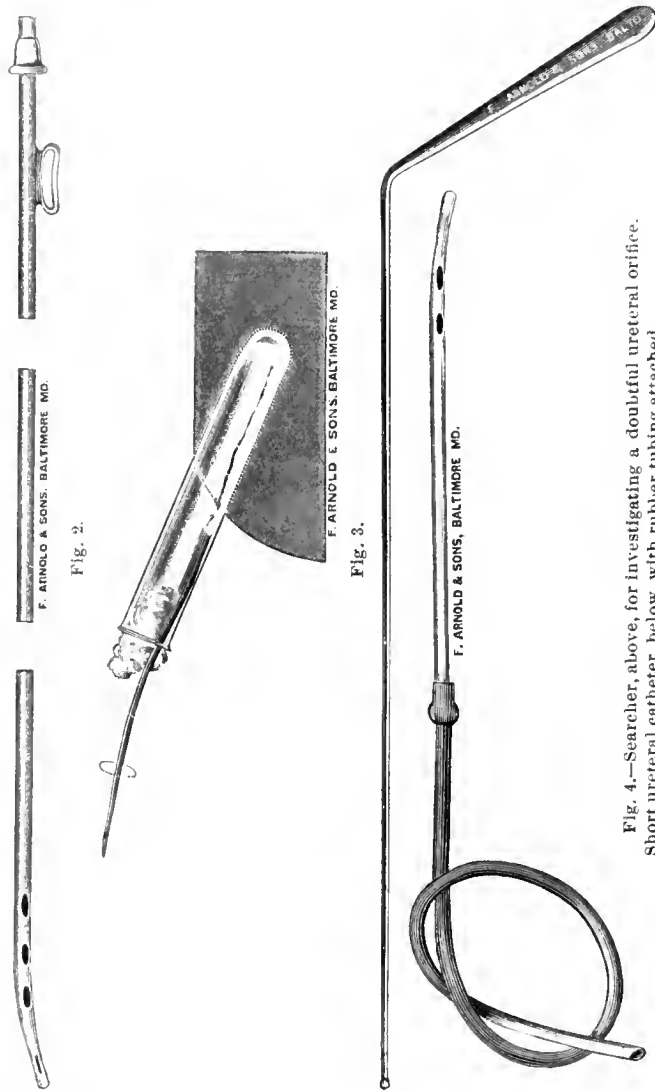


Fig. 4.—Searcher, above, for investigating a doubtful ureteral orifice. Short ureteral catheter, below, with rubber tubing attached.

protect it from the handling during the introduction into the ureter. Then when the patient is in the position in which she will remain during the flow, the rubber sleeve is drawn off and the end of the catheter placed in a sterile tube plugged with cotton. I have found a simple wooden block with a hole bored in it, as shown in diagram, Fig. 3, the easiest way to keep the tube in place. A good way of making the connection between the tube and the catheter is by a piece of fine glass tubing, twisted to reduce the chances of atmospheric infection. The rubber sleeve is then simply drawn over this instead of being pulled off.

I would ask those who follow me in this work to adopt my enumeration of catheters and specula, by

their diameters in millimeters, because this gives at once a better idea of the size used.

Short metal catheters are also useful in draining both ureters. They are only 5 cm. long, and are pushed in with a stylet up to the very end, so that the catheter lies wholly in the ureter and bladder. The urine is carried out by a piece of fine rubber tubing on the end of the catheter.

CATHETERIZATION OF THE PELVIS OF THE KIDNEY.

My renal catheters are 50 cm. (20 inches) long, and $1\frac{1}{2}$ and 2 mm. in diameter. In special cases, I use still larger sizes. They are introduced in the same way as the ureteral catheters, but are pushed up until the end impinges on the upper part of the pelvis of the kidney. Their special field of usefulness is in demonstrating the condition of the pelvis of the kidney, whether infected or not, and whether there is or is not an obstruction at the upper end of the ureter.

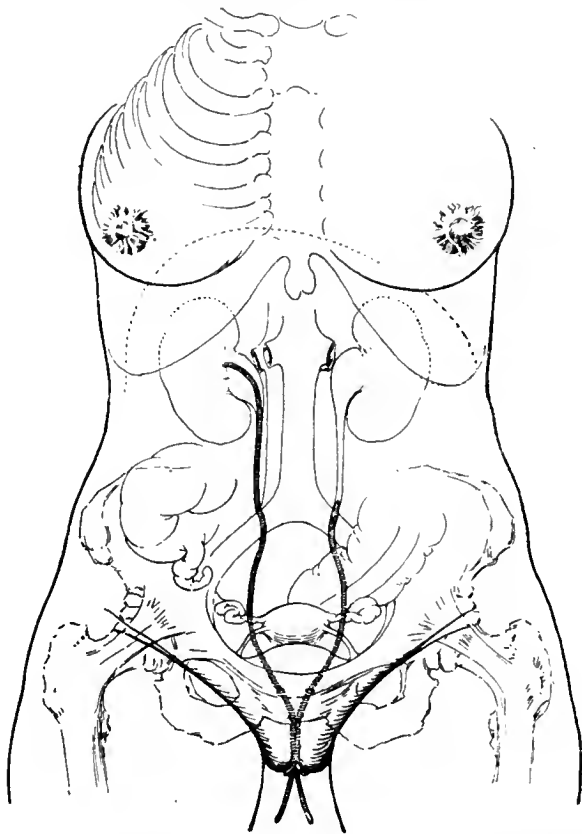


Fig. 5.—Diagram showing flexible ureteral and renal catheters introduced. On the left side the ureteral catheter is introduced just beyond the pelvic brim; on the right side the renal catheter is in the pelvis, touching the kidney. The curves shown can be seen in the catheter on taking it out and laying it on a flat surface.

By means of the renal catheters, I have completely evacuated a hydronephrosis. I have also emptied a renal pelvis full of pus, and by forcing fluid back into the kidney have washed out the pelvis repeatedly, and cured a pyelitis.

After using these soft catheters, they are washed out well with warm water, and then with a 1 to 1000 solution of mercuric bichlorid, and carefully dried and put away in glass tubes about 8 mm. in diameter and enough longer than the catheter to plug the ends with cotton.

During the introduction the glass tube is presented over the left shoulder for the right ureter, and the right shoulder for the left, with the end of the catheter projecting a little out of the tube. This should be dipped in boro-glycerid to facilitate introduction.

In order not to infect it with the fingers during the introduction, I wear sterilized rubber coats on thumb and first finger, put on just as I am ready to grasp the end of the catheter and draw it out of the tube push it in, up into the ureter. The glass tube is held still while the catheter is being withdrawn.

REPORTS ON TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

(Concluded from page 241.)

BY J. E. WOODBRIDGE, M.D.,
YOUNGSTOWN, OHIO.

I quote this letter from Dr. Balmer of Pennsylvania: "I have treated a number of cases of typhoid fever this summer, by your method, with remarkable success and will endeavor to copy the temperature charts and send them to you soon. I presented these cases and the method of treatment before our (the Jefferson County (Pa.) Medical Society, at the last meeting and I had introduced it previously orally in the society and to individual members. Dr. S. M. Free of DuBois, Pa., one of our members, is very enthusiastic, also Dr. J. J. Brewer of Clarrington, Pa., who treated a number of patients by the method, at my suggestion."

I very soon received a letter from Dr. S. M. Free of DuBois, dated December 26: "I have used your plan of treatment in a few cases of typhoid fever. It is the best I have ever employed. I have tracings and fairly complete notes of my cases, and am having my assistant make copies which I shall take pleasure in sending you as soon as complete. I trust that they may be of some service to you. I am under great obligations to you for your kindness to me. I am thinking of preparing a paper for presentation to our West Branch Medical Society on your plan of treatment, and will exhibit my charts and notes. Do you object to such a procedure? I feel sure that the more we can induce to use the treatment, the less will be the mortality in typhoid fever."

A quotation from another letter from Dr. H. K. Meyers of Indiana, dated Jan. 6, 1895, is as follows: "I will say here that I have carefully tried your mode of treatment in three well-marked cases of typhoid fever in the past few months, and was well pleased with it.

"Case No. 1, girl aged 14; very poor; surroundings bad; parents as ignorant as they were poor, yet willing to do as I directed. Temperature was from 104 to 105.5; bowels tympanitic; very tender; rose spots; tongue literally dried up, red edges. During the first three days the nose bled almost constantly. I tried to carry out your treatment to the letter, and I think I succeeded as near as any one can carry out another's ideas. The temperature was normal on the eleventh day and she made an excellent recovery. I should have stated that she had been sick a week before I was called. The other two cases were treated in the same manner and made as good recoveries. While my success in treating typhoid fever has been fair in the past, the fever was always protracted and tedious. I think your treatment is correct in principle and bound to succeed."

Dr. W. N. Sherman, of Merced, Cal., wrote me in August, 1894, asking for more definite rules for the management of typhoid fever than I had given in my papers. These directions were sent on September

13, and on the 29th he wrote me a letter from which I extract the following: "I have given your remedies in a modified form, in two cases, resulting in a normal temperature in both cases on the eighth day. I am highly pleased thus far."

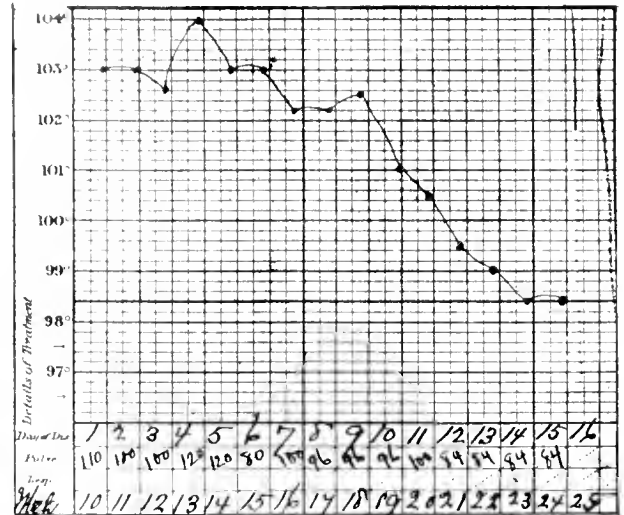
Other letters followed, reporting cases successfully treated; the last one on Feb. 6, 1895, in which he says: "I am greatly pleased to inform you that I succeeded in inducing my patient to take your remedy and this third relapse is yielding to the treatment promptly. As the bowels were somewhat constipated I first gave 5 grains of calomel; followed by mineral waters and sul. magnesia. These failed to establish catharsis and I gave 1 oz. of castor oil with turpentine. I started with your combination No. 1 and kept it up all the time and this morning, the sixth day, the temperature touched 98.8 degrees. Has been able to eat all of the time and is cheerful and comfortable—a very material difference from the other attacks."

In another letter he says: "You are at liberty at any time to use my name as one who has proved and practiced your treatment and believes it to be superior to all others."

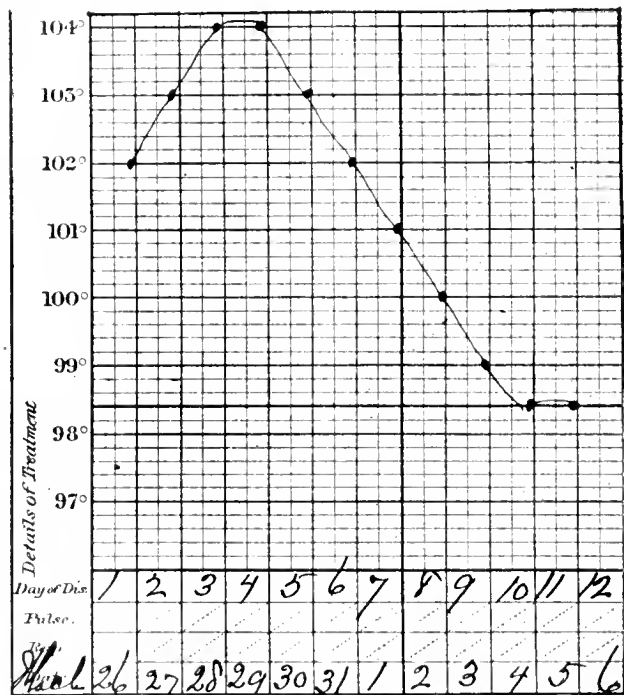
Dr. G. Law of Colorado, published a paper in the *Denver Medical Times* of December, 1894, from which I take the following:

"Dr. John Eliot Woodbridge of Youngstown, Ohio, read a paper on typhoid fever, in the Section on Practice of Medicine at the forty-fifth annual meeting of the AMERICAN MEDICAL ASSOCIATION, in San Francisco, June 5-8, 1894. I was present and heard the paper" . . . "on looking over the action of the drugs named by Dr. Woodbridge, I came to the conclusion that the carb. of guaiacol was the central and efficient agent, if there were any efficiency in the prescriptions. . . . Hence I framed a formula for myself. . . . From July 25 up to to-day, November 23, I have treated thirty-five cases of typhoid fever, without losing a single patient. I have not had a case in which the fever lasted beyond twenty days, and have had a number of cases where complete subsidence of fever had ensued at the end of fifteen days. Cases that started with a temperature of 104 F. in the afternoon, after about four days of this treatment showed usually an afternoon temperature of 102 F. and a morning temperature of 100 to 101 F., with some sweating, which usually occurred about midnight. No one of the thirty-five cases ever had a dry tongue at any time; not one of my cases ever manifested the slightest delirium. It was not necessary to give any of these patients anything for the purpose of securing sleep or rest. Not a single relapse occurred in the entire number treated. The guaiacol compound was continued for one week after the total subsidence of the fever, but given every three, and then four and, finally every six hours. In none of the thirty-five cases was there noticeable meteorism or the slightest hemorrhage from the bowels. During the last twenty-four years I have seen and treated from twenty to fifty cases of typhoid fever each year. I never before treated thirty-five consecutive cases without losing a patient, and never before treated that number of consecutive cases without a relapse. Typhoid fever during the present year (1894) in our town has manifested about the usual characteristics, with about the usual mortality, in the hands of practitioners other than myself. I saw several fatal cases in consultation with other doctors, but I did

not regard them as being suitable cases for the "Woodbridge method" as they were almost if not quite, *in articulo mortis*. I am not sanguine of the value of this treatment if instituted late in the course of the disease after the nerve centers have become profoundly poisoned by the fever toxin. I have made no secret of what I was doing with reference to my



Dr. McGarvey's Case No. 7.—Archle R.; age 6 years. Date of admission, March 10, 1895. This patient never took his bed.



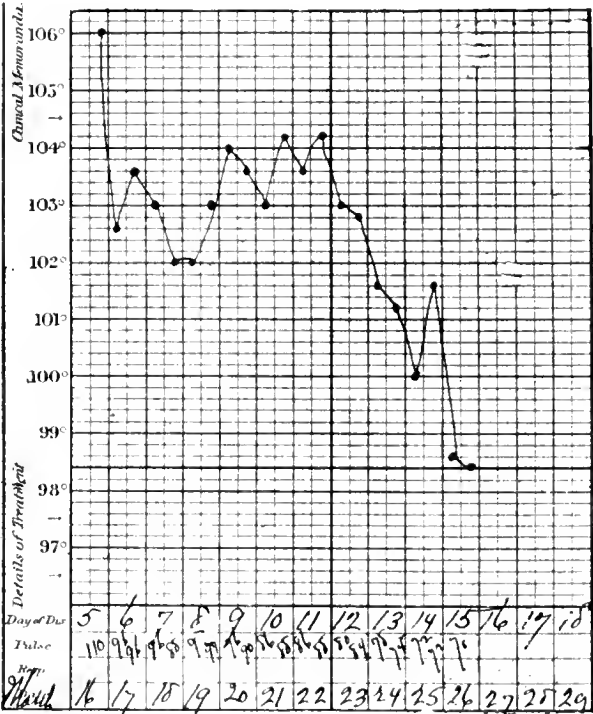
Dr. McGarvey's Case No. 8.—John J.; age 30 years; African; occupation, cook; residence, Lorain, Ohio. Date of admission, March 26, 1895. This was a cook at the hotel, a large corpulent negro; but not one bad symptom. Result: recovery.

work, to my colleagues in the city. However, only Dr. R. F. Graham seemed to attach any importance to it. He has been giving the matter some attention, and I thank him for his courtesy and will leave him free to speak for himself at his own elected time. I am aware that the bright and brilliant lights of the profession have scouted the idea of there being any efficiency in

the plan of intestinal antiseptics, and I will admit that it has not hitherto happened to be markedly successful. But let me ask, is it not in line with the present trend of so-called rational, not to say scientific medicine? In conclusion, I am inclined to infer, that either I have had a remarkable and continuous succession of mild cases, or the treatment on the lines of intestinal antiseptics that I have steadily pursued during the time indicated has been remarkably efficacious."

During the recent epidemic of typhoid fever at Lorain, Ohio, I was called there in consultation with Dr. J. F. McGarvey who I found was treating the disease by my method, so scientifically and so successfully that I knew that time would give the "Woodbridge method" at least one more warm advocate on the shores of Lake Erie. The evidence convinced him more promptly than I expected, and every few days he sends me a clinical chart of a patient in whose case he has aborted the disease. Your attention is called to his charts, marked "Dr. McGarvey, Case Nos. —."

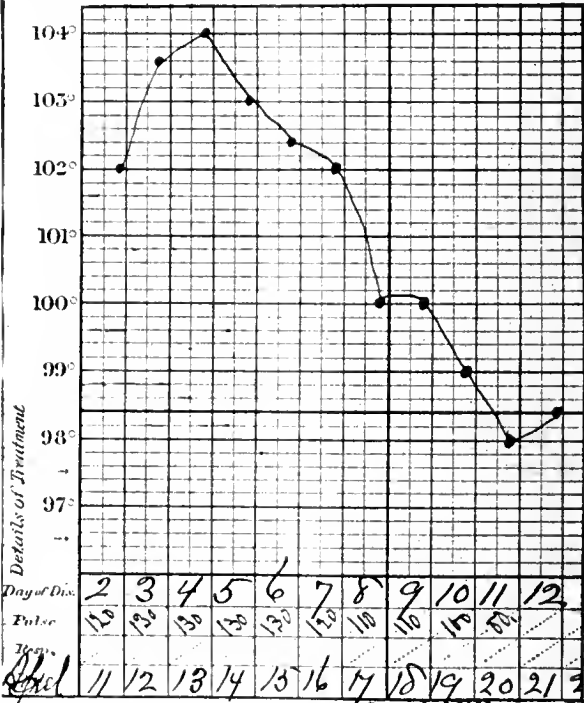
treatment I am farther convinced, not only by your own brilliant success, but by a very remarkable run in four cases, which I treated in September; following your directions as nearly as possible. No one with intelligence, it would seem to me, would question the treatment after having tried it, especially with such testimonials as you have presented from those who can not possibly be interested in your success. . . . I think as you say, that possibly your treatment could and may be improved upon in the future, but not materially changed; and it will have to be carried out on the same lines. . . . I was an interne in the Memphis City Hospital nearly two years and had good opportunities of treating typhoid fever with ammonia salycil., but although it seemingly modified the disease, I have no recollection of one case being cut short. I have been in private practice for five years and can not say that I have seen any better results than in hospital practice, my cases all running from three to five weeks. These four cases I am just through with; in two of them with morning temperature of 102 degrees, even-



Dr. Yost's Case.—William McC.; residence, Hazleton. Date of admission, March 16, 1895. Commenced "Dr. Woodbridge's Abortive Treatment" Sunday evening—the first day the patient thought the services of a physician necessary—he had been complaining for five days before. On the tenth day he was covered with rose-spots, and about the house.

Dr. J. O. Yost, of Hazleton, Ohio, in whose family Dr. Bennet treated with me three cases of typhoid fever last autumn (See charts of Cases Nos. 92 and 96; of the third case no chart was kept) has contributed a chart of a remarkable case, in which he reduced the temperature of 106 degrees, to normal in ten days; when he reports the patient around the house, covered with rose spots. (See Case marked "Dr. Yost No. —, William McC.)

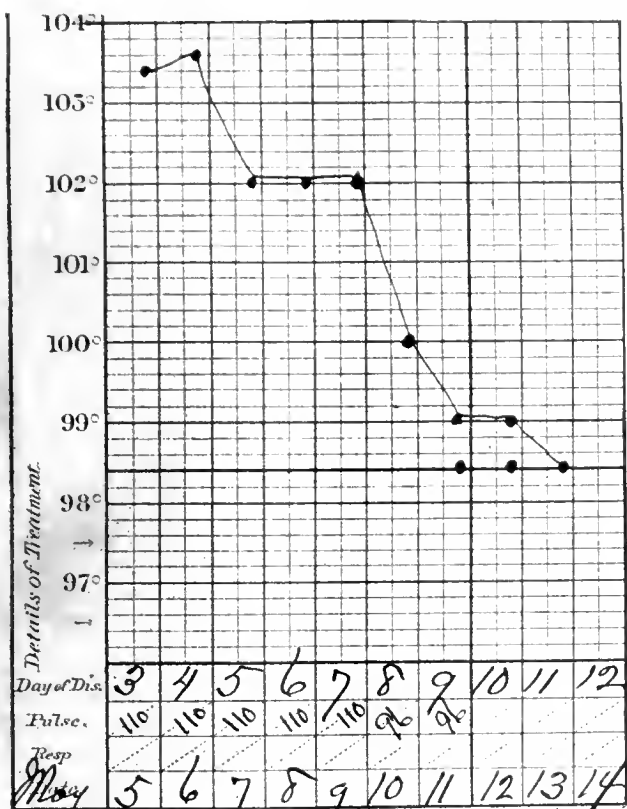
Dr. W. B. Shields of Arkansas, under the date of Oct. 2, 1894, says: "I have been for some time past, keenly interested in articles from your pen, which have appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in regard to the treatment of typhoid fever. That you have struck the correct



two or three days of treatment their fever could be and was controlled by the antiseptics administered. I feel that with further experience in this line I can have as good results as you have. . . . These few cases which I present. . . . few in number, but brilliant in results, convince me that you have struck the keynote, and while begging your pardon for monopolizing your valuable time, I must return thanks for the great benefit I have seen result from your teachings."

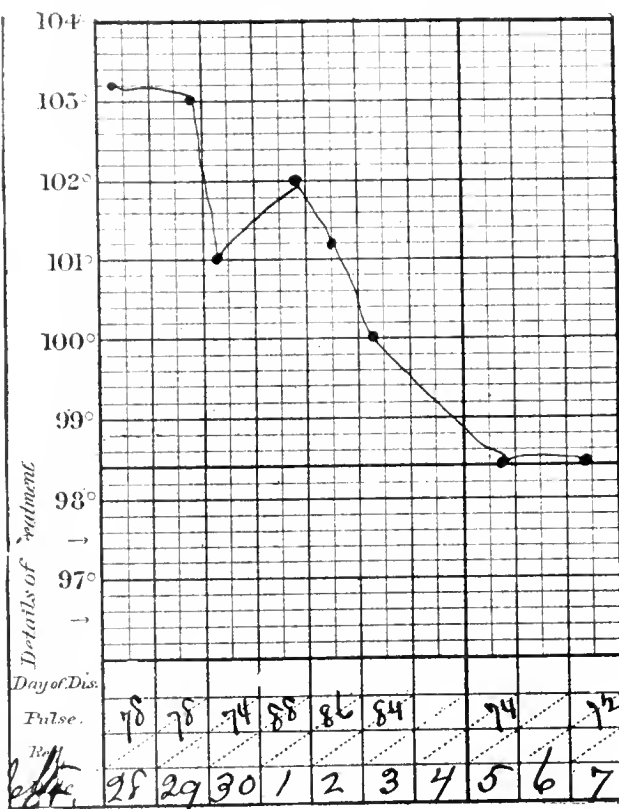
Dr. C. I. Burt, of Iowa, wrote me on December 10 saying: "We are having an unusual epidemic of typhoid fever in our locality. I have at present some thirty-eight cases. . . . Your antiseptic treatment was favorably called to my attention to-day by Dr. Wright, of Carroll, Iowa, and he requested that I write you for reprints of your late articles on typhoid fever. . . . Our source of contagion is such that

time, understand, some of them were sitting up, others moving about, and in a manner attending to their usual business. Many cases I began upon when the fever reached the 103 and 104 point, but they had no serious intestinal lesion. However, when I discover the matter has passed to an intestinal infection, I yet obtain splendid results. Now this point is one to which I wish to call your attention. Leaving out the abortive effect of your treatment, what are your results after the case has progressed even to hemorrhage? I find, by pushing the treatment then, as persistently as at other times, that I obtain pleasant results, at least, a thorough intestinal disinfection and, in fact, a better general tone. . . . Without doubt, Doctor, any one who uses your treatment as effectually as prescribed by your directions, will have none but the most happy results for the outcome. I have had several nurses from Omaha, and recently



Dr. Cunningham's Case, No. 7.—Zontie G., age 3 years. Date of admission, May 5, 1895.

the physicians of this town will yet have to contend with some hundred more cases." Very soon afterward I received another letter (unfortunately mislaid) in which the Doctor complained of his inability to secure the results I had promised, notwithstanding the fact that I had written him a long letter, giving him the fullest possible details of my method of procedure, but on Jan. 22, 1895, I received another letter from him from which I make the following extracts: "I do not seem to get quite the promised results from the tablets, in the nature of producing effect, as stated in a previous letter; but I am now having better success and push them to their limit. However, I have at all times followed very closely your directions, and must state that the effects have been wonderful. In no instance have I failed in relieving my patient within three weeks and often in two. In that



Dr. J. F. Reed's Case, No. 2.—John W., age 28 years; residence, Massillon, Ohio. Date of admission, Sept. 28, 1895. Temperature remained normal after October 7. Temperature stood at 103.20 after taking 120 grs. sulph. quinin. Treatment: "Woodbridge's." Had most typical symptoms of any patient I have had; nose bleed, tympanitis, etc.

one from the Royal Infirmary, Dundee, Scotland who is in this country for her health, (they are all noted typhoid fever nurses) and let me tell you, they were absolutely paralyzed that a country doctor could produce such effects as they had never seen in Omaha or any western city. They think they will go home now and treat typhoid fever on their own accord. They say the only objection they have to this treatment is that it cuts off their time in nursing. . . . In every instance I prescribe a full bottle, without erasing formula or other attached notices. My nurses fully understand where the credit is due."

A letter from Dr. Burt written on March 21, says: "I am still using your treatment and now obtain all the results that you claim. I have a patient, one

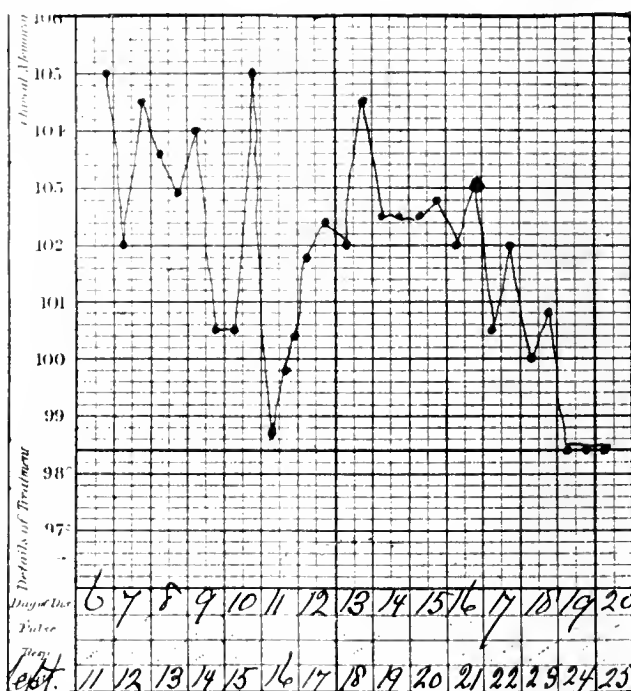
case re-infected four times within eighteen weeks, under my care for the last five weeks and strictly under your treatment. I have avoided any high jumps of fever from 104 to 106, as had previously been the case. My patient is now convalescent, but if I stop the treatment two days I note a rise of temperature often from 103 to 104. I am not experimenting farther on this case but am rigidly keeping to the "Woodbridge treatment" and the happiest results follow. I note that you are to defend yourself, . . .

. . . it does not seem to me that one ought to produce a defense in the line of argument; if any of the gentlemen will permit themselves to follow out your instructions and use your treatment, there would be no need of argument; they would all coincide with your views. It is just as positive that typhoid fever can be aborted by your method as it is that it can not be by any other treatment, to my knowledge. I have had some sixty cases this winter, and there has been no mistake in diagnosis, as our eminent local authorities have assisted me from time to time. I note that some physicians criticize the fact that they can in no instance find the "typhoid fever curve" in your records; were they to do this, after using the treatment a few days the treatment then would be useless; the treatment is to prevent this curve. It does so most satisfactorily. Most of my cases have been among the poorer classes and scarcely any attention was given, other than the medicine. I have lost one case, but that was not under the "Woodbridge method." It may, no doubt, seem an exaggeration, as to the number of cases I have had and the happy results, but every fact can be verified. I have not kept a presentable account of cases in children, but my best and quickest results seem to be with them. In ten or fifteen days they were not only convalescent but quite recovered. I consider it would be an honor to render you any service in my power, and from the above statements if matters can be condensed or rearranged in any manner that would be useful to you, kindly command me, and I will respond to the best of my ability at once."

Dr. Moore, of Iowa, in a letter dated Dec. 17, 1894, says: "I am very much pleased with your manner of going at the dread disease and I am much indebted to you for the treatment. I have treated thirty cases of typhoid fever during the last three months, without a death. . . . Early in the autumn I had five patients in one family and all recovered in from eight to fifteen days. The correctness of the diagnosis was questioned; they were thought not to be sick enough for the disease to be typhoid fever. George V., living opposite, was taken sick, so I thought I would put him on the old "expectant method" of treatment, and as you will notice by looking at the chart of Case No. 3, his temperature was not high and he seemed to be getting along fairly well, but about the thirteenth day he had a hemorrhage of the bowels and then I gave him your medicine, but it was too late. I merely send you the chart and relate this instance to show how skeptical a community is, and how laymen and physicians, too, stick to an old custom. I will never be caught so again."

At the last meeting of the Mississippi Valley Medical Association, I had read my paper on typhoid fever and during its discussion, which occupied three hours, my theories had been assailed in a most vindictive manner. Learned professors, and the editors of med-

ical journals had vied with each other in making ungentle speeches. He who declared most positively in his harangue the time-honored aphorism: "Typhoid fever must run its course of four, five, six, or ten weeks or longer," was most loudly and emphatically cheered. Of all of the more than three hundred members in attendance, not one voice was raised in behalf of the principle I had so earnestly promulgated, or to give the slightest countenance to the treatment which will ultimately save an hundred thousand lives annually in the United States alone. No man in all that assemblage dared or cared to say that "typhoid fever can be aborted," and to the end of the discussion I remained the single and lone defender of this great and fundamental truth that means so much to the human race. After the session adjourned, I was introduced to Dr. Dalton of St. Louis, with whom I had already had some correspondence and who had written me (after having tested my method of applying antiseptic medicine to the treatment of typhoid fever), that he had been six



Dr. Moore's Case, No. 1.—Ethel D., age 6 years. Date of admission, Sept. 11, 1895. This was a case with very severe symptoms of typhoid fever. Child was taken sick away from home. She was treated by Dr. B. by the old method for five or six days. She has since had very much better health than before her illness. Although the temperature was so high, she was never "out of her head." When I first saw her, rose-spots were abundant, and great tympanitis and tenderness in right iliac region.

years at the head of the great St. Louis City Hospital, through which 10,000 patients pass annually, and he regretted that he did not then know of the "Woodbridge method." And Dr. Dalton healed all the wounds which that three hours' debate had given me, when he said: "I am very sorry that I was not at hand when your paper was under discussion; I would have waited until those disputants had finished and would then have said: 'Gentlemen, I would like to inquire how many of you have used Dr. Woodbridge's treatment of typhoid fever?' and when they admitted that not one of them had (as they would have to do), I would have said: 'That is about as I expected; you have been endeavoring to discuss a paper that you do not understand, and a treatment that you have never tried. I have investigated the matter and know that

the treatment will abort typhoid fever." Dr. Dalton has in various letters to me indicated his entire satisfaction with my therapeutic procedures and has reported so many cases in which he has applied them, as to give assurance that the abortive treatment of typhoid fever in St. Louis is in a master's hands. Quotations from his last letter, written April 25, are as follows: "When I first tried your treatment for typhoid fever I was a 'doubting Thomas,' but luckily the excellent result in the first case caused me to try it in a number of other cases, and I have not the slightest hesitation in saying that the treatment undoubtedly aborts the disease. Two months since I purposely allowed a typical case to run the usual course for eight days, using the old treatment. The temperature followed the general course, being a degree or two higher each evening. On the eighth day, I put the young man (18 years of age) on prescription No. 1, giving the powders every fifteen minutes for the first twenty-four hours, and every half-hour for the next twenty-four hours. On the third day they were administered every hour and the fourth day every two hours; after that every four or five hours for a week. When I began the medicine, the temperature was 103.5. On the evening of the second day it fell to 101, and in two days more it was entirely gone, never to reappear. The bowels moved freely, six or eight times daily for several days. Ptyalism did not appear. I used no other treatment after beginning the powders. Put me down as a firm believer in the treatment; an enthusiast, in fact. Let the doubters try the treatment and be convinced."

The original letters and reports from which these extracts are taken, and more than a thousand others on the same subject; as well as the original charts (of which you have been inspecting copies, many of them containing the verification and signature of the physician who attended the patient or who watched the results of the treatment) are over at my hotel, and I shall be pleased to have you inspect them. They contain much valuable information and would well repay a careful examination. I should like to have presented more of this unimpeachable testimony, but the line has to be drawn somewhere, and these documents, with those that I have already transcribed for presentation before the Ohio State Medical Society should be amply sufficient to accomplish their purpose, especially since through the courtesy of Dr. Cunningham I have been able to present the anatomic specimens showing the ulcerated Peyer's glands, the tumefied mesenteric glands, and the intussusception which caused the death; and with them the clinical chart, kept at the bedside, in which the thermic line as it approached normal, indicates that the disease was aborted and the patient practically cured of his typhoid fever on the seventh day of treatment. (See chart marked Dr. Cunningham, No. 3.)¹ And if it be admitted that even one case of typhoid fever has been aborted, the total fabric of those who dissent from my views, reared as it is upon the antiquated and illogical hypothesis—that this "specific infectious;" this "self-limited disease" can not be aborted—is demolished.

The reports heretofore made by me should have

¹ The report of this case after having been read in connection with this paper, was presented, and the anatomic specimens exhibited, before the Ohio State Medical Society, in the Transactions of which it will be published. This double report is fully justified by the rarity of the case—no other instance having ever come to my knowledge in which death has ensued after typhoid fever had been aborted—and because of its great value, since it establishes the truth of my theories beyond question or cavil in the court of final resort.

left no doubt on this point; nor do I believe that they would have done so, could all or even two or three of the dozen papers which I have written on this all-important subject during the last few years, have been listened to, and deliberated upon by one body of scientific men. They have, however, been so much diluted by their great distribution (having been presented before so many widely separated societies, from the Atlantic to the Pacific) that very few physicians have heard more than one discussion of the subject; but when all these papers are gathered together and published under one cover, what Virchow calls "the brutal force of the figures" can not but convince any thinking and unprejudiced physician "that typhoid fever can be aborted." "*Bis ac ter quod pulcrum.*"

Summarizing, you have my nineteen years of fairly satisfactory clinical experience with the method I have advised (the last thirteen years without a death in my own practice from typhoid, malarial or any continued fever); and as long practice added to my proficiency, a gradual reduction of the duration of the disease as well as a lessening of the intensity and violence of the symptoms.

You have the 800 cases, with 9 deaths, reported by 117 other physicians, some of whom have treated large numbers, as many as 60 cases through severe epidemics, without a death, approximating my best results; and showing a grand total of 1,200 cases of typhoid fever, taken at all stages of the disease, with only 9 deaths; 7 or 8 of which were clearly due to grave complications, to the late stage of the disease at which treatment was begun or to faults of preparation or administration of the remedies.

The foregoing is a brief summary of this, at present, voluminous and cumulative evidence; absolutely apodeictic as to the possibility of aborting typhoid fever; strongly presumptive as to the truth of the declaration that every case can be aborted and that death is a wholly unnecessary consequence of the disease; and more than competent to convict me of grave dereliction of duty, did I not impart my theories to the medical profession in unmistakable language.

RATIONAL TREATMENT OF PERTUSSIS.

BY FRANCIS T. B. FEST, M.D.

PLANK ROAD, MICH.

With every disease its etiology shows us the way for its treatment. Therefore it is necessary to recapitulate the etiology of every disease for which we wish to outline the therapeutics.

Pertussis or whooping cough is a contagious disease, which manifests itself in spasmodic cough. Although some bacteriologists have found in the sputum, bacilli, we are unable so far to determine their rôle, whether causing, accompanying or only accidental. It is a local disease of the larynx, acting upon the nerve supply, and causing spasms of this organ. The course of the disease shows three distinct phases: the catarrhal, paroxysmal and declining.

The first stage shows only symptoms of mild catarrh of the bronchi, nose or conjunctiva. Pathognostic for pertussis is only the excessive watery secretion from the affected regions. This phase lasts from two to seven weeks, with infants often a few days only.

The paroxysmal stage affirms the diagnosis by its

characteristic "whoops." The expectoration is watery, sometimes bloody. In many cases vomiting follows the paroxysms by mechanical irritation. The vomiting in return can cause disorders of the digestive apparatus. The whoops at times occur as often as every half hour, and as thereby the cyanotic condition which accompanies the whoops occurs too frequently, they lead to asphyxial convulsion and even death.

In the respiratory apparatus the irritation causes, in many instances, capillary bronchitis and catarrhal pneumonia. After duration up to ten weeks the paroxysms are less severe, show themselves more rarely and the disease goes over into the declining stage. At this time the sequelæ or secondary lesions mainly demand our attention.

As we have seen, the disease is a local one. It primarily affects only the larynx; all other symptoms are secondary. This circumstance forms the basis of our treatment. The disease is local—ergo, we treat it locally; it is of neurotic character—ergo, we give a drug that acts upon the nerves.

With contagious local diseases, rational local treatment consists in destruction of the contagion by antiseptics—the most powerful is the most rational. Therefore every local application of any antiseptic improves to a certain degree pertussis. If we cast a glance at the literature, nearly everything was tried; phenol, boracic acid, thymol, resorcin, naphthalin, creasote, benzol, bromoform, mercurials, etc., but they all more or less are of irritating action upon the surface they are brought in contact with, or if not irritating, their action is so mild that their therapeutic effect is as mild too. The experience of the last few years proved the superiority of peroxid of hydrogen over all other antiseptics, except when we have to handle metallic instruments. An exception which interferes not in pertussis.

In pertussis, I use the peroxid with great success for local applications in this way: the child's head is leaned backward and held firmly, another person pulls out and depresses the tongue to bring the glottis into good view; then by means of a bulb atomizer consisting of glass and rubber only, I direct a spray of peroxid of hydrogen solution toward the larynx and if possible through the glottis. This is much facilitated if the child is old enough to pronounce the sound *ä*.

I always prefer the 30 volume peroxid of hydrogen (hydrozone) and dilute it in the following manner: hydrozone, one part; distilled water ten parts; glycerin one and one-half parts.

If the parents are docile they can be instructed to repeat the application twice or thrice a day. If the physician has a chance to apply it himself, he does well to make the solution fresh every time. At all events it should be made fresh every other day on account of this mixture being unstable.

Of all drugs only one has a really aborting influence upon pertussis, the old reliable, often abolished and always restored belladonna. The only secret of its right administration is the circumstance that we have to give such doses to get the belladonna action; the flushes, (Jacobi); otherwise the administration is without value.

A child of 2 years requires 6 drops of the tincture, three times a day; with the age the dose has to be increased to the proportion of 1.00 as a maximum single dose for an adult (gtt. xxv).

The root, the extractum alcoholicum fluidum can be given to infants of six to eight months in doses of 0.01 t.i.d., children of 3 to 4 years require of the same 0.3. Atropin may take the place of belladonna, beginning in a child of two years with 0.00065 t.i.d. and increase proportionately.

All complications must be abated in time, else our patient will be emaciated. If vomiting occurs at the paroxysms, give menthol. If there be gastritis and catarrh of the bowels, give calomel, bismuth, or still better glycozone. Often we meet gastralgia; then I prescribe for a child over 2 years:

R	Belladonnæ, tinct.	2.00.
	Mentholis.	2.50.
	Spir frumenti.	10.00.
	Glycerin	20.00.
	M.D.S. Teaspoonful every two hours.	

Glycozone administered in the proportion of two teaspoonfuls, diluted in a wineglass full of water, gave me the most gratifying results in acute cases.

Are the paroxysms severe, we can easily control the spasms by an application of cocain to the larynx.

For the general treatment we shall advise fresh air, good nourishment, tonics and inhalations of ozone. With such treatment the disease can be cut off to a period of only a few weeks.

A GLIMPSE OF IRISH SURGERY.

BY N. SENN, M.D.

CHICAGO.

The wear and tear incident to a large hospital practice, the fatigue following the work during a long college session, and the unrest attending the demands of a progressive and exacting profession made it absolutely necessary for me, this year, to tear myself away from my sphere of activity and transplant myself to some foreign country to seek a much needed mental rest. I selected for this purpose Ireland, Norway and Sweden. It was my object to combine recreation with a study of the clinical advantages to be found in these countries. After an unusually smooth passage of less than seven days, on one of the palatial Cunard ocean greyhounds, I landed at Queenstown Saturday, July 13. At this time of the year, Ireland is at its best, the deep green of the lawns and meadows imparting to the landscape a most pleasing aspect. The stranger here has no difficulty in recognizing the nature of his environment when he sees and hears the ruddy, talkative cab driver, ever ready to give him the first ride on the Irish soil. The open cart is the vehicle peculiar to this country. It is used almost invariably to convey strangers and citizens to their place of destination quickly, if not in the most gentle manner.

The city on my arrival was undergoing one of those convulsive political movements incident to a general election. The political issues were discussed in a most animated manner on the streets, in all public places and in front of churches before and after service. The women appeared to be, if anything, more enthusiastic than the men. The newspapers were brimful of accounts of political meetings and speeches, and the American looked in vain for news from his native country. The Irishman is a born orator and politician. The humblest caddy admires and honors oratory and takes a lively interest in the issues of the day. Eloquence sways the views and actions of the public masses more than argument. The man who can make the best speeches

has the first and last claim upon the favor of the people.

From what I have seen and heard, I am satisfied that the great question which has agitated the Irish people for years—the land ownership, will be amicably settled by the ballot box and not by the sword. What this country needs is not a separate government, but a more just and equitable disposition of the land question. The possession of a home, no matter how humble this may be, makes its inhabitants better citizens. As soon as the Irish soil is owned by Irishmen, the burning question now before the people will be disposed of, to the mutual advantage of both countries.

The first medical center in Ireland from the south is

CORK.

This is a typical Irish city of about 100,000 inhabitants. The dialect, customs and habits of the people have not been much affected by outside influences. The most important hospital is the Northern Infirmary. This institution is under the management of the Sisters of Charity. It has recently been enlarged and many improvements have been made. It is a charitable institution where all the poor sick and injured find the doors wide open during all hours of the day and night, regardless of creed. The Sister Superioress will soon celebrate her golden jubilee. She has served the order faithfully for nearly half a century. Although advanced in years, she retains the vigor and ambition of her youth. Her history would furnish ample material for an interesting story, replete with many acts of heroism and stirring events. She served on the battle-fields of the Crimean War and smoothed the pillow of many a poor soldier who died of cholera in Algiers. She is the beloved sister of the distinguished Bishop of Cork, the most Rev. Dr. O'Callaghan. Brother and sister work incessantly in one common cause—the relief of suffering of the deserving sick poor.

It is at the suggestion, and through the influence of the Bishop that a training school for nurses has recently been established in the Northern Infirmary. Seven robust rosy-cheeked young women are now serving as probationers, who furnish the nucleus of a noble institution, the blessings of which will soon reach the rich and poor alike. The surgical clinics in this hospital are conducted by Professors Sullivan and Hobart. The hospital furnishes a rich material for the teaching of accidental and emergency surgery. Fractures can be studied here to great advantage. Antiseptic rather than aseptic surgery is practiced here.

DUBLIN.

This is the great center of Irish surgery. The city with its numerous suburbs contains nearly half a million of inhabitants which furnish an abundance of clinical material for the two medical schools and the many hospitals.

It is unfortunate that this old and otherwise enterprising city does not possess a general hospital where the clinical material could be centralized and made more available for clinical teaching. Not any of the hospitals contain more than 120 beds and these, where the clinical teaching is done, are often distant from the medical school to which they are attached. The teaching of clinical surgery of the Trinity Medical School, by Professor Bennett is done at Sir Patrick Dun's Hospital. This hospital is a very old one and

lacks many of the modern improvements which are so essential in the practice of ideal surgery. Notwithstanding the many defects, excellent results are obtained. Professor Bennett has made the study of fractures his life work. A visit with him to the Pathological Museum of Trinity College is a rare treat. Hundreds of the most interesting specimens of all kinds of fractures are shown and explained. The museum is especially rich in specimens illustrating fractures of the neck of the femur and Colles' fracture. The classical specimens which enabled Colles to describe a special fracture through the lower end of the radius which bears his name can be found here, and constitutes an object of increasing interest to the present occupant of the chair of surgery.

Professor Bennett has made a most instructive collection of specimens, illustrating fractures of the first phalanx of the thumb. It appears from this collection that fracture of this bone occurs as frequently as fracture of all the remaining phalanges of the hand.

This museum contains also the skeleton of the famous Irish giant. The Professor is of opinion that it represents a good illustration of acromegaly. The equally famous "card player of Cork" enriched the collection by furnishing it with a skeleton illustrative of extensive and far advanced myositis ossificans. The new bone is everywhere in connection with preëxisting bone, no floating bone being found at the post-mortem, which demonstrates conclusively that this disease is not primarily an affection of the muscles but of the periosteum, the muscles serving chiefly the purpose of a temporary framework for the bone-producing process. The disease begins in the bone-producing tissues corresponding with the origin or insertion of the muscles. Many of the large muscles, notably those of the thighs and shoulders, in this case have been entirely replaced by bone, the muscles in advance of the osteo-genetic substance having been removed by degeneration and absorption.

Numerous specimens of so-called rheumatoid arthritis, which have been deposited in this museum, show the frequency with which this disease occurs in this country, and to what extent pathologic conditions are produced in its advanced stages. The specimens show well the various stages of the affection, from a slight enlargement of the head of the femur and limited deposits of new bone upon the head, neck or trochanteric regions, to complete immobility of the joint by the formation of enormous, rough, irregular masses of bone connecting the pelvis with the trochanteric regions of the femur.

The anatomic department of the museum contains a wonderful collection of dissections and frozen sections that are of such great value in the teaching of anatomy by demonstrations. The professor of anatomy is an original and enthusiastic worker. His whole time is spent in teaching and advancing both the science and art of anatomy. It is much to be deplored that in our own country this part of teaching suffers greatly, by the teachers of anatomy being active practitioners who have to depend for their living largely upon their income outside of their college work.

By far the most prominent surgeon in Ireland today, is Sir William Stokes, a son of the distinguished Irish physician, Dr. Stokes. He is professor of surgery in the College of Surgeons, and attending surgeon

to the Meath Hospital where he operates, and delivers his clinical lectures. He has inherited the inimitable qualities which characterized his father, and has done much toward the advancement of modern surgery in Ireland. He is a fluent and forcible speaker and an excellent operator, is honored and respected by his patients and is a great favorite with his students. He bears his title with modesty and dignity. He will read a paper on "Fractures of the Neck of the Femur" at the forthcoming meeting of the British Medical Association. He has collected numerous specimens which he has studied with great care and which he will use as a groundwork upon which to base a new classification of fractures of the neck of the femur. The views which he will advance and elaborate will do much to illuminate a dark corner in surgery.

Professor Bennett is making elaborate preparations to open the discussion upon this paper, and we may expect a flood of new light upon this subject from these two Irish surgeons. During my visit to the Meath Hospital, Sir William made an amputation of the thigh through the middle third by Teale's method, for sarcoma of the leg. He is painstaking in his work and it is evident that he has the interests of his patient more at heart than a desire to impress his audience with the brilliancy of his work. A visit through his wards satisfied me that the Irish surgeons are wide awake in the development of surgical pathology, and in the adoption of new surgical resources. The museum of the College of Surgeons contains a vast amount of material available for the study of surgical pathology. It seems to me that this almost inexhaustible mine should be more frequently explored in the preparation of scientific papers which require illustrations of morbid anatomy to explain the text.

The training schools for nurses in connection with all the hospitals in this city are in a flourishing condition. The Rotunda Hospital is an object of great interest to every visiting physician. If the old building could speak, it could tell of many sad events, it could narrate many disappointments in love and could tell of many reverses in life. It is here that many young physicians have laid the foundation for their future success as family physicians, by receiving a thorough practical training in obstetrics. Recently, ten children came into the world in this institution in one day, and the number of births during the last year, I was informed, numbered over 2,000. That prudent conservatism is practiced in this institution is evident from the fact that, on an average, only one Caesarean section and one symphyiotomy are made during a year. Antiseptic and aseptic precautions which are conscientiously carried out have succeeded in almost completely stamping out puerperal infection. The lady Superior is a remarkably bright and intelligent woman, who takes interest in her work and who, at the same time, takes a great delight in the success of the Master of the institution. Professor Smyley, the Master of the Rotunda, met with an accident a few days before I visited the hospital. Like many physicians in this country he rides a wheel, and during one of his excursions he fell and fractured his arm. For a speedy and satisfactory repair of this injury he has sought a quiet country resort from which, let us hope, he will return with new vigor to pursue his good work.

Professor Myles is professor of operative surgery

in the College of Surgeons and does excellent clinical work at the Richmond Hospital. He is one of the rising young surgeons in this city. Among the older Irish surgeons who have made Dublin famous as a medical center, must be mentioned Crampton, R. W. Smith, Abraham Colles, Robert Adams, Butcher and John Cusick, all of whom made valuable contributions to surgical literature, beside being influential and eminent teachers.

BELFAST.

In the north of Ireland is the stirring city of Belfast. It is a Chicago on a small scale. The enterprise of its business men has done much toward absorbing many of the commercial interests which naturally belong to the two other large Irish cities—Dublin and Cork. The city bears an aspect of great activity and prosperity. The medical school is a part of the University, and is built upon the same grounds. It is a spacious and commodious building, but the laboratory facilities are as yet quite limited. As is the case with all medical schools that have existed a hundred years or more, the most interesting and attractive part is the museum, which has been made the depository of many rare and unique specimens. Professor Sinclair, the occupant of the chair of surgery in this school, showed me the collection and pointed out many specimens which are of interest to the writer. The museum contains hundreds of specimens illustrating the different kinds of fractures and the process of repair. He informed me that the Irish surgeons understand, by a Colles' fracture, a fracture through the radius near the wrist joint *without* impaction, as Colles described a fracture in this locality which could be readily reduced, with a tendency to re-displacement. English and American surgeons describe under this term, impacted, as well as non-impacted fractures, which is evidently a mistake according to the teachings of Colles, whose views on this subject have been retained by the Irish surgeons. I examined a number of specimens of intra-capsular fractures of the neck of the femur with bony union, in this collection, none of which have evidently ever been described in print.

About a dozen female medical students aspire here for the degree of Doctor of Medicine, preparatory to placing themselves on a level at the bedside with the male members of the medical profession. The "new woman" can be found here as elsewhere, in competition with the sterner sex in the various walks of life.

Professor Sinclair is a young surgeon of considerable promise, who avails himself of all the recent advances and improvements in surgery. His clinical work is done at the General Hospital, an old building with a capacity of about one hundred and forty beds. The operating amphitheater is small and inadequately supplied with modern facilities.

The Irish surgeon has to contend everywhere with the disadvantages incident to old buildings and poorly equipped operating rooms, and yet the results obtained compare favorably with those obtained in institutions supplied with all modern facilities; the best possible proof that they are doing good honest work.

In the General Hospital accidental surgery predominates, which gives the students an excellent opportunity to become conversant with emergency work. Dr. Byers, the professor of gynecology, has fitted up

a model little operating room for abdominal surgery, which is supplied with all the necessary conveniences to perform aseptic operations. All of the patients recently subjected to abdominal operations for various indications were doing well.

The classes in the Dublin and Belfast Medical Schools number on an average about two hundred and fifty.

Fearing that the length of my communication will tax the patience of the readers of the JOURNAL, I will close with the statement that Irish surgery, as practiced at the present time, under the leadership of such men as I have mentioned, is a credit to the profession and the country it represents.

Belfast, Ireland, July 18, 1895.

SOCIETY PROCEEDINGS.

Amerlean Electro-Therapeutic Association.

Fourth Annual Meeting held in New York Academy of Medicine, New York, Sept. 25, 26 and 27, 1894.

WILLIAM J. HERDMAN, M.D., President.

(Continued from page 246.)

DR. EDWIN J. HUSTON read a paper prepared by himself and Dr. KENNELLY on some experiments on

DEATH BY THE ALTERNATING CURRENT.

Having observed a communication in the *Comptes Rendus* of the Académie de Sciences, from M. D'Arsonval in June, 1894, respecting a case of apparent death produced by accidental contact with an alternating current circuit, and the means successfully adopted for reviving the person shocked, we desire to enter our earnest protest against what we regard to be the unwarranted conclusion that Dr. D'Arsonval has apparently drawn from this case, taken in connection with his previous experiments with animals. While we do not for a moment doubt the correctness of the general observations in this case, nor that similar cases may frequently arise in practice, and while we are desirous of fully accrediting to Dr. D'Arsonval the great value of the suggestions made by him, namely, that a person shocked by electricity should be treated as a person drowned, a treatment which we would indorse as being proper to employ in all cases where even the shadow of a doubt exists as to the actuality of death from electricity; yet we desire most emphatically to call in question the correctness of the general conclusion reached by Dr. D'Arsonval, that because in this particular case resuscitation was possible, that all cases in which no marked lesions or evident destruction of the tissues are effected, death is only apparent and resuscitation possible.

In the communication referred to, Dr. D'Arsonval arranges all cases of the passage of powerful alternating currents through the human body into two classes, viz.:

1. Where lesion or destruction of the tissues is produced. (Disruptive and electrolytic effects of discharge.)
2. Where the excitation of nerve centers takes place, producing arrested respiration and syncope but without material lesion.

In the first case Dr. D'Arsonval claims that death is absolute; in the second, on the contrary, it is only apparent. As far as we can learn this classification, so far as human beings are concerned, is based on the actual observation of but a single case. This case he appears to believe sufficiently convincing to warrant the conclusion that all cases in which alternating currents pass through the human body without producing evident lesions are capable of resuscitation.

Further, Dr. D'Arsonval appears to believe that the evidence in this case is sufficiently convincing to warrant the monstrous statement made in his communication that even in the electrocutions in the State of New York, death is not produced by the current, thus leaving the public to infer that it has been produced by the knife of the surgeon, in the autopsy which always follows.

In view of the importance of the subject, we append a translation of the facts described in Dr. D'Arsonval's communication as being those upon which he apparently bases his opinion:

"The following is a statement of facts communicated by MM. Picou and Maurice Leblanc, two well-known electricians who were eye witnesses of the accident and who res-

cued the man to whom the accident occurred. When the accident happened at Saint Denis, the electrometer at D'Epinay connected between two of our three wires showed 4,500 volts, and an ammeter introduced in one of them showed 0.7 ampere.

"At the spot where the accident occurred the three wires were carried by insulators supported by a bracket on the wall about 6 meters above the floor. The man who was shocked was seated astride the lowest bracket holding one of the conductors in one hand. He had with him a telephone wire which he was about to place in position. This wire rested on the bracket on which the man was seated and came in contact with another of the three wires. The circuit was closed through the man, entering by one hand and leaving by one buttock in direct circuit. He was, therefore, subjected to the full pressure of 4,500 volts at a frequency of about 55 periods. It is difficult to say precisely how long this circuit was maintained but certainly for several minutes. The short circuit established set up sparks at the commutator of the D'Epinay apparatus. The operator who attended it believed that an accident had happened on the line and telephoned to La Chapelle to stop. All this represents a sufficiently long time. We were leaving D'Epinay at the moment and we were already on the train when informed of the accident which had just happened. About a quarter of an hour afterward we arrived at Saint Denis. The man was still sitting on the bracket and gave no sign of life. There was considerable difficulty in bringing him down and this operation took at least half an hour.

"Following your advice, we practiced artificial respiration by manipulation of the arms and, at first, without result. I then forcibly opened his mouth and pulled forward his tongue. His lungs then operated almost immediately. In two hours he could speak. He was burned on the right hand and on the buttock. He is now well.

"Several days ago they wrote to me again; the injured man is progressing favorably. It is to be observed that no particular trouble due to the passage of the current through his body has been manifested. No attention has been necessary, except to his burns."

In the first place we desire to point out that the pressure alone of 4,500 volts mentioned is without significance, unless it is taken in connection with the current actually passing through the subject under such pressure. We would also point out the fact that a marked difference exists between cases of the application of the alternating current, as employed in electrocution in the State of New York, where the current is deliberately conducted through the body for the purpose of killing, and such cases of accidental contact as that referred to by D'Arsonval. Here, assuming the correctness of the ammeter reading quoted, namely, that a current of only 0.75 amperes was passing, the resistance of the body could not have been less than 6,000 ohms. The resistance of the body between the electrodes used in the electrocutions of New York, *i. e.*, one on the head and the other on the right calf, is sometimes as low as 200 ohms, and usually not more than 300 ohms, the current strength employed being from 5 to 8 amperes, say seven to ten times stronger than that which is stated to have passed in the case mentioned.

In view of these facts we submit, that, in our opinion, Dr. D'Arsonval is entirely unwarranted in drawing the general conclusion already alluded to. Unwilling, however, to base our opinions on mere surmises, we arranged for a series of experiments on dogs in our laboratory, under conditions in which actual facts only were admitted. Being unwilling to leave to our own judgments the question of the actuality of death, we were fortunate in securing the coöperation of the following eminent members of the medical profession in Philadelphia, namely:

Dr. Judson Daland, Instructor in Clinical Medicine, University of Pennsylvania; Dr. G. G. Faught, general practitioner; Prof. L. Webster Fox, Professor of Ophthalmology, Medico-Chirurgical College; Dr. E. Laplace, Professor of Surgery, Medico-Chirurgical College; Dr. William L. Zuill, formerly Professor Veterinary Medicine, University of Pennsylvania.

One of the observers kept the time of all observations; a second recorded all the observations with the time of their occurrence; a third observed the reading of the Weston alternating current voltmeter placed across the supply mains; a fourth observed the reading of the alternating current ammeter placed in circuit with the dog. The alternating current employed was from the street mains making about 130 cycles per second, and at a pressure of about 1,250 volts, reduced in some cases through a 1.5 K.W. transformer to about 700 volts. Four good-sized dogs whose

weights were noted were successively subjected to the current and the following observations made:

Observations 8:30 p.m., September 18, 1894. The contacts in these experiments were made by cotton waste, thoroughly soaked in an aqueous solution of common salt of density 1.055, the waste being bound to the part with copper wire to which the electric terminals were attached.

Dog No. 1. Weight 31.5 pounds. Contact points right forefoot, (carpus) and left hind foot. Resistance of dog between electrodes 20,480 ohms. Effective alternating voltage 1,250. Circuit closed through animal 8.35 to 30 to 8.35 to 50, i.e., maintained twenty seconds. On the closure of one of the first of the two switches in the dog's circuit, the dog experienced some sensation evidenced by excitement and yelping. This was subsequently ascertained to be caused by leakage through the substance of the slate base of the remaining switch and was found to amount to approximately 2 milliamperes. On closing the second switch about three seconds after the first, there was instant rigidity of the animal, the dog leaping forward about a foot, the body balanced on hind legs as in standing, the fore legs apparently flexed, the plunging movement bringing the snout to the ground first, the animal then falling on its side. Dog remained in a state of tetanus till circuit opened. No cry made. Some smoking at points of contact, but no burning. 8:36 p.m., muscles relaxed except in right fore leg where marked rigidity remained. Flesh hot to the touch in the legs which had carried current; 8:37, no evidence of cardiac movement under stethoscopic examination; 8:44, contact points on body still show marked elevation of temperature. 8:45, surface temperature of hind leg (left) 122 degrees F., 50 degrees C. The rhythmic tractions of the tongue as advocated by Laborde of Paris, were continuously made from 8:45 to 9:43 without effect. It was the opinion of all present that death was instantaneous and painless, and that resuscitation was impossible.

Dog No. 2. Weight 26.5 pounds. Evidencing great fear Rectal temperature 103.1 degrees F., 39.5 degrees C. Contacts right fore and left hind leg near carpus; 9:05 to 30 p.m. Resistance 17,430 ohms. The voltage 690 before closing circuit, 685 during closure; 9:08, circuit closed for twenty seconds through dog. Current through dog 1.0 ampere steady. Immediately on closure the animal fell on his side without forward movement in condition of tetanic rigidity. Opisthotonic curve of back. No smoking of contacts. Death evidently instantaneous and painless; 9:11, body removed to examining table; 9:12, no cardiac movement by stethoscopic examination; surface temperature of body evidently raised to touch. Optic nerve pale pink; blood vessels full (normal condition in dog stated to be veins prominent, arteries thin and narrow). Corneal epithelium wavy; pupils dilated to fullest extent. Iris almost disappeared. 9:16, rectal temperature 104 degrees F., 40 degrees C; 9:17, veins on retina have shrunk to a hair line. Optic nerve growing brownish; 9:20, surface temperature, right axilla, 104.4 degrees F. (40.2 C.); 9:34½, optic nerve pale. In the opinion of all present death was instantaneous and painless. An attempt to resuscitate it being considered hopeless.

Dog No. 3. Weight 41 pounds, short hair; 9:23, optic nerve bright pink, pupils dilated. Blood vessels full and easily discerned; 9:35, rectal temperature 102 degrees F. (39 degrees C.); contacts made one on each fore leg above carpus; 9:40, stethoscopic examination of heart shows rate 60 per minute; 9:45, resistance 31,820 between electrodes; 9:47, voltage 700, during application of current, steady at 690; 9:48, circuit closed and current maintained for ten seconds. Current steady 1.8 ampere. Immediately on closing the circuit the dog which had been lying quiescent on one side was thrown into a tetanic state, except a slow waving motion of the left hind leg which rapidly ceased; 9:49 p.m., deglutitious movements. Cornea insensible. No cardiac movement. Apparent respiratory movements; 9:50 p.m., deglutitious movements still present, flexion of head, no cardiac movement. Respiratory motion ceased; 9:53 p.m., resistance between electrodes 1,207. Rectal temperature 102 degrees F. (39 degrees C.). Rigidity absent. No perceptible surface elevation of temperature; 9:55, optic nerve pale, with complete change of color. Arteries disappeared; veins growing thinner; 9:55, 30, veins thin as hairs, completely emptied in spots and presenting a beaded appearance; 9:56, optic nerve grayish pink.

In the opinion of observers, death was painless and took place within a minute after the closing of the circuit; also that movements after opening circuit were reflex and spinal. Immediate observation after opening circuits failed to show any evidence by a stethoscopic examination of cardiac

movement, nor were they present at any subsequent time. It was also believed that it would be impossible to resuscitate.

Dog No. 4. Short hair, 29.5 pounds. Optic nerve pink, blood vessels full. Contacts made by cotton waste pads soaked in saline solution pressed into ears with ear flaps bound over them. Heart rate 140 per minute; 10:11, resistance between electrodes 1,200 ohms; 10:13, voltage 700; 690 during application of current; 10:14 p.m., circuit closed for five seconds. Much smoking and slight charring of hair at electrodes. Current not accurately measured owing to brief interval of application, but estimated at 6 amperes. Progressive rigidity. Rectal evacuations. 10:15, irregular movements of extremities somewhat resembling those made in walking. Most marked on left side. Tail wagging; 10:16, same, more marked; 10:16, 30, eyes rotated upward and inward, moderate muscular rigidity of body; beginning to breathe; 10:17, horizontal symmetrical oscillation of eyeballs. Pupils contracted; 10:17, 30, movement of eyeballs gradually ceasing; 10:18, movements of eyeballs ceased; 10:19, confused heart sounds indistinguishable; 10:19, 30, heart sounds now stronger. Convulsive movements of eyeballs; 10:20, heart rate 108, intermitting every third or fourth beats; 20:21, respiration 28 per minute; leg apparently responds to touch; 10:23, Dr. Zuill states that in his opinion the animal is not suffering, but is conscious. It lies perfectly quiet; the respiratory movements good in volume and fairly regular; 10:28, cornea reflex present. Pulling the tail is followed by movements in that appendage, (possibly reflex); 10:31, no response to sensation, such as pin pricking; 10:32, 30, rectal temperature 103 degrees F. The animal lies in a position of full extension; 10:34, attempts voluntary movements to slight extent of disturbance; 10:35, 30, same more marked but unaffected; 10:39, evident response to disturbing touch. Pupil markedly contracted; 10:40, contraction of pupil as persistent as when observed at 10:17. Hearing evident, responds by muscular movements to sound of a table dragged across the floor; 10:42, placed on his feet with difficulty; finally attempts to stand, but staggers and falls. Coordination wanting and improving every second; 10:43, condition apparently dazed, respond to whistle and call. Stands with difficulty and wags tail momentarily. No evidence of suffering. No sound or whimpering; 10:44, condition apparently stuporous, does not respond readily to call or whistle, but evidently notices both; 10:45, 30, again responds distinctly to call and whistle. Standing with some effort and wags tail. Apparently conscious. Gives no evidence of suffering, except possibly slow to-and-fro movements of head may be due to pain in it; makes no sound or cry; 10:46, administration of chloroform; 10:47, unconscious with deep inspiration; 10:47, 30, stertorous breathing. Hard, rapid, irregular and feeble; 10:48, heart stopped. Relaxation of sphincters. Dog dead.

It was the unanimous opinion of the medical gentlemen present that death was absolute and resuscitation consequently impossible in the first three cases. In the third case, however, reflex movements exhibited themselves and although the heart had ceased to beat when the first examination was made, death was not reached until about one minute from the time of closing the circuit; also that in the fourth case where a much stronger current under 700 volts pressure passed through the head during five seconds, the loss of consciousness was instantaneous and complete, but the animal revived without the aid of artificial respiration.

We desire to acknowledge our indebtedness to the able scientific observers who aided us in this investigation, and consider ourselves fortunate in having obtained for this purpose the coöperation of men of such acknowledged eminence in their respective specialties. We hope shortly to be able to make more complete investigation of the conditions under which absolute death follows the passage of powerful alternating currents.

We believe that the following conclusions may fairly be drawn as the result of these experiments:

1. That the passage of a sufficiently powerful alternating current through the body of an animal is followed by instantaneous, painless and absolute death.
2. That, consequently, where electrocution is properly carried out, there is not even a remote possibility of subsequent resuscitation of the criminal.
3. That in cases of accidental contact, where the current passing is not excessive, it is quite possible that death may be apparent only, and that the method of artificial respiration suggested by Dr. D'Arsonval should invariably be followed.

It is a remarkable fact that in the last experiment where

the strength of current was much greater than in the previous instances and passed directly through the head (very trifling leakage only being possible over the surface of the skin) the effect of this current was much less upon the vitality than in the preceding cases.

Dr. Houston, in closing the discussion, said that Dr. Morton had stated that the burden of proof rested with those who made a particular assertion. Now, M. D'Arsonval had asserted that those who were supposed to be killed by electrical shock had not been killed; therefore, it was the duty of M. D'Arsonval to prove his assertion. However, passing by this point he would ask in all seriousness, of this body of scientific persons, accustomed to weigh evidence and not sentimental vagary, what their verdict was after weighing the evidence given by instruments that could not lie—the ammeter and the voltmeter? Assuming that the burden of proof rested on the authors of the paper, had they not more fully met this than the opposite side who urged that death was only apparent? Could they tell in every instance when a person was dead? Had they ceased to put confidence in the results of stethoscopic examination of the heart beat? Did they still disbelieve in the signs of death as given by ophthalmoscopic examination of the retina? Did they believe that four capable witnesses chosen by the State would declare deliberately that they believed the person dead when it was not so? Would they, as the leading body of electrotherapists in this country, dare to assume the grave responsibility of throwing doubt on such a death? It seemed to him that the picture painted by Dr. Morton was even more horrible than that painted by M. D'Arsonval. He only wished that the members could have been present and could have seen with their own eyes the instantaneous effect of the passage of the current through the bodies of those dogs, for, if there were any lingering doubts in their minds about the ability of the current to cause death, such doubts would have been quickly dispelled. Electrocutation was a most humane way in which a criminal could be executed. Society for self-protection, through its legally appointed bodies, had determined that certain lives should be stamped out, and it was but natural to attempt to produce as speedy and as painless a death as possible. The same assertion had been made about death by the guillotine—that the severed head could for some time afterward do some great thinking. Again, it had been asserted that some animals were harder to kill than others. According to this reasoning, as the ready capability to death varied in different individuals, the fact that you could prove in the case of twenty people that resuscitation did not fail, did not prove anything in the case of the twenty-first individual who might have been of a different type! In his opinion this argument was a dangerous one. Death had been produced by hanging, and every opportunity had been given for resuscitation, but it had failed. Again, death by the electrical current was now very common, and there was a reasonable probability that in the case of every one who had been killed by such an accident every effort had been made to resuscitate him, and yet with one or two marked exceptions, resuscitation had failed. As scientific men, Mr. Kennelly and himself had tried certain experiments, and had brought before the Association certain facts, the correctness of which could not be questioned. Did the members think that they would be justified as a scientific body in passing any such resolution as that suggested—a resolution which would pledge the Association, practically, to the belief that it had grave doubts as to whether or not death could be produced by the electric current? If that resolution were passed, he would certainly move to amend, by resolving that the authorities also be requested to inquire carefully as to the absoluteness of death produced by hanging.

Dr. A. D. ROCKWELL, of New York city, presented a paper on

GENERAL FARADIZATION.

He said: It has seemed to me that there is a general tendency to undervalue the faradic current at the present time. I would urge that other mechanical measures such as tapping, massage, and rapid vibratory motions are equally serviceable. It seems to me that those who take this view have a very incorrect appreciation of the faradic current. Many years ago when I first began to use electricity in medicine, my efforts were confined almost exclusively to the use of the faradic current. For the time being it enabled me to concentrate my observation on this form of electricity, and one of the most common observations made at this time was the relief of muscular tire after prolonged muscular activity. At this time there was a great pedestrian craze, and I had

one of these pedestrians under my observation. I made a general and thorough application of the current to him, and I recall distinctly how much more relief it gave him than the ordinary methods of massage and rubbing. We do not have to seek far for an explanation of these phenomena. Mechanical effects are prominent. There is undoubtedly in these cases, cell exhaustion with sluggishness of the circulation and a deposit of a toxic product of metabolism, all of which are much benefited by mechanical action. On this same principle it is, I think, that we obtain such excellent results from faradization in uterine congestion and induration—there being a sort of circulatory drainage produced. If the faradic current gave only mechanical effects, we would still find it very useful in therapeutics. But it also produces marked physiologic effects, accelerating the circulation and increasing the activity of the excretory and secretory functions. To what extent these effects are purely mechanical, it is impossible to say, yet I think in addition to these mechanical effects there is a direct and peculiar effect on the nerves themselves. So far as the galvanic current is concerned, we have advanced in the way of introducing new and better instruments of precision. With faradic currents of high tension, passed through low resistance, especially by the bipolar method we get very valuable effects, but as regards the outward application I doubt very much if we have advanced greatly. So far as my experience goes, the so-called continuous coil of twenty years ago, yielded a current the characteristics of which have not been surpassed as an aid to nutrition and as a general tonic. It has always seemed to me that the most important thing in electricity in medicine is its nutritional power. This idea of its influence over nutrition was enunciated by Dr. Beard and myself over twenty years ago, and I have advocated it ever since. After the particular form of electricity which gives these nutritional effects, opinions differ according to the extent and character of each one's experience. Static electricity is a very valuable addition to our armamentarium, and I could not do without it; no one can afford to be deficient in the completeness of his electrical outfit. With a magnificent static apparatus and all its pyrotechnic glory set in motion, the treatment becomes exceedingly simple, and I should be glad to assure myself that it was the most efficient method, and that it gave the best therapeutic results. After many years of trial, I can not, however, come to such a conclusion. I regret it in one way, because it is so easy of application, and requires comparatively little judgment. In another sense, I do not regret it because it is a very expensive apparatus. I should be sorry if it were necessary for every practitioner desiring to use electricity, to get such an apparatus. So far as obtaining the nutritional effect of electricity, I think much good is accomplished by faradization alone. Let me commend to you, general faradization alone. It is a sort of child of mine, and parents generally commend their children. It is a method which is tiresome both to the physician and patient, and requires both time and attention to the details, but my own experience for many years past is such that I look upon it as a most important therapeutic resort. The majority of those who use it, use it in a haphazard and incomplete way, sometimes even relegating its work to a nurse.

DISCUSSION.

Dr. W. J. MORTON, said that none could fail to appreciate the pleasure and honor of having Professor Houston at this meeting, or fail to appreciate the high scientific work represented in this paper by the authors. Accordingly, if any differences of opinion were expressed it would certainly be in the most courteous spirit. He was one of those who differed with everything that had been stated in the paper except as to the scientific data. He could not agree with the attitude and logic of the writers of the paper. They started by saying that the conclusions of M. D'Arsonval were unwarranted, questioning the facts concerning the death of an individual observed by D'Arsonval, and stating that one such case did not prove anything. The State claimed that the criminal subjected to electrocution was killed. He would say that the proof that death was so produced should be offered by the State yet this had not been done. The burden of proof lay on the State authorities. It had been asserted that this claim of M. D'Arsonval was "monstrous," but it seemed equally monstrous to submit a person, who was the victim of electrocution, to the knife without proof that the electric shock had actually produced death. There seemed to be only one way to settle this question, and that was: I, after the supposed electrocution to endeavor to resuscitate the victim, for he might be in a state of trance and conscious

of everything going on about him. He thought every neurologist must admit to-day that it could not be denied that such a criminal might be entirely conscious of what was going on about him, and even conscious that a post-mortem examination was about to be made on him. 2, if the resuscitation failed, the body should be allowed to remain under observation until decomposition ensued. He did not feel that it had been *proved* that these criminals were dead; he would not say that they were either alive or dead. The authors had told us that they could kill dogs, but dogs could be easily killed. Animals differed in this particular; all knew that cats had nine lives. What was wanted was an experiment on the criminal, and not on the lower animals. He would ask any physician present if he would be willing, in the present state of medical knowledge and electrical science, to put his knife into a criminal, with a millionth part of a possibility of causing that criminal's death. Were we not therefore right in insisting that those who supported electrocution should prove their case? Only a few years ago the electricians had objected most strenuously to the assertion that the ordinary street currents could kill, yet now they had become eloquent exponents of this claim. In conclusion, he thought D'Arsonval was perfectly justified in declaring his doubt as to the criminals being killed by electricity.

DR. GOELET said that he felt like sustaining the position taken by the authors of the paper, for the reason that if there were a sufficient amperage registered as passing through the body of the victim the result was no longer in doubt. However, if the death were made certain by the use of the knife, and the application of the current had been painless and the patient rendered unconscious, then the claim of the State had been satisfied. It was possible that in the majority of instances the actual current received by the body in cases of accidental contact with electrical conductors was only a shunt current, and that therefore the vital organs were not subjected to its full force, and that resuscitation might be sometimes possible after such accidents, as he had suggested in a recent contribution to the *Electrical World*. Accidental shocking, as was well known, produced suspended animation which would result in absolute death if nothing was done to counteract it. Therefore it would seem unwise and useless to raise this opposition to electrocution, certainly in the face of such evidence as had been presented. If the law required the death of the criminal, and that death was rendered painless, he could not see why it should concern us.

DR. WALKER said he regretted to hear that Dr. Goelet advocated killing men by slow degrees. It seemed quite proper for this Association to pass a resolution directed to the proper authorities, requesting that the necessary means be taken to definitely test this matter in the manner suggested by Dr. Morton, and in this way satisfy the world at large.

DR. R. J. NUNN suggested that if the criminal was not killed by the electrical current that it would be unlawful to kill him in any other way, *e. g.*, by the knife. This would not be in accordance with the provisions of the law, for it required that the criminal should be killed by electricity and not by being chopped into mince meat. He therefore heartily indorsed the suggestion made by the last speaker. The whole subject reminded him of a case in which the coroner's jury refused to render a verdict until a post-mortem examination had been made to make sure that the person was actually dead.

PROF. A. E. KENNELLY said that the question at issue was not whether electricity could or could not kill, but whether under the conditions of electrocutions at Sing Sing, M. D'Arsonval was justified in saying that the criminals there executed probably died under the knife of the surgeon. The speaker said he had witnessed an execution at Sing Sing. At the time, there were four medical men present, all of whom examined the criminal immediately after the application of the current, and they all stated without hesitation that the man was dead, and not only that, but they called attention to the fact that all animal life had ceased, as they could not obtain the slightest evidence of life in his tissues five minutes after the execution. Half an hour later the body was opened. There was not the shadow of a doubt in the minds of these eminent medical gentlemen that this criminal was dead. Further than this, he had read the report of the physician who was intrusted with the work of the executions in the State of New York. In that report there was not the slightest suggestion that, in the eight or nine executions that had been done, there was any evidence of suspended animation. The general impression among the

medical witnesses of the execution referred to was that it was really a waste of time to wait as long as they did before performing the autopsy. Regarding the experiments upon which the present paper had been based, he said that as they could not kill human beings in the laboratory they had presented the analogy exhibited in dogs.

DR. A. D. ROCKWELL said that the doubts that had been expressed about the criminal not being killed had seemed so puerile that he had at first intended not to enter into the discussion. We might as well say that a man dying a natural death from disease should not be buried for three or four days, in order to be sure that he is really dead, as to say that we should wait for putrefaction to set in before disposing of an electrocuted criminal. Individuals were killed by accidental contact with an electric wire, and there was no doubt expressed about death having occurred; yet when the State deliberately executed a person in this way such a doubt was expressed. When he had at first read M. D'Arsonval's remarks on this subject he had felt that M. D'Arsonval must have been sadly in need of a theme for discussion.

DR. ROBINSON, of Albany, said that when this matter had been first brought up, a most excellent committee had been appointed by the State, and its members had given much time and thought to the most expeditious and humane way of executing criminals. He was personally familiar with the conscientious work of the committee. As a result of their labor they unqualifiedly recommended electrocution. It seemed that this attempt to take the sentimental side and throw discredit on this work was very unfortunate, to say the least. These electrical executions had been witnessed by quite a large number of physicians in this State, and they seemed to be thoroughly agreed as to the fact that the criminals had been killed by the electrical current. It seemed to be much more humane than hanging, and he hoped no effort would be made to throw a sentimental doubt on this subject.

DR. BEAVER said that the description given in the paper of the condition of the first three dogs experimented upon, indicated to him that the dogs suffered from surgical shock. If he had understood correctly, the current had been passed from the forearm to the hind limb, and had not directly traversed the vital organs; hence, the effect upon the brain must have been reflex. In the case reported by M. D'Arsonval, with a similar location of the points of contact, was it not possible that surgical shock also existed? Under such circumstances as this which obtained in the experiments on dogs, he would feel very much as Dr. Morton did, like waiting for decomposition to occur. He was free to say, however, that when a person was subjected to a powerful current in the manner employed by the State in electrocutions that it was quite probable that a direct effect would be produced on the brain and other important organs in the body, and that therefore immediate death would occur.

DR. NEWMAN said he wondered how it was that Dr. Morton did not assert that those who had been executed by hanging had not been killed. Post-mortems were made after hanging in the same way as after electrocution. Why had not Dr. Morton gotten up before this and asserted that we should always wait for decomposition to ensue before feeling sure that death had occurred? It seemed to him absurd to throw a doubt on such careful and positive reports as those made by Dr. A. D. Rockwell, Dr. Carlos Macdonald, and others, and the only effect of such an agitation would be to throw a doubt on our very humane attempts to execute criminals.

DR. LUCY HALL-BROWN said that it was a very simple matter for the authorities to allow those who had been electrocuted to remain until Nature had announced them to be actually dead, and in that way to prove that electrocution had really done its work. In her opinion much valuable time was being wasted by such a discussion as this.

DR. AUGUSTIN H. GOELET read a paper on
THERAPEUTIC APPLICATION OF THE INTERRUPTED INDUCED CURRENT IN GYNECOLOGY.

In the application of the interrupted induced (faradic) current in gynecology, much depends upon the method of administration, as well as upon the selection of a suitable current appropriate for the pathologic conditions under consideration. To apply a fine wire current indiscriminately, in the belief that it will always produce sedation and the coarse wire current when stimulation is desired, must result in failure in the majority of instances, and when success follows such empirical application of the current it must be regarded as purely accidental.

It is true that in a general way it may be said that the current derived from the long line wire secondary coil is sedative, and that derived from the short coarse wire is stimulating. But the fine wire current may be employed in such a manner as to produce stimulation which would result in irritation and be actually harmful in some instances. This is true because it is possible to obtain either sedation or stimulation with the high tension current according to the method of application, as will be explained further on.

The stimulating property of this current is in direct proportion to its volume or amperage; that is, the greater its volume and the less its E.M.F. (the resistance of the circuit being appropriately low) the more stimulating it is; and the greater the E.M.F. and the less the volume the more sedative the current becomes.

In the modern induction apparatus this is taken into account, and a simple device is utilized by which these qualities of the current may be varied by varying the length and size of the wire composing the secondary coil. To explain, the greater the length of the wire the greater the number of turns in the coil and consequently the greater the E.M.F. Correspondingly, the greater the length of the wire, the greater the internal resistance and the less the volume of the resulting current. The finer the wire the greater the number of turns possible on a helix of a given size, and the greater the number of lines of magnetic force intersected. The coarser and shorter the wire the fewer the number of turns, therefore, the fewer the number of lines of magnetic force intersected and the less the E.M.F. Also the short coarse wire coil has less internal resistance, hence the greater the volume or amperage of the resulting current. It is only necessary to understand the principle of the transformer to be able to appreciate the principle of the modern induction apparatus.

It must be admitted that these induction currents, whether interrupted or alternating, are always stimulating, yet this does not signify that the ultimate result may not be sedative, nor does it involve any inconsistency. Opium is a cerebral and circulatory stimulant yet its effect is sedative.

Stimulation may be of two kinds: 1, exciting when it is painful and irritating; and 2, sedative when it is non-irritating or soothing. In order to make the stimulation of the faradic current non-irritating, it is necessary to eliminate that quality of the current which produces painful contraction. To accomplish this the amperage of the current must be reduced to an almost inappreciable degree, and in doing this the E.M.F. of the current will be greatly increased. That is, the long fine wire current is ordinarily sedative in its effect because its amperage is inappreciable and its E.M.F. is high; and it produces intense muscular contractions which are painless. Therefore, when we desire a current for sedative effect one must be selected which has a high E.M.F. and an inappreciable volume; then if it is properly administered sedation will be the result of the stimulation that it produces.

The rate of interruptions has, likewise, an important bearing upon the effect produced as, ordinarily, the more rapid the interruptions the more sedative the effect, and the slower the interruptions the more painful and stimulating the current becomes. The possible explanation of this is that with the very rapid interruptions a tetanic contraction is induced which ultimately results in temporary loss of muscular power which is essential for sedation.

As said before, much depends upon the method of application of the fine wire current, since two effects are obtainable with it according to the manner in which it is used.

1. *Stimulation* in the nature of an excitation when the intensity of the current throughout the application is maintained at a point where it is constantly and forcibly appreciated by the patient. In other words, when the force of the current is increased rapidly.

2. *Sedation* when the increase is so gradual as to make it barely perceptible and the application is continued until complete relaxation and insensitiveness are produced.

In other words, if the current even from the longest and finest wire be administered so as to maintain a point throughout the application where the structures are conscious, so to speak, of the excitation, stopping short of that local loss of consciousness which must be reached to secure sedation, the result will be a stimulation, an excitation or irritation which at the same time has been painless.

This form of stimulation is extremely useful and is particularly applicable to conditions in which stimulation with the coarse wire current would be painful and injurious. It is not appropriate, however, in all cases; that is, it is not sufficiently stimulating. Therefore it is necessary to vary

the length of the wire so as to vary the stimulating property of the current, and when the current ceases to be sufficiently stimulating it is rendered more so by shortening the wire in the secondary, thus lessening the E.M.F. and increasing the volume of the current.

A coil of one length of wire, as has been suggested, is not sufficient because it gives an unvariable current. The volume of the current from such a coil may be lessened by interposing a resistance like a rheostat, but it would not be possible to increase the volume of the current beyond what such a coil is capable of giving.

In gynecology the faradic current is particularly useful in painful affections of the female pelvic organs and those attended with congestion, as well as in subacute and chronic inflammatory states. Here the fine wire current is appropriate.

When there is general loss of tone and at the same time the parts are sensitive, stimulation with the line wire current is more satisfactory. In these conditions the stimulating property of the current may be greatly increased by using, from time to time, a shorter length of wire until finally the coarse wire current may be employed with benefit and without injury. In the beginning, usually in such conditions, this would be impossible.

The coarse wire current is more directly applicable to conditions of subinvolution and where there is venous engorgement. In these cases the fine wire current would be usually inappreciable and, therefore, without effect, though occasionally cases of this character will be encountered where, at first, the coarse wire current will not be tolerated. Then a current from a finer wire must be employed at the start. I have always contended that the current to be effective must be appreciable, in the beginning at least, and clinical experience confirms this opinion.

To enumerate in detail the diseases of the female genitalia to which this current would be applicable, and outline the method of application in each would consume altogether too much time for this discussion; but I will briefly mention some conspicuous examples where, if properly employed, its use is attended by marked and satisfactory results.

In ovarian hyperemia, ovaritis and edema of the ovary, as well as in ovarian neuralgia, the results from the use of this current have been highly satisfactory, and I may say that it has been the exception when these conditions have not yielded promptly to the current employed in a proper manner. These conditions are often secondary to disease of other organs operating to produce them, when faradization alone will not accomplish the desired result. For example, edema of the ovary, due to varicocele of the pampiniform plexus, could not be influenced permanently by faradization, likewise an ovaritis due to an active endometritis would not yield to faradization unless treatment were instituted for the diseased endometrium.

In subacute and chronic salpingitis, as well as in catarrhal endometritis and some other forms of endometritis, depending upon pelvic congestion, the faradic current has yielded excellent results in conjunction with negative galvanic applications to the endometrium.

In salpingitis it acts by subduing the turgescence and tumefaction or edematous infiltration of the tubal mucous membrane and the tube walls by stimulating contraction and peristalsis of the tubes, thus favoring drainage by causing them to empty into the uterus. In this manner, very often accumulations are removed and the condition may be cured, provided, that at the same time, appropriate treatment is instituted for the coexisting endometritis, for I am satisfied defective drainage from the tubes is more often caused by obstruction of this nature than by actual occlusion.

Recent inflammatory exudates usually disappear under faradization frequently repeated. It is my experience that the result is more speedily obtained by this current than by the galvanic.

I have repeatedly demonstrated the possibilities of faradization in this condition at my clinic. In one case which I recall, there was complete fixation of the pelvic contents with extreme sensitiveness which, according to the history, had existed for some time, yet mobility was restored by faradization alone, nothing else having been employed.

In uterine displacements nothing has been found to yield such uniformly satisfactory results as a combination of faradization with galvanism of the uterine body through application to the endometrium. The results which I have been able to obtain lead me to regard this as the only satisfactory treatment of uterine displacements. Since my paper upon this subject, read before the New York Obstetrical Society several years ago, I have been following it up in the same

lines laid down there, and nothing has yet occurred to change my views as therein expressed. On the contrary, a riper experience confirms me in the belief that it is, as I have said, the only satisfactory and rational treatment of these conditions.

Dysmenorrhea dependent upon any of the above named conditions as a cause is promptly relieved by faradization, especially if negative galvanism of the endometrium is employed conjointly. The induced current is also useful in relieving the pain associated with fibroid growths of the uterus.

In relaxed conditions of the uterine supports, allowing descent of the organ, the faradic current is particularly useful; here the coarse wire current is most often indicated, but in some cases fine wire stimulation is better tolerated and is to be employed in the beginning. It is necessary, however, to make the current as stimulating as is possible for it to be borne without producing actual pain and discomfort.

One case which I recall will serve to illustrate what this current can accomplish in these relaxed conditions. The patient who was referred to me by Dr. F. C. Valentine of this city, was 26 years old and suffered with complete proclivita resulting, no doubt, from repeated miscarriages. The condition had existed for several years when she came under my observation and most of the time the uterus was completely prolapsed outside of the vulva. It had been impossible to find a pessary which would remain in the vagina, and the only relief she had been able to obtain was from hot water douching. When this was employed and she remained on her back afterward the uterus would not come down for an hour, but if she assumed the erect position it would immediately protrude. The uterus was enlarged and heavy, though the cervix was not lacerated and the perineum was intact. I advised bipolar faradization with the coarse wire current. After the first application, which was given in my office, the uterus did not protrude for several hours though immediately afterward she returned to her home a distance of several miles. After the second application it was retained for twenty-four hours, though she was constantly on her feet. At the end of a week, the application having been repeated every day, the uterus occupied the normal position in the pelvis, except that it was retroflexed. The applications were afterward made at longer intervals and a complete cure was obtained.

I will not burden this discussion, or tax your time, by relating in detail in support of the value of this current in the pathologic conditions enumerated, but I can not refrain from a brief mention of some cases where it seems to me the results obtained have been more than ordinary.

For instance, Mrs. A., a young married woman, consulted me in the summer of 1893 for pelvic trouble, having been told by several gynecologists that laparotomy was necessary for the removal of the pelvic organs. She had been married four years but had never been pregnant. Examination revealed an endometritis with the right tube considerably distended and the left thickened, ovaries enlarged and excessively tender. Here was a case with a grave outlook for conservative treatment; she had declined an operation and had been referred to me, believing that I could cure her without removing the diseased organs. It was impossible for me to promise from treatment anything more than temporary relief of the symptoms, and I frankly said I would do all I could for her, but I also thought an operation would ultimately be required. I found, however, that the treatment instituted established drainage of the tubes into the uterus and the distended tube rapidly diminished in size. She was kept under treatment for two months when she left for the West to join her husband, who is an actor, her condition being so greatly improved that further active treatment was deemed unnecessary. She wrote me in the early part of the summer that she had been perfectly well since discontinuing treatment though now she thought she was pregnant. Within the past month I have seen her and find that pregnancy has advanced to the seventh month. This is the best possible evidence that the cure is complete.

I recall another case of a milder character which also illustrates the value of this current. The patient, a young married woman, was referred to me by Dr. R. W. Taylor of this city. A year before coming under my observation, a prominent gynecologist advised laparotomy, but it was declined, and she improved somewhat under the treatment then instituted, though she continued to suffer particularly at her monthly periods. The diagnosis in this case was endometritis with antelexion and catarrhal salpingitis and ovaritis. Faradization and galvanism were both employed. A cure was complete at the end of three months.

By way of conclusion, I will show you some improved patterns of induction coils, in which are embodied the essential features suggested in my communication to this Association at its first meeting in Philadelphia. I have had this particular combination of coils in use now for more than two years, and am fully convinced that the variable qualities of the current as obtained from these different coils make the apparatus suitable for all purposes where the faradic current is to be employed.

After the adjournment of the morning session, Dr. GOELER exhibited various forms of faradic apparatus, and explained the advantages and disadvantages of each.

(To be continued.)

SELECTIONS.

Advances in Brain Surgery.—(von Bergmann before the Congress of the German Society for Surgery in Berlin.) He alludes quite briefly to the operative treatment of cranial tumors. According to Starr's trustworthy researches, out of 100 tumors of the brain only 6 are at the same time recognizable and removable, and of these a successful operation will be performed upon scarcely a half. So surgery can do little enough in the treatment of such affections, in spite of the advances in diagnosis and particularly in the technique of operations. The hope to cure epilepsy, at least Jacksonian, by operation proved deceptive, and one can now really regard as an object for surgical interference only those cases of cortical epilepsy, in which a tumor, for instance a cyst, which may arise not altogether rarely from a traumatic intra-meningeal extravasation, lies in or over one of the circumscribed cortical centers.

Very significant, on the other hand, are the advances in the domain of the surgical treatment of intracranial suppurations, especially the aural abscesses involving the brain, the meninges and the sinuses. These are relatively rare. Out of 1,000 acute and chronic suppurations of the ear, three or four cause death from extension to the meninges, the sinuses, or the brain itself. The chronic processes are particularly dangerous, and especially those arising from masses of cholesteatoma in the inner ear. Those cases are very critical which are marked by acute or subacute outbursts and have an intermittent fetid discharge, and in which at the same time temporary obstructions arise to the discharge of pus, through the growth of polypus-like granulations in the middle ear and the deeper part of the external meatus.

The aural affections of the brain, the meninges and the sinuses begin, as a rule, at the point where the original suppuration in the temporal bone has pushed up to the vault of the skull. But a main point of aural suppuration is the cochlea. Thence the process spreads in two directions, into the mastoid antrum, and through its roof, the tegmen tympani. The spread of suppuration in the latter direction leads directly to a pachymeningitis, from this to an extradural (epitympanic) abscess or to an intradural abscess of the brain. Most cerebral abscesses of aural origin lie in the temporal lobes, and so the chief extension is through the small and circumscribed point of exit in the vault of the tympanic cavity. Bergmann explains his method of reaching the roof of the tympanum from the cranial cavity by lifting up a parallelogram $2\frac{1}{2}$ cm. high by 3-6 cm. wide from the vault of the temporal bone, and shows how one can in this way easily enter the mastoid process, the external meatus and the sigmoid fossa.

The greatest advance which brain surgery has made in recent years, Bergmann sees in the operative treatment of thromboses of the sinuses caused by and associated with suppuration. Most of these are due to the extension of aural affections of the mastoid process to the wall of the sigmoid fossa and the consequent infection of the adjacent sinus wall. In many cases there is extensive suppuration enveloping the sinus, very often at the same time epitympanic abscess. It was Zannf's idea to thwart the disastrous results of septic thrombi of the transverse sinus by tying the jugular vein and then opening and clearing out the sinus. The sinus can be reached also from the mastoid process as well as from the cranial cavity after craniectomy at the vault. The latter method Bergmann describes as the ultimate supplanter of the former. Thrombosis of the transverse sinus with the abscesses around the sinus is also the usual connection between middle ear suppuration and abscess of the cerebellum, the latter generally situated near the sigmoid fossa.—*Wiener klinische Rundschau*, June 23, 1895.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, AUGUST 17, 1895.

PROFESSOR HUXLEY.

The death of this very eminent man who was an educated physician and most learned biologist and teacher, brings out one phase of his work which every physician should copy. All his writings are models of concise exact expressions conveying the precise meaning intended. This was not easy to him, but was acquired by hard labor and persistent study. Many of his works were written three and four times over, and cut down and altered continuously. He explained that his idea of good writing was to make it so clear and concise that no critic could draw any other conclusion but the one intended. In this he succeeded, and the various polemic discussions he had with learned theologians always brought out a clear, crisp, ringing range of thought, in contrast to the heavy learned logic of his opponents.

Physicians and even teachers show great faults in this direction. PROFESSOR HUXLEY's idea that clear methods of expression were equally essential to the thought itself, is not recognized in much of the medical literature of to-day. The slang phrase in newspaper offices, "boil down," meaning condense, is only valuable when combined with clearness and exact words, that have only one meaning in the form they are used.

PROFESSOR HUXLEY's writings are models of scientific clearness, and should be studied. While his work was not along the lines of practical medicine, he rendered great service to the higher ranges of comparative anatomy and paleontology. He was not only a great teacher, but he was a great student all his life. Nothing that interested him was examined or studied in a superficial manner, or presented to the public in a vague uncertain way.

He never grew egotistical with all his learning, but rather became more conscious of his limitations, and the great unknown world that widened constantly about him. He was literally a self-made man, coming from a family of school teachers, and was obliged to earn his living and rise by his own exertions exclusively. He died, one of the leading scientific men of this century, whose name and work will be most intimately associated with the scientific advances of the age. Science, to him, had no commercial side. It was the search for truth, for the pleasure it gave.

"MODERN HYGIENE."

In an editorial article under the above title, a valued contemporary¹ makes an assertion which the JOURNAL has been unable to verify, and yet which involves a question of such practical importance, both to health authorities and to the public, that it demands verification if correct, or withdrawal, if the reverse, because of the mischief that might result if accepted as a basis of action by those charged with the protection of the public health.

The text of the editorial is a circular on tuberculosis for the guidance of the laity, issued by the Health Commissioner of Brooklyn and in which, according to our contemporary, "conditions seem to have been taken for granted which are not by any means incontrovertible facts; on the contrary, to some extent, they can be proved to be incorrect; and unless the ground upon which such provisions are based is indisputable and capable of being defended against any attacks of authorities upon such subjects, health authorities should be very cautious in formulating laws with regard to matters of this nature."

After commending, with some reservation, the advice in the circular that "consumptives should not spit upon the sidewalk, or on public conveyances or in places of public congregation"—advice which it very properly urges should "be extended so as to include everybody, whether consumptive or not"—our contemporary says, "it has been found, however, that *tubercle bacilli die in the sputum as soon as the latter becomes thoroughly dry*, which fact will considerably diminish the urgency for such a law." If this really is a "fact" it must be admitted that not only the urgency for a prohibition of indiscriminate expectoration would be considerably diminished, but that the spread of consumption is by no means to be limited so easily as optimistic sanitarians assert in their circulars and other preachments.

But, is it a "fact?" Without having made an exhaustive search of the literature of the subject, the JOURNAL will not undertake to deny the assertion, but would like "a bill of particulars." The only quasi-affirmative statement recalled is that of Pro-

¹ Medical Review, July 20, 1895.

FESSIONER KOCH at the Tenth International Medical Congress, Berlin, 1890, to the effect that, when exposed to direct sunlight in sputa, the tubercle bacillus is killed in from a few minutes to several hours, depending upon thickness of the sputum; but in diffuse daylight it survives from five to seven days. This, however, can hardly be the basis of our contemporary's assertion, since it takes no account of bacilli expectorated in cloudy weather or otherwise protected from the direct rays of the sun.

On the other hand, the previous experiments of KOCH, SCHILL and FISHER² show that dried tuberculous sputum retains its infectiveness for several months, though gradually diminishing in degree, CADÉAC and MALET³ dried and pulverized the lung of a tuberculous cow, and were able to produce tuberculosis in guinea pigs by its inhalation at the end of one hundred and two days. LAWIZKY's experiments⁴ to determine the length of time of the infectiveness of sputum in living rooms, show that, while the virulence is gradually lost, it is retained for from two to five months in the diffused light of an ordinary living room. So resistant, in fact, is the bacillus to heat and desiccation that FRAENKEL and EHRLICH were led to study the possibility of spore formation to account for it.

From all of which it would appear that the "sometimes greatly erring health officers," who, "in a circular of this kind . . . portray the present tendency of sanitary efforts of overzealous enthusiasts," are still in good company and, at most, can only be asked to modify their advice to consumptives to the extent of restricting them from spitting on cloudy days, and of urging them to secure exposure of their expectoration to the action of direct sunlight.

MILITARY SURGERY OF THE FUTURE.

An interesting abstract of SIR WILLIAM MCCORMAC's address before the British Medical Association at the annual meeting last week, is cabled by the London correspondent of the *New York Sun*, under date of August 3. The eminent surgeon's theme was the effects of the latest forms of weapons used in recent wars, and a forecast of the surgery of the next great war. The new fire-arms, throwing smaller projectiles at higher velocities, do not seem to possess the disabling power of the larger caliber weapons which they are superseding; but the increased ranges, the greater rapidity of fire and the use of smokeless powder must result in a larger proportion of wounded, even though the injuries should be less serious from a surgical standpoint.

The important matter for consideration is, will the injuries inflicted by the new projectile be more amenable to successful treatment? VOLKMANN had

pointed out that the subcutaneous character of gunshot injuries of bones and joints makes them less dangerous than compound fractures, with the more extensive damage to the soft structures produced by other causes. During the recent war in Chili, flesh wounds, which had not been probed and thus infected, healed rapidly. The favorable character of the lung wounds was especially noticeable, and bones were less comminuted and were united in about half the time formerly required. DE RIVIERO, of Valparaiso, had made similar observations; he had noticed the smallness of the apertures made by the Männlicher bullet, and the injuries generally were less dangerous to life. Similar results were observed by the medical officers of the Chitral expedition. The British troops were armed with the Lee-Metford rifle and SURGEON BURDEN reported that its wounds through soft tissues, at both short and long ranges, were clean and incised with little bruising and healed quickly. Holes through bones were made with little splintering and in no case was there any explosive action. The damage caused by the large bore bullets of the enemy was much more severe.

It might be taken for granted that the number wounded, in proportion to the number engaged, would, in the future, be much greater than before, and the supply of ammunition would be larger as the facility for carriage would be greater. Moreover, smokeless powder would increase the accuracy of aim and SIR WILLIAM thought the next great war would be more destructive to human life, and that the number of injuries, and, in many cases, the severity of the injury, would be largely increased; but very many cases would remain less severe in character, more capable of successful treatment and less likely to entail future disablement, while improved sanitation and antiseptic methods would increase enormously the proportion of the recoveries.

BACTERIOLOGIC EXAMINATIONS IN NORTH CAROLINA.

The July Bulletin of Board of Health of North Carolina, conveys the information that bacterial investigation is an accomplished fact in that State. The Secretary, DR. R. H. LEWIS, gives the following account of the beginnings of this most commendable advance in the "Old North State:"

"At the conjoint-session of the Board with the State Medical Society at Greensboro, in 1894, PASSED ASSISTANT-SURGEON KINYOUN, who was present as the representative of the U. S. Marine-Hospital Service, announced that the Service would be glad to give, in its laboratory at Washington, free of charge, a six weeks' course of instruction in practical sanitary bacteriology, to duly accredited representatives of our Board. DRs. ALBERT ANDERSON, of Wilson, and W. T. PATE, of Gibson's Station, promptly signified their desire to avail themselves of the opportunity.

² Mitth. aus dem K. Gesundheitsamte, Bd. ii, 1884.

³ Etude expérimentale de la transmission de la tuberculose par l'air expire et par l'atmosphère. Rev. de Med., No. 7, 1895.

⁴ Inaugural Dissertation, St. Petersburg, 1894.

They were duly accredited, and in January of the present year went to Washington, at their own expense, and spent the full time in practical study and work under the immediate instruction of Dr. KINYOUN."

Since their return, they have each fitted up a laboratory, and are now prepared to make biologic examinations of drinking waters, and of the cultures in suspected cases of tuberculosis and diphtheria. They have agreed to a special arrangement for official work in drinking waters. Owing to very small appropriations by the State, permits for such examinations, at the expense of the Board are given with much circumspection. Physicians who suspect a water as the cause of disease, must first submit the matter to their county superintendents of health or to the health officers, if there be such in their respective localities, who will report to the Secretary. If, in the judgment of the latter, the expense would be justified, a permit will be issued, with the necessary instructions regarding the taking of the sample for examination. The Board will pay for the work done under this form of permit.

We trust that this modest initiative will result in a substantial appropriation by the Legislature of the State, for the building up of a well-organized State laboratory for sanitary investigation.

NEUROIDIN, AN ANALGESIC.

DR. UGO LIPPI has, in *Il Policlinico*, given an account of his experiments with the new analgesic remedy of VON SCHERING. His experiments included those made on persons not having pain of any kind, in order to determine the limits of tolerance of the drug, and the possible toxic effects which might be caused by it. Also, experiments were made on persons suffering from pain of various kinds, either in the form of neuralgia, or as symptomatic of organic lesions. These included four cases of sciatica, one case of slight attacks of angina pectoris in a patient with atheroma of the aorta; one case of intestinal pain caused by malignant growth of the retroperitoneal glands; one case of neuralgia in a person suffering from polyneuritis; one case of brachial neuralgia in a neurotic subject; one case of gastric pain caused by epithelioma of the gall bladder; one case of headache in a neurotic person, the subject of a neuralgia simulating polyneuritis; one case of neuralgia of the bladder and stomach in a patient suffering from cancer of the liver; one case of muscular pains, probably rheumatic, in a tuberculous subject; one case of pains in the arms, symptomatic of spinal irritation.

As a result of these experiments, LIPPI draws the following conclusions:

1. Neuroidin may be given in doses from 0.5 to 3 grams; these are effective and well borne, and may be repeated several times a day.

2. These doses are perfectly harmless, and produce no other ill-effect than occasional diarrhea, with or without intestinal pain.

3. Hardly any physiologic effects were noticed; in rare cases there was a very slight diminution in the heart-beats; no marked effect on the kidneys was observed.

4. As regards the analgesic action of the drug, it was found to have the property of soothing and even abolishing pain, whether neuralgic in character or symptomatic of an organic affection; its action, however, is uncertain, and notably inferior to that of other similar remedies, such as phenacetin and antipyrin. The remedy is not readily soluble in the vehicles in common use.

ALCOHOL BY SYNTHESIS.

Chemists have known that ethylic alcohol can be made artificially, and with such exactness that it can not be detected from alcohol made by natural processes. The alcohols of commerce are governed by a breaking down process, from a complex to a simple, by transforming starch or sugar through the aid of yeast and fermentation. Building up alcohol synthetically from carbon hydrogen and oxygen is a new phase that promises great revolutions in many directions of science and art.

The recent discovery of Mr. WILSON, of acetylene gas from lime and coal dust treated with electricity from carbon electrodes, has made it possible to produce ethyl alcohol so cheap that all other processes will be abandoned. Organic chemistry has been leading in many fields of commerce, and the question of building up products in demand, cheaper than they can be made by natural processes, is answered affirmatively by the constantly increasing substances on the market. Fruit flavors, colors, and sugars and many other products are made far cheaper and of equal value to the same substances as produced by nature.

Foods of various kinds are now made in the laboratory, and chemists have asserted that not far away beefsteak will be built up and furnished to the masses. The possibility of doing artificially or chemically what is now done by nature, seems to be limited only by a want of sufficient knowledge and control of natural forces. Should WILSON's discovery of cheap acetylene prove to be what is expected, ethyl alcohol will be made for 2 or 3 cents a gallon or less. Its uses in the arts will be largely increased, and as a beverage it can be cheapened to an enormous extent to the consumer. The occupation of distilling will be superseded, and the manufacture of whisky and other alcoholic beverages will change, and the great problems which center about them commercially, scientifically and socially, will have new features.

Who can predict what discoveries will follow in

the combinations of carbon, hydrogen, oxygen and nitrogen, and the possibility of tearing them down and putting them up again?

WAIVER OF PRIVILEGE MAY BE MADE AT ANY TIME.

The New York code provides that "a person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity." This, another section declares, applies to any examination of a person as a witness, unless expressly waived upon the trial or examination by the patient.

Commenting upon the foregoing, the general term of the Supreme Court of New York says, in the case of *Dougherty v. Metropolitan Life Insurance Company*, decided May 13, 1895, the Legislature locked up the secret and gave the key to the patient. He can forego the privilege, and unlock the lips of the doctor. The statute requires that to be done expressly upon the trial, but there is no method prescribed for the accomplishment of the object. If the patient be alive, an entry upon the record at the trial by his counsel would be sufficient. In case of his inability to attend the trial, a written stipulation signed by him, and entered upon the record, would remove the prohibition. That being so, it must certainly be immaterial when the stipulation is signed. It may be signed long before the trial in anticipation of that event, and with the design of having it used thereat, as by signing an application for life insurance containing a stipulation that such statutes as the above "are hereby waived, and it is expressly consented and stipulated that in any suit on the policy herein applied for, any physician who has attended or may hereafter attend the assured may disclose any information acquired by him in any wise affecting the declarations and warrants herein made." The reasonable construction of the statute, says the court, is that the provisions are expressly waived upon the trial if a proper stipulation to that effect be produced thereat, and entered upon the record, regardless of the time when the waiver was executed. Nor is the provision for such waiver contrary to public policy. The general public can have no interest in the execution of the statute in question. Its operation can neither be injurious nor disadvantageous to the public, and it is not opposed to good morals. It simply prescribes a rule of evidence between party and party upon the trial of a cause.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

It is hard to separate the enthusiastic members of our profession, and it is certain that they will come together without regard to geographic boundaries, at

the Detroit meeting. The program, elsewhere printed, shows no lack of good papers; an average of nearly twenty for each day being promised; and the well-known hospitality of the citizens and the Detroit profession insures that all available time will be spent profitably and agreeably.

The Mississippi Valley Society has now become a National medical society, and is rapidly extending its membership east of the Alleghenies—and it is pleasant to record that nine-tenths of its members are loyal members of the AMERICAN MEDICAL ASSOCIATION and enthusiastic workers in the great cause of professional organization.

We doubt not, however, that gradually the medical men of the whole interior valley of North America, as described by DRAKE, will become one medical organization, potent for good to all worthy members of the medical profession.

WISCONSIN SESSION LAWS.—The statutes enacted at the last session of the Wisconsin Legislature are now published and made accessible to the public. Elsewhere we print such extracts from them as are of interest to the medical profession.

CORRESPONDENCE.

Letters to my Hospital Internes, Past and Present.

By CASEY A. WOOD, M.D., OF CHICAGO.

II.

PARIS, July 14, 1895.

Gentlemen:—Perhaps the most noticeable fact connected with the more prominent oculists of Paris is their foreign names and origin. We find several Germans, a Pole, a Greek, a Netherlander and even a Canadian graduate on such a list. Whatever else this may mean, it is at least evidence of the tolerant and cosmopolitan character of French surgery. Evidently, also, they have been asked by the French public, not where they were from, but what they knew about ophthalmology.

Probably the best known ophthalmologist in Paris is De Wecker (public clinic 55 Rue Chercher Midi, 4 P.M. daily; operations at 5 P.M.), one of the fathers of ophthalmology and justly celebrated as author, teacher and operator. He has always a large following of students and patients and is very courteous to strangers. He showed me his new glass-and-nickel steel operating chair, made on the model of one in which he said he had done 30,000 operations. He gave his own anesthetic on several occasions, not for want of an assistant but because he had "views" upon the subject of general anesthesia. De Wecker prefers the illumination from a small electric hand-lamp, while operating, to sunlight, as he thinks that the operator, his assistants and the onlookers can all see better. It seems to me that this is merely an example (and we find many of them among surgical appliances) of the adaptation of an instrument to the requirements of a particular surgeon. He finds that some form of instrument suits *him* better than any other and forthwith discovers reasons why it should be adopted by the rest of the world. De Wecker is markedly short-sighted and is obliged to approach his own eyes to the patient's face while operating; consequently an electric lamp is better for all concerned when *he* is operating.

I saw Panas, another well-known oculist (professor in the University, Hotel Dieu, fifty-nine beds for eye patients, entrance off the Place Notre Dame, noon daily, operations 2 P.M.), and the man who advocates the substitution of biniodid of mercury for sublimate as an antiseptic in surgery, on the ground that it is less irritating than, is quite as good a germicide as, and can be more effectually employed in one-half the dose of mercuric chlorid. Lately he has been in the habit of using the iodid dissolved in sterilized olive (or almond) oil as an antiseptic application to the lids and lashes (and for hypodermic injection in general medication) before operating for cataract. The ocular region generally is thoroughly cleansed the evening before the operation and the oil applied. The eye is then bandaged until the moment of operation. Laboratory experiments have proved that the conjunctival sac and the lid edges contain fewer pathogenic bacteria after this treatment than when any other plan is followed; also the evidences of ocular hyperemia are few or wanting. During the operation he uses a large Graefe knife and cuts through one-half the corneal circumference. His extractions are without iridectomy and he does not hesitate to employ what appeared to me to be a good deal of force and much manipulation in replacing the iris, using a large scoop-like repositor. But this rough treatment, he says, is never followed by iritis. He has given up the use of the syringe for washing out the anterior chamber after removal of the cataract, since employing the iodid oil solution. The presence of pathogenic microbes is what he fears in producing ocular inflammation rather than traumatism (e.g., the use of the iris repositor) or foreign bodies in the anterior chamber—such as lens matter and capsular remains after cataract extraction. He uses eserine ointment 1 per cent. after the operation for cataract, then iodoform dressing, both eyes being bandaged for three days.

Some of the English operators, Lang, for example, always examine the eye twelve hours after such operations, as in their experience prolapse of the iris occurs, if at all, within that time. They also say that the prolapse is more easily dealt with then than later.

After enucleation, Panas sutures the conjunctiva and puts in rubber drainage, thereby securing a better socket for the artificial eye.

I saw a good many cases dressed with iodoform in all the clinics, and I can not help thinking that the French nose is after all less susceptible to that odorous application than are our American olfactories; you will remember that even the poorest public patient objects, with us, to iodoform dressings when applied to the nasal region.

In the clinic of Abadie (172 Boulevard St. Germain, 1 to 4 daily, operations at 3) I saw the chief give a subconjunctival injection of one drop of a weak eserine solution immediately after removal of cataract. He did his extraction without iridectomy, like almost all the French operators—as opposed to the English surgeons, of whom it may be said that the converse is true. Abadie, for cataract extraction, uses an eye speculum with the spring turned toward the nose, having previously cleansed the conjunctival sac with cotton-covered retractors. This latter proceeding recommended itself to me since reading Gasparini's report, in which he showed that the useful action of certain fluids (borated solutions, sterilized water, weak bichlorid mixtures, etc.), employed in irrigating the eye, depends not so much upon their germicidal powers as upon the stream of water acting as a mechanical agent in detaching and washing away the colonies of cocci.

Abadie's first assistant kindly showed us a number of syphilitic patients whom he was treating after the method of Marcelli, of Milan, by the intravenous injection of mercuric cyanid. When employed in the usual hypodermic

manner the following is the formula commonly prescribed:

Cyanid of mercury	1 grm.
Muriate of cocain	0.50 ctgr.
Distilled water	100 grms.

Of this, 1 cubic centimeter every two days. The cocain is omitted when the injection is made *intravenous*, i.e., into any of the superficial veins of the arm, and a centigram is given at one dose every two days. A special syringe is used, there is very little pain and I saw no disagreeable after-effects. Abadie claims from this treatment much better and earlier results than when mercury is given by inunction or by any other method.

The Quinze-Vingts, probably so-called because it had 300 beds when first founded, is one of the oldest hospitals in Paris and has connected with it the largest indoor eye hospital in the world—the *Clinique Nationale d'Ophthalmologie* (Rue de Charenton, 28, daily clinics, 11 to 12, operations at 1 P.M.) with 190 beds and a very large dispensary practice. Prominent on its staff of surgeons is A. Trousseau, a member of that family illustrious in the annals of French medicine. He is a very genial man and received us with great kindness. I have never seen a more rapid operator in any department of surgery. The way in which cataracts were removed, squints straightened and lid operations performed was simply amazing.

The Gilet de Grandmont operation for congenital ptosis was done in two minutes, while cataracts were extracted in about twenty seconds! For the latter, which were without iridectomy, he used only a Graefe knife like the English operator Critchett. Separating the lids with his left thumb and forefinger, he quickly punctured the cornea, used the point of the advancing knife as a cystotome, made his counter-puncture, completed the incision, pressed upon the lower third of the cornea with the back of the knife, and before one could say "Jack Robinson," the opaque lens lay upon the cheek. I saw him do half a dozen such operations, with good immediate results, inside of fifteen minutes. A starch bandage was applied in all the cases. To this hospital are also attached Valude (operates every Thursday at 2 P.M.), Kalt, who sutures the corneal wound after cataract extraction to prevent hernia of the iris, and others. Regular instruction in ophthalmology, illustrated by cases from the vast supply of clinical material at hand, is given by members of the staff and is practically free to all comers. The assistants in this hospital have unusual opportunities for doing major operations upon the eye. They are chosen by competitive examination and the appointments are eagerly sought after.

Landolt (12 to 2, at his clinic, Rue St. Andre' des Arts, 17) is the ophthalmologist who has translated into simpler language those complicated formulæ connected with physiologic optics to be found in the exhaustive treatises of Helmholtz and Donders. Indeed, most of the smaller works and text-book chapters on the refraction of the eye, that have appeared during the past ten years, have been copied from his masterpiece, "On the Refraction and Accommodation of the Eye." He is still a young man and speaks and writes admirable English. Every American visitor or student may count upon receiving a cordial welcome from him. I regard his early and smaller work on the "Examination of the Eye" as the best thing of the kind yet published. Unfortunately, it has been out of print for several years and so far, the author has not seen fit to re-write it.

The *Hospice de la Salpêtrière*, combination of hospital, poor-house and lunatic asylum with its 3,800 beds for women has attached to it, as surgeon oculist, Dr. Parinaud (his own clinic in the *Avenue de Clichy*, No. 50, is held daily) who is probably best known as an authority on hysterical amblyopia and on the relations of the eye to nervous diseases generally. I saw

several of his cataract cases where the corneal incision was made, without subsequent iridectomy, within the clear cornea in such a manner (he claimed) as to insure early healing of the wound and to form a sort of corneal dam against extrusion of the iris. His clinic is a very interesting and instructive one and might, with benefit, be attended by every medical visitor to Paris. He speaks little or no English. Parinaud's first assistant, Morac, has also written extensively on subjects of special interest to the neurologist.

The personality of Galezowski, one of the oldest and best known oculists in the French capital (Rue Dauphine, 41, daily 1 to 3, operates 3 to 4) rises superior to one's judgment of him as an ophthalmologist. He has by far the largest private clinic in Paris and probably as large a student following as any other teacher. In his overcrowded and far from (surgically) clean operating room, aseptic conditions can not possibly be obtained nor was there, so far as I could learn, that attention given to the measurement of refractive errors or the correction of muscular anomalies which one sees in some French and in most English dispensaries. Still there is a peculiar fascination about the man and his teachings that seems very attractive to students and patients. At the same time one can not help wondering whether the enthusiastic hopes of these patients are more frequently realized than are the calmer prognoses extended to the *clientèle* of other dispensaries. The crowd at Galezowski's seems as large and expectant as when I first visited Paris in 1886. I do not intend by these words to depreciate the work which Galezowski has done for medicine generally, because that is valuable and forms a part of modern ophthalmology.

This ophthalmologic sketch would be incomplete without a reference to Dr. George J. Bull (4, Rue de la Paix, 2 to 4 daily) an American graduate, who has won a place in the front rank of Parisian oculists. He was associated for a number of years with Javal of ophthalmometer fame and that instrument probably owes more to Bull than he is willing to admit. At any rate his compatriots in medicine will always find him willing to advise them as to the best way to get about the Paris hospitals.

I regret that I was unable to visit Meyer, Oswalt, Darier or d'Espagnet as I intended, and will, consequently, say nothing about them, but the man who is interested in diseases of the eye ought, when time permits, look them all up.

Since I last visited this city, several surgical instrument makers and dealers in optical apparatus have come to the front. In addition to the well known firms of Collin, Nachet and Lüer (now at No. 6, Rue Antoine-Dubois) I have had satisfactory dealings with Roulot, 58 Quai des orfèvres and Major et Genisson, Rue Racine 23. As the question of surgical appliances so frequently arises in the case of the medical traveler, let me give it to you as my opinion that London still retains her old preëminence as the place to buy most cutting instruments, but that in other respects New York excels. With the exception of certain *souvenirs de voyage*, which one picks up in every city, and the knives and scissors of London, I would not now buy a franc, a gulden or a mark's worth of office furniture. It can be better and almost as cheaply purchased in our own country. I believe that we shall be able, before many years, to say the same thing about our medical instruction. At least such is the impression made upon me, by comparing what I have, so far, seen of French, German and English methods. In my next letter I hope to give you my experiences of some Dutch and German hospitals.

(To be continued.)

NO BOYLSTON PRIZE AWARDED.—The Boylston Medical Committee of the Harvard Medical School awarded no prize this year.—*Boston Medical and Surgical Journal*.

The Reorganization of the Harlem Hospital of New York.

NEW YORK, Aug. 8, 1895.

To the Editor:—There have been some changes recently made in the medical management of the Harlem Hospital of New York, by the Commissioners of Public Charities and Corrections, and connived at by the faculties of two medical colleges, which every honest, fair-minded member of our profession must look upon as most reprehensible, harsh and unjust.

With the advent of those new officers who came in with the change in politics, in the early spring, a disgruntled member of the profession who had been expelled from the hospital service, through one of the newspapers made a savage attack on the entire medical staff of the Harlem Hospital. Shortly after this, without an intimation of any description beforehand, the Commissioners—a board of laymen—gave notice of a reorganization of the Harlem Hospital staff. This staff consisted of Dr. John G. Truax, visiting physician and executive president; Dr. S. T. Armstrong, visiting physician; Drs. Thomas H. Manley and C. B. White, visiting surgeons, and Dr. A. Palmer Dudley, gynecologist.

As soon as the medical board came into possession of the knowledge of the proposed changes, or reorganization, they appealed to the Commissioners for an explanation, who answered, that they proposed to transfer the medical management of the hospital over to the three medical colleges and the ex-collegiate of Bellevue, and that if the former members were renominated by the colleges, they—the Commissioners—would appoint them; at the same time the medical board being assured that there were no charges against them. Three members of the medical board were graduates from out of town; one, Dr. Truax, from Rush, of Chicago; Dr. Armstrong from St. Louis, and Dr. Dudley from Dartmouth, N. H. Dr. Manley was a graduate of the University of New York, entering the hospital service as an interne in 1875. Dr. Chas. B. White was a graduate of the Bellevue Hospital Medical College, entering the service through that faculty.

It therefore would seem certain that, under the circumstances, Drs. Manley and White, who were graduates of New York colleges, would be vindicated and returned to the service. In the meantime, the Commissioners enlarged the hospital staff from five to eight, abolishing the gynecologist and requiring the colleges and ex-collegiate to make each two nominations. And now comes the most despicable part played by the two medical colleges, who ignored their plain and imperative duty to defend their own alumni. Both Bellevue and the University took advantage of the opportunity to nominate four physicians, in spite of a strong protest from the County Medical Association.

The College of Physicians and Surgeons has alone stood out, and delayed nominating, until it is assured by an investigation, that no injustice is to be imposed on the medical board dropped out.

This, certainly, is a magnificent position for a faculty to take, not to be a party to, and not to connive at any scheme which has for its object the imposition of a serious injustice on a body of physicians who have performed their duty with fidelity and conscientious attention, over a period of several years and without a farthing of compensation.

It is reported that the matter is to be made the subject of a most thorough and searching investigation, in the early autumn, in the County and State Medical Associations of New York.

JUSTITIA.

A Case of Sepsis Simulating Disease of the Brain.

PAWNEE CITY, NEB., Aug. 10, 1895.

To the Editor:—The following case being so unusual as to the symptoms, I think worthy of a place in the JOURNAL. Mrs. M., was on June 14 delivered of a female child at term, Labor lasted only two hours, but placenta remained until my arrival six hours afterward. Placenta was easily delivered and everything went well until June 20, when patient com-

plained of severe occipital pain. A few doses of acetanilid comp. relieved the pain. I saw the patient the next day; she was feeling well; the lochia and lacteal secretion normal, temperature normal but pulse 90.

June 23, during my absence, Dr. Wright was called and found patient had been unconscious for a short time, with involuntary discharges from the bowels. At the time of his visit, consciousness had returned, but there was trembling and nervousness with some difficulty of speech. Temperature $99\frac{1}{2}$ degrees F. I saw the patient the following morning at 9 o'clock. Pulse 120 and small, temperature $98\frac{1}{2}$. Conscious but can talk only in monosyllables. Says "no" to nearly all questions; sighing respiration; abdomen flat; no tenderness; no disturbance of vision; tongue clean. June 25, had a restless night. Pulse, 130, temperature 100 degrees. Sighing respiration. Lacteal secretion free, but she pays no attention to babe when put to the breast. Answers all questions by saying, no. Is evidently embarrassed when she answers wrong. About 9:40 had a slight convulsion, limited to ocular muscles and the right side of face. This was followed by stupor and great prostration. Urine highly colored but contains no albumin. Treatment consisted in the use of pot. bromid and gelsemium with free stimulation. The uterus was thoroughly irrigated with 5 per cent. solution of creolin. Some clots with much prune juice colored material was washed out.

June 26, patient rested well, mind clearer, answers questions correctly but hesitatingly and in monosyllables. No pain, no tenderness. Abdomen flat. Has not full control of bowels and bladder. Temperature 99 degrees; surface cool and clammy. Sighing respiration; great weakness. Treatment continued as yesterday.

June 27, rested better, sighing less, pulse 100, temperature 99 degrees. Frequently makes pressure with both hands to forehead, but when asked if head aches answers, no. Never speaks unless questioned.

June 28, temperature 100 degrees, pulse 120. Rational; no pain; asks about the baby for the first time.

June 29, temperature 99 degrees, pulse 108. Rational, but dull. Has not full control of bowels and bladder. The patient continued to improve slowly to complete recovery. Iron, quinin and strychnin were resorted to after the acute symptoms were passed. This was undoubtedly a case of sepsis, although the symptoms were entirely different from any heretofore encountered in an experience of eighteen years. The convulsion, the aphasia, the sighing respiration, the occipital pain, the paresis with a low temperature are certainly anomalous symptoms, and but for certain other contradictory evidence would lead one to suspect clot or congestion of the brain.

The free secretion of mammary glands, with no stoppage of lochia, are also to be set down as unusual in a case of this kind.

A. B. ANDERSON, M.D.

Fibroid Tumors of the Uterus.

CHICAGO, Aug. 16, 1895.

To the Editor:—In his address before the Gynecologic Section of the AMERICAN MEDICAL ASSOCIATION (JOURNAL issue Aug. 10, 1895), Dr. Franklin Martin has grossly misrepresented my work and I beg a short space in our JOURNAL to reply.

Dr. Martin stated that I "still open the abdomen with the deliberate intention of removing the appendages for fibroids." On the contrary, it is my invariable custom to do hysterectomy for fibroid tumors of the uterus, and I only resort to the removal of the appendages when the condition of the patient makes it unsafe to subject her to the added risk of complete removal. It is true that when I do perform the "makeshift operation of removal of the appendages," I also tie the uterine arteries as they course through the broad ligaments. Dr. Martin's claim that this procedure is simply his operation applied "from above," is, to say the least, surprising. I employed this method before I ever heard of Dr. Martin's operation (vaginal ligation of the uterine artery), but had I followed him in the matter of time, the invention of new operations would, indeed, become a matter of difficulty if two such different procedures are to

be considered one and the same operation. Far from lagging behind in the matter of hysterectomy, I am convinced that I was one of the first in this city to follow the great step in advance made by the New York and other gynecologists in removing the uterus in bilateral diseases of the appendages. Indeed, if my memory serves me, Dr. Martin was one of those to oppose this procedure, but I warned him then, that it marks a new era in gynecologic surgery, and again I admonished him that he may not be left in the ranks of the "beginner and the timid."

And lastly, Mr. Editor, had Dr. Franklin Martin ever enjoyed a personal knowledge of the work of the "Birmingham sage" I doubt if he would have acquired the impression that he belonged to the ranks of the "beginner and timid." A man who has done nearly forty consecutive hysterectomies for fibroids without a death could hardly be considered an amateur, neither could he reasonably be suspected of being afflicted with that disease of youth, "timidity."

Far from desiring "to shake off entirely the teaching of the Birmingham sage," I am proud that it has been my good fortune to have been a pupil of so great a master as Mr. Lawson Tait.

Respectfully, BYRON ROBINSON.

An Opinion of the Journal.

QUINCY, ILL., Aug. 9, 1895.

To the Editor:—The JOURNAL has been made so useful, its tone so excellent, and its articles so helpful to physicians and surgeons that none of them can afford to do without it. In the past, many many useful methods and facts have been lost for want of a public journal belonging to everybody, to permanently record them.

H. W. K.

BOOK NOTICES.

Publications du Progres Medical, Paris. 14 Rue des Carmes, Paris. *Bibliothèque d'Éducation Spéciale, tome IV. Assistance, Traitement, et éducation des enfants, idiots et dégénérés. Rapport fait au Congrès National D'Assistance Publique (Session De Lyon, Juin, 1894). Par BOURNEVILLE. Vol. in 8vo, de 246 pages avec 28 figures. Prix. 3 fr. 50.*

This is a report on assistance of idiot children and degenerates, by the learned and accomplished Bourneville. We have before mentioned, in one of our book notices, the appreciative mention by Bourneville of the labors of the lamented Séguin, and the same fairness and *noblesse oblige* is seen in this report. The volume begins with a historical review of assistance and treatment of idiotic and degenerate children in which our own country is given due credit for its work in this direction. The second chapter discusses the assistance to this unfortunate class in the departments of France. The number of admissions to each institution are given. Chapter 3 describes the private establishments devoted to idiot children, epileptics and degenerates in France. Chapter 5 contains a report on the assistance given this class in Europe. The age and capacity of each institution is mentioned, and as well their special features. Chapter 6 is devoted to the institutions of the United States. The works of Séguin, Woodward, Backus, Howe, Fernald, Wilbur, Browne, Richards, Knight and Miller receive appreciative mention. Chapter 7 takes up the condition of asylums for idiots in South America, and as might be anticipated there is little done. Bolivia, Colombia, Chili and the Argentine Republic are without special institutions. There is no report from Brazil. Chapter 8 discusses in detail the motives which justify assistance, treatment and education of idiots and degenerates and the form or methods of assistance.

The second part of this publication contains the discussion on the report which was held by the National Congress

of Public Assistance in June, 1894, under the presidency of Dr. Carrier.

The third part gives an elaborate summary of the existing state of medico-pedagogic treatment of the idiot. The illustrations show some novel gymnastic appliances.

After reading this work we can with much pleasure repeat the saying of the President of the Congress, that if Séguin were the "first of the first" in this humane work, Bourneville was easily the first of the second.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York city. In Twenty Volumes. Volume III. Occupation, Diseases, Drug Habits, and Poisons. New York: William Wood & Company. 1895.

This volume of this unsurpassed series contains: 1, an article on Alcoholism and Drug Habits by Norman Kerr, M.D., London. This article is exhaustive and occupies 137 pages of the work. The author in his treatment of alcoholism, declaims against alleged specific medication, and insists that special treatment is required for nearly every case. 2, a pithy article of thirty pages, by Geo. F. Shradly, M.D., on Shock and Collapse. 3, an excellent and highly entertaining article by Medical Director A. L. Gihon, U. S. N., on Sea Sickness. 4, an article by Georg Von Liebig, M.D., of Munich on Mountain Sickness. 5, on Ostemalacia, by W. T. Councilman, M.D., of Boston. 6, Heat Stroke, by Medical Director Gihon, U. S. N. 7, Frost-bite, by the same. 8, The Diseases of Occupations, by James Hendrie Lloyd, M.D., of Philadelphia. This is the most elaborate section in this volume and contains 186 pages. In the historical notes accompanying this paper, he begins with the classic work of Ramazzini and reviews the literature to date. There is some looseness in the manner of quotation; for instance, Lloyd in quoting Patissier, says, p. 512: "As an example of Patissier's method and acumen the following may serve: 'Pastry cooks,' he quotes, 'are less debauched than bakers, and more gentle and sociable!' He thinks he sees in pie dough a mysterious influence that renders a man more sweet and companionable than his fellow who makes bread. This extravagant deduction is on a par with much that has been and still is being written on the influence of occupation on health."

Now nothing written by Patissier carries any such inference. The following is an exact translation from Patissier, p. 195-196:

"Diseases of Pastry Cooks.

"The pastry cooks are exposed to the same diseases as bakers; however, they are less intense. The flour often renders their eyelids bleared; as they always carry their hands toward the fire, it sometimes follows, that on the surface of the metacarpus, squamous herpes appears, the cure of which is very difficult. M. Cadet-Gassicourt said that these workmen are less debauched than bakers and more mild and sociable."

This is the entire reference of Patissier to the pastry cook, and the reviewer submits that Dr. Lloyd has unintentionally perhaps, misrepresented Patissier. The remaining portion of this section is excellent.

9, Poisoning, by Beaumont Small, M.D. of Ottawa. 10, Poisoning from Lead, Arsenic, Zinc, Copper, Mercury, Silver, and Phosphorus, by James Stewart, M.D. of Montreal.

As a whole, the volume is up to the high standard of its predecessors.

Skiascopy and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc., etc.

The author of this little book belongs to those who from the beginning have recognized the great practical value of the shadow test in the examination of refraction. He has given the subject special attention, and is particularly well qualified to write on it. His book, therefore, bears the stamp of personal experience and original observation, and can not be too highly recommended to every oculist and physician desirous of becoming thoroughly familiar with the theory and practice of skiascopic examination.

Syphilis in the Innocent, CLINICALLY AND HISTORICALLY CONSIDERED, WITH A PLAN FOR THE LEGAL CONTROL OF THE DISEASE. By L. DUNCAN BULKLEY, A.M., M.D. 8vo, cl., pp. 398. New York: Bailey & Fairchild.

This work is the result of ten years' work by the author, and is an extremely valuable contribution to the study of syphilis. The occurrence of the disease among the innocent is so frequent that the wonder is, so small a part of syphilography has been devoted to this branch of the subject, and the profession generally has been placed under obligation to Dr. Bulkley.

Over one hundred categories of transmission of the disease have been given. There are very full tables illustrating the proportion of genital to extra-genital chancres; epidemics of syphilis which have occurred from 1577 to the present time (of which there are over one hundred). From page 241 to the end of the work, the volume is entirely devoted to the analytical bibliography of syphilis insontium.

The author in his plea for the legal control of syphilis says, p. 205:

"The time has certainly come, when the dangers of syphilis, and especially the dangers to innocent persons, should be fully recognized. It is too late in the history of science and of humanity to stigmatize the disease as 'venereal,' and on that account to withhold scientific protection from thousands of innocent sufferers. Among babies, nursing women, persons infected in dental or surgical operations, and in dozens of other manners, syphilis can no more be described as a 'venereal' affection than any other contagious disease. The time has come to place it under the control of the proper health officers, and make it quite as criminal to transmit syphilis wittingly as it is to communicate smallpox, scarlatina or diphtheria."

As a reference book it will be found the most complete of any on this subject.

Contribution à l'Étude de L'Atrophie musculaire progressive type Duchenne-Aran. Par le Dr. J. B. CHARCOT. Volume in 8vo, de 176 pages, avec 6 figures et 4 planches hors texte. Prix 5 fr.

This work, which is dedicated by the son to Charcot, père, does not profess to be a monograph on Duchenne-Aran muscular atrophy, but is intended to clear up some points hitherto doubtful or obscure, from a clinical or anatomic point of view. The author says:

"This disease was first described by Duchenne (of Boulogne) and Aran as follows: 'An atrophy which develops in the adult age, comes on insidiously, and which begins in the small muscles of the hands, and slowly and progressively invades the periphery. . . . The muscles of the arms, the trunk, and finally the lower extremities become involved. Only rarely do the muscles of the tongue, pharynx and larynx become involved.'"

The author, after an exhaustive historical account of the affection, gives illustrations showing microscopic appearances of sections, and furnishes details of many original experiments. It is apparent that the son possesses much of the keenness of observation of the distinguished father.

Exercise and Food for Pulmonary Invalids. By CHARLES DENISON, A.M., M.D. Pp. 71, cl. Denver: The Chain & Hardy Company. 1895.

This little book contains an excellent system of rules for the guidance of the consumptive in the selection of articles of diet, and the performance of suitable exercise. Few can speak with more authority on this subject than Dr. Denison, and none with more practical common sense. The book is well written and deserves a wide circulation.

The Retrospect of Medicine. A half yearly journal containing a retrospective view of every discovery and practical improvement in the medical sciences. Edited by JAMES BRAITHWAITE, M.D., London, etc., etc. Volume III. Cl., pp. 411. January to June, 1895. London. Simpkin, Marshall, Hamilton, Kent & Co. Limited.

This well known volume continues to be issued, although the limited scope of the work prevents the editor from using more than a very scanty portion of the current literature.

PUBLIC HEALTH.

Typhoid Fever at Stamford, Conn.—Late reports from Stamford show that three hundred and thirty cases of fever have been reported, and twenty cases are under treatment in hospital. There are a few secondary cases. There are thirty trained nurses employed, under the relief fund, for families not able to engage them. The fund collected for the relief of the poor is \$2,000. Dr. Edward J. Meeks was taken to the Presbyterian Hospital, New York; he is believed to have contracted the disease in the care of his own child. There are suspicions on the part of many of the residents that the eating of raw oysters has had its share in the development of the scourge. The health authorities do not vary from their original ground that the epidemic is one of "milk typhoid."

Alleged "Impossible" Death Rates.—Dr. F. W. Reilly, Assistant Health Commissioner of Chicago, recently quoted Deputy Surgeon-General John S. Billings, whom he styles the highest authority on vital statistics in this country, to the effect that a death rate of less than 18 in the thousand was incredible for a city so large as Chicago claims to be. The deaths reported in that city for 1894 were 23,892; the claimed population—that determined by the official census of April, last year—was 1,567,727 and the death rate on this basis was, consequently, 15.24 per 1,000. But at the minimum rate fixed by Dr. Billings—18 per 1,000—the population must be only about 1,327,000. This is by no means palatable to the civic pride of the Western metropolis, and a movement is on foot to secure an "authoritative" census, superintended by the Census Officer of the Department of the Interior. Meanwhile, Chicago should take what comfort may be got out of the fact that the Registrar-General's returns for the city of London recently showed a death rate for one week of only 15.5 per 1,000 in that city.

Sanitation of Flooded Regions.—A disaster somewhat similar to that at Johnstown, Pa., occurred this spring at Bouzy in the Department of Vosges, France. A dam of masonry, 500 meters long, 22 high and 20 wide, forming a reservoir containing 7,000,000 cubic meters of water, suddenly gave way and flooded the valley of the Avière for a distance of 20 kilometers, overturning houses, uprooting trees, and carrying away the inhabitants and domestic animals. When the waters subsided there was left on the land, beside ooze charged with organic matter, *debris* of all sorts, cadavers, and masses of slime and vegetable detritus. These deposits rapidly gave off disagreeable odors, and the survivors feared an epidemic. The General Hygienic Council of the Department, acting under the supervision of the French Consulting Committee on Hygiene, took measures to prevent this. The cadavers of animals were buried in deep trenches after being covered with quicklime; *debris* of all sorts was collected in heaps, sprinkled with sulphur and buried. The trees clogging up the river bed were removed and the stagnant water led off into trenches. The wells were condemned for the time being. Dwelling in the inundated houses, filled with slime, was forbidden. The walls were scraped, washed and calcimined, the floors washed and the furniture and hangings disinfected.

Spread of Cholera.—Recent cable advices indicate that from very small beginnings in the Russian province of Volhynia, cholera has suddenly made an expanding break in several directions, notably to the south and west. Various dispatches from Cracow, Lemberg and other points show that it is spreading rapidly in Austrian Poland. Still more circumstantial stories come from southern Russia, where the epidemic has reached the vicinity of Kiev, and even, it is rumored, in the city itself. As usual, there is much activity in the line of quarantine restrictions, and it is probable that this extension will renew interest in the recent strictures of Inspector-General Proust of the French Sanitary Service on the English indifference to quarantine *per se*. Dr. Proust has

declared that the refusal of Great Britain to apply the decisions of the International Conference is absolutely criminal, and that if Europe is invaded with cholera this summer, Great Britain will be to blame for it. Dr. C. W. Chancellor, U. S. Consul at Havre, says, however, that the attitude of Great Britain in ignoring quarantine and relying mainly on sanitation to restrict cholera is having its effect on international cholera policy; and again points out, as the late Dr. Rauch was wont to do, that "cholera quarantine, if ever it could be satisfactorily carried out, would be of no use excepting with regard to the one disease—cholera. Sanitation, on the other hand, even if primarily attended to for the special prevention of cholera, is, in its measure, useful in preventing other infectious diseases conveyable by similar means, such as typhoid fever, yellow fever, etc., and is useful also in raising the general average of health in every community."¹ This is the lesson of the situation for the United States. If cholera should spread throughout Europe this year we may not be able to shut it out from our shores by quarantine, but we can and should make our environment so wholesome and cleanly as that it shall be fatal to cholera as well as to all other of the filth diseases.

Never Again a Cholera Panic.—A newspaper interview of some of the New York health officers, regarding the delayed approach of cholera to these shores this year, has excited much interest. Hopeful and optimistic views prevail. Among others, Dr. Roger S. Tracy of the City Department was interviewed. He gave it as his opinion that there will never again be a cholera scare in New York like that of 1892, and that there is safety for that city so long as sanitary laws are well enforced, and wholesome water is abundantly supplied. Even if a few infected immigrants were to reach quarantine, there would be hardly any danger of the disease becoming epidemic, for the means of stamping it out are at the command of the governing powers. The health authorities of Germany, France and England are now confident of their ability to deal with cholera promptly and successfully. The Germans have this year had experiences even more satisfactory than those of last year, and have been able to guard their country by methods as scientific as they are easily applied. Dr. Tracy, in discussing the subject, applies to it the germ theory of disease with that fullness of confidence which is derived from long familiarity with it. "No cholera scare hereafter," he says. There can be merely guesses as to the extent to which the disease prevails in China. In the dispatches there are occasional references to its existence in the Liao-Tong peninsula, and in the kingdom of Corea, and there is every reason to believe that it has been very destructive in these regions. From the trustworthy statistics that are kept by the Japanese authorities, it is learned that up to the close of July there had been 9,500 cases of the disease in Japan, more than one-half of which had proved fatal. This fatality may be regarded as part of the price paid by Japan for her victory over the Chinese. In some other countries beside those here mentioned, including Mexico and Cuba, there had been cases of cholera during the year, but it has not been epidemic in any of them. It has been estimated by good authorities that the average yearly number of deaths from cholera, the world over, is close upon a quarter of a million. It is now known that in Russia alone last year there were nearly 100,000 cases of the disease, about 45 per cent. of which proved fatal; but the ravages of the disease among the Russians are light as compared with the losses among Asiatics.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Battle Creek and Detroit, July 26 to August 3, reported existing.

Tennessee: Memphis, August 3 to 10, 1 case.

Texas: Eagle Pass, July 29 to August 9, 115 cases, 6 deaths.

SMALLPOX—FOREIGN.

Buda-Pesth: July 16 to 23, 2 cases.

Cairo: July 2 to 8, 3 deaths.

London: July 20 to 27, 1 death.

Madrid: July 15 to 22, 4 deaths.

Moscow: July 6 to 13, 1 case.

Mexico: Nogales, July 26 to August 3, 1 death.

¹ The Sanitarian, August, 1895.

Prague: July 13 to 20, 2 cases.
St. Petersburg: July 6 to 20, 10 cases, 3 deaths.

YELLOW FEVER.

Havana: Month of July, 84 deaths.
Santiago de Cuba: July 13 to August 3, 124 deaths.
San Juan de Porto Rico: July 6 to 27, 104 cases, 67 deaths.
Santos: June 30 to July 6, 5 cases, 1 death.
Rio de Janeiro: June 30 to July 13, 22 deaths.
Vera Cruz: July 24 to August 1, 12 cases.

CHOLERA.

Hiogo: July 6 to 13, 104 cases, 87 deaths.
Yokohama: June 14 to 21, 1 death.

SOCIETY NEWS.

Mississippi Valley Medical Association.—*To the Editor:*—I inclose you the preliminary program of the Mississippi Valley Medical Association, to be held Sept. 3, 4 and 5. The first evening, Tuesday, September 3, Dr. Theodore A. McGraw will deliver an address on Surgery at Strassburg's Hall, the place of the meeting, and after this there will be given a reception by the profession of Detroit at the Cadillac. Wednesday evening an address on Medicine will be given by Dr. William Pepper of Philadelphia. Thursday evening the Association will be given a boat ride on the river. The profession here are very enthusiastic in their efforts to make the meeting a success.

HOTELS.—The Cadillac will be headquarters, \$3.50 to \$4 per day; Russell House, from \$3.50 to \$4 per day; Normandie, from \$2.50 to \$3 per day; Wayne Hotel, from \$2 to \$3.50 per day.

H. O. WALKER.

Detroit, Mich, Aug. 8, 1895.

Prognosis in Syphilitic Diseases of the Nervous System. by Chas. J. Aldrich, Cleveland; **The Abortive Treatment of Typhoid Fever,** by John Aulde, Philadelphia; **Some Considerations with Regard to the Senile Heart,** by Robert H. Babcock, Chicago; **Ripening of Cataract,** by James M. Ball, St. Louis; **Legitimate Pharmacy,** by William F. Barclay, Pittsburgh; **Asepsis in Bladder and Prostate Operations,** by Wm. T. Belfield, Chicago; **The Results and Conclusions Derived from an Experience of 165 Appendicectomies,** by A. C. Bernays, St. Louis; **The Deeper Inflammations of the Skin,** by A. W. Brayton, Indianapolis; **Psychology in Medicine,** by A. P. Buchman, Ft. Wayne, Ind.; **Toxic Amblyopia due to the Excessive Use of Tobacco,** by A. E. Bulson Jr., Ft. Wayne, Ind.; **Two Successful Operations for Insanity, with Remarks,** by Geo. W. Cale, St. Louis; **A Neurotic Form of Wry Neck,** by Archibald Church, Chicago; **Laryngitis from a Rhinologic Standpoint,** by L. C. Cline, Indianapolis; **Ulcers of the Leg,** all can be Cured, by Carter S. Cole, New York city; **Technique of Abdominal Hysterectomy,** by A. H. Cordier, Kansas City; **The American Diagnosis and Treatment of Fatty Degeneration and its Masquerades,** by Ephraim Cutter, New York city; **The Treatment of Acute Inflammation of the Middle Ear and Mastoid Process,** by Edward B. Dench, New York city; **Syphilis and its Treatment,** by C. Travis Drennen, Hot Springs, Ark.; **The Ordinary Duties of the Obstetrician,** John Milton Duff, Pittsburgh; **Pyelitis; with Report of a Case,** by P. M. Forshay, Cleveland; **How to Correctly Diagnosticate Sexual Derangements in the Male,** by Eugene Fuller, New York city; **The Psychology of Suggestive Therapeutics,** by William A. Galloway, Xenia, Ohio; **Uterine Fibroids; when to Operate,** by D. Tod Gilliam, Columbus; **A New Phase of Celiotomy,** by F. J. Groner; **Some Sequels of La Grippe,** by F. C. Heath, Indianapolis; **Radical Cure of Hernia,** by J. W. Heddens, St. Joseph, Mo.; **Excision of the Auditory Ossicles,** by Robert C. Heilebower, Cincinnati; **Puerperal Sepsis; When is Hysterectomy Indicated?** by Bayard Holmes, Chicago; **Spot Specialism,** C. H. Hughes, St. Louis; **What is the Matter with the American Stomach?** by J. H. Kellogg, Battle Creek, Mich.; **Trephining the Spine for Pott's Disease; with Report of Eight Cases,** by Emory Lanphear, St. Louis; **Vertigo; with Report of a Labyrinthine Case,** by H. M. Lash, Indianapolis; **The Removal of Persistent Nodules after Epididymitis,** by Bransford Lewis, St. Louis; **Fracture of the Femur,** by J. E. Link, Terre Haute, Ind.; **The Bicycle from a Medical Standpoint,** by I. N. Love, St. Louis; **Annual Address on Surgery,** by Theodore A. McGraw, Detroit; **The Comparative Value of Medical and**

Surgical Treatment of Appendicitis, by F. Maass, Detroit; **Retention Cystitis as a Consequence of Hypertrophied Prostate; with Report of Two Cases,** by S. C. Martin Jr., St. Louis; **The Indications for Operation in the early period of Ectopic Pregnancy,** by L. S. McMurtry, Louisville; **Peritonitis,** by J. B. Murphy, Chicago; **Medico-Legal Consideration of Hysteria,** by Frank P. Norbury, St. Louis; **Post Climacteric Hemorrhages,** by H. O. Pantzer, Indianapolis; **Annual Address on Medicine,** by William Pepper, Philadelphia; **The Anomalies of the Ear Degenerate,** by Frederick Peterson, New York city; **Epilepsy and Some of its Allied Conditions,** by Curran Pope, Louisville; **Celiotomy in Purulent Peritonitis; with Report of Case,** by Miles F. Porter, Ft. Wayne, Ind.; **Antitoxin Treatment of Diphtheria,** by Theo. Potter, Indianapolis; **The Revelations of the Trendelenburg Position,** by Joseph Price, Philadelphia; **(a), The Skin Diseases Amenable to Galvanism; (b), Local Anesthesia by Faradism,** by Merrill B. Ricketts, Cincinnati; **Treatment of Pulmonary Consumption in Hospitals,** by E. L. Shurly, Detroit, Mich.; **Cod Liver Oil and Cod Liver Extracts—Leucomaines and Ptomaines,** by F. E. Stewart, Detroit; **Complication in Cataract Arising from Diabetes, Albuminuria, etc.,** by J. O. Stillson, Indianapolis; **How Shall We Rear Our Babies?** by J. H. Taylor, Indianapolis; **Auto-Intoxications,** by Frank J. Thornbury, Buffalo; **Carcinoma of the Stomach,** by W. C. Weber, Cleveland; **Pulmonary Tuberculosis; its early Diagnosis,** by Edward F. Wells, Chicago; **The Therapeutics of Oleo-Creosote and Creosote Carbonate,** by J. A. Wessinger, Ann Arbor, Mich.; **Rheumatism in its Relation to the Eye,** by K. K. Wheelock, Ft. Wayne, Ind.; **President's Address,** W. N. Wishard, Indianapolis; **Three Hysterectomies following operations for Pus Tubes,** by J. H. Carstens, Detroit, Mich.; **Treatment of Syphilis,** by J. T. Jelks, Hot Springs, Ark.; **Bio-Chemistry in its Relation to Nervous Diseases,** by G. W. McCaskey, Fort Wayne, Ind.; **New Light on the Role which Iron plays in the Physiologic Economy,** by W. H. Porter, New York; **Inguinal Colotomy vs. Total Extirpation of the Rectum,** by Leon Strauss, St. Louis; **Chronic Vesiculitis, with Hemorrhage,** by S. P. Collings, Hot Springs; **Some of the More Recent Methods of Staining Nerve Tissue (illustrated).** **The Diagnosis of Hysteria,** by Hugh T. Patrick, Chicago; **Wounds of the Peritoneum Due to Perforation of the Rectum by Pitchfork Handle,** by Weller Van Hook, Chicago; **Tubercular Peritonitis,** by L. H. Dunning, Indianapolis; **The Surgical Treatment of Local Disorders in Insane and Neurotic Women,** by W. H. Manton, Detroit; **The Treatment of Paralysis by Mechanico-Therapeutics,** by E. H. McCullers, St. Louis.

Arrangements have been made whereby those attending the meeting can secure a round trip ticket on the certificate plan for one and one-third fare. Be sure and secure certificates of the local agent where you buy your ticket, which will be signed here by the Secretary, Dr. F. C. Woodburn.

NECROLOGY.

CHAUNCEY M. FIELD, M.D., died July 17, at Plainfield, N. J. He was a native of Bound Brook, in the same State, about 45 years of age. He was a graduate from the Medical Department of Columbia College in 1875.

W. A. BETTS, M.D., one of the best-known physicians in eastern New Jersey, died at Red Bank, on Sunday, the 4th inst. He was 61 years old, and was graduated from the College of Physicians and Surgeons, New York, in 1861.

WILLIAM E. NEWING, M.D., of Long Branch, N. J., died July 11, aged 29 years. He was a native of New Jersey, the son of William S. and Margaret W. Newing, and was educated in medicine at the College of Physicians and Surgeons, New York, of the class of 1888.

MISCELLANY.

Charitable Donations in New York City.—The executors of the late Hugh Reilly, of New York city, have distributed \$9,500 among eighteen Hebrew charitable institutions and societies. The distribution was specifically provided for in the will of the deceased.

Sulphuric Acid.—From the action of sulphuric acid on the gas from cleveite, M. Deslandres has obtained in the extreme red of the spectrum, the third of the four lines in the solar spectrum that had not been found on the earth. This

leaves only one permanent ray from the solar atmosphere, the green line, known as "the line of the crown," yet to be discovered in earthly substances. It probably belongs to some gas lighter than hydrogen.—*Scientific American*.

Eligibility to Office of Physician in Benevolent Society.—Membership in a mutual aid and benefit society, the Supreme Court of Rhode Island holds, in the case of *State v. Boucher*, decided May 10, 1895, is not necessary to render a person eligible to the office of physician for the society where the by-laws thereof do not require it.

New Health Commissioner of New York City.—Dr. George B. Fowler, of New York city, recently received his appointment as Health Commissioner, *vice* Dr. Edson, resigned. He is about 50 years old, a native of Alabama. He is a member of the Union League Club, the New York and Racquet Clubs, the County Medical Society, Academy of Medicine and the Society of Medical Jurisprudence, and is a visiting physician to Bellevue Hospital and Infant Asylum. He was formerly connected with the Health Board as medical inspector. He has practiced his profession in this city since 1871, at which date he was graduated from the College of Physicians and Surgeons, of New York.

The Hodgkins Prizes of the Smithsonian Institution.—In March, 1893, the Smithsonian Institution announced that the income of a fund, the gift of T. G. Hodgkins, of Setauket, N. Y., would be expended in prizes for the best articles and original researches on the nature and properties of atmospheric air in relation to the welfare of man. Three prizes were offered, one of \$10,000 for the most important discovery, a second of \$2,000 for a treatise on the relations of air to the various sciences and the best lines of direction for future research, and a third of \$1,000 for a popular essay on atmospheric air. Wide publicity was given to the announcement, with the result that when the period allowed for the competition closed on Dec. 31, 1894, papers had been received from all parts of the civilized world. It is officially announced that 218 contestants submitted papers in competition for the three prizes. The subject must have been discussed thoroughly in this symposium; and the members of the Committee of Award may be regarded as on the advanced line in this direction of scientific inquiry. The committee consisted of: Dr. S. P. Langley, Chairman, *ex-officio*; Dr. G. Brown Goode, appointed by the Secretary of the Smithsonian Institution; Deputy Surgeon-General J. S. Billings, U. S. Army, by the President of the National Academy of Sciences; and Prof. M. W. Harrington, by the President of the American Association for the Advancement of Science. These were assisted in their work by a foreign Advisory Committee, composed of the late Professor Huxley, of M. Janssen, of the French Academy of Sciences, and of Professor Wilhelm von Besold, Director of the German Meteorological Service. The committee announced Aug. 6, 1895, the following decisions:

First prize, of \$10,000, for a treatise embodying some new and important discoveries in regard to the nature or properties of atmospheric air, to Lord Rayleigh, of London, and Prof. William Ramsey, of University College, London, for the discovery of argon, a new element of the atmosphere.

The second prize, of \$2,000 is not awarded, owing to the failure of any contestant to comply strictly with the terms of the offer.

The third prize, of \$1,000 to Dr. Henry de Varigny, of Paris, for the best popular treatise upon atmospheric air, its properties and relationships. Dr. de Varigny's essay is entitled "*L'Air et la Vie*."

Honorable mention and silver medal: Mr. A. L. Herrera and Dr. Vergara Lopez, of the National Museum, Mexico, "*La Atmosfera de las altitudes y el bienestar del hombre*;" Geo. L. Madsen, Esq., Villa Bregnehög, Helsingör, near Copenha-

gen, Denmark, "*Thermogeographical Studies*;" F. A. R. Russell, Esq., Vice-President of the Royal Meteorological Society of Great Britain, "*The Atmosphere in relation to Human Life and Health*."

Honorable mention and bronze medal: Dr. Franz Oppenheimer and Dr. Carl Oppenheimer, of No. 4 Eichendorff Street, Berlin, "*Über atmosphärische Luft, ihre Eigenschaften und ihren Zusammenhang mit dem menschlichen Leben*;" Mr. Alexander McAdie, of the United States Weather Bureau, "*The known properties of atmospheric air considered in their relationships to research in every department of natural science, and the importance of a study of the atmosphere considered in view of these relationships; the proper direction of future research in connection with the imperfections of our knowledge of atmospheric air and the conditions of that knowledge with other sciences*;" Dr. O. Jesse, of Berlin, "*Die leuchtenden Nachtwolken*;" Mr. E. Deberaux-Dex, and Mr. Maurice Dibos, of Rouen, France, "*Etudes des courants aériens continentaux et de leur utilisation par des aérostats long-courriers*;" Mr. Hiram S. Maxim, of Kent, England, "*Natural and Artificial Flight*;" Dr. A. Loewy, of Berlin, "*Untersuchungen über die Respiration und Circulation unter verdünnter und verdichteter Sauerstoffarmer und sauerstoffreicher Luft*."

Honorable mention: Surgeon Charles Smart, U. S. A., "*An Essay on the Properties, Constitution and Impurities of Atmospheric Air, in relation to the promotion of Health and Longevity*;" Dr. A. Marcuse, of the Royal Observatory, Berlin, "*Die atmosphärische Luft*;" Dr. F. J. B. Cordeiro, U. S. N., "*Hypsometry*;" Dr. A. Magelssen, of Christiania, Norway, "*Ueber den Zusammenhang und die Verwandtschaft der biologischen, meteorologischen und kosmischen Erscheinungen*;" Prof. C. Nees, of the Polytechnic School, Copenhagen, Denmark, "*The use of kites and chained air-balloons for observing the velocity of winds, etc.*;" Prof. F. H. Bigelow, of the United States Weather Bureau, "*Solar and Terrestrial Magnetism and their relation to Meteorology*;" E. C. C. Baly, Esq., of University College, London, "*The decomposition of the two constituents of the Atmosphere by means of the passage of the Electric Spark*;" Dr. F. Viault, Faculty of Medicine, Bordeaux, France, "*Découverte d'une nouvelle et importante propriété physiologique de l'air atmosphérique. (Action Hématogène de l'air raréfié.)*;" Prof. Dr. S. Geisler, Bonn, Germany, "*Mittlere Tagestemperaturen von Bonn, 1848-88*;" Prof. Emile Duclaux, of the French Institute, Paris, France, "*Sur l'actinométrie atmosphérique et sur la constitution actinique de l'atmosphère*;" Dr. J. B. Cohen, Yorkshire College, Leeds, England, "*The Air of Towns*;" Dr. Ludwig Illosvay von Nagy Illosva, Professor in the Royal Joseph Polytechnic School, Buda-Pesth, Hungary, "*Ueber den unmittelbar oxydirenden Bestandtheil der Luft*."

Philadelphia Notes.

DR. ROBERT I. HARRIS, the well-known correspondent, and statistician of Cesarean section and of symphyseotomy, has been very ill during the past fortnight with an attack of hemiplegia, the results of which threaten to be serious.

The weather during July was much cooler than it has been for years and the hospitals had little opportunity to put to practical test their appliances for treating sunstroke. The health of the city has been exceptionally good, largely owing to the cleanliness of the streets; the Director of Public Works having had his efforts in this direction greatly stimulated by the Health Protective Association composed of public-spirited women, who have ideas on the subject of clean streets and do not care who knows them.

The Pennsylvania Legislature, at its session which recently closed, passed an act "prohibiting the exhibition of insane, idiotic, deformed or imbecile persons in any public hall, museum, theater, tent or building for a pecuniary consideration or reward." The offense is punishable by a fine not exceeding \$1,000 or imprisonment not exceeding six months. The police lieutenants of Philadelphia have just been furnished with copies of this act of Assembly and have been directed to secure its enforcement.

The physicians in charge of the State Hospital for the Insane at Norristown, in a communication to the managers last week, reported an epidemic of dysentery and bowel disorder in both departments, the cause of which has not yet been ascertained.

Washington Notes.

HEALTH OF THE DISTRICT.—The death rate continues to fall. According to the reports received at the Health Department during the last week there were 103 deaths, and the annual rate was 19.79 as compared with a rate of 20.06 for the week previous. So far as the range of diseases is concerned, the week's health history indicates very slight variation from the several immediately preceding reports. None of the dangerous contagious diseases present a phase causing anxiety to the medical profession. The four deaths from typhoid fever reported in the former week were followed by three more fatal cases last week. There were but twenty-eight deaths from this malady in the first six months of this calendar year, while since the first of last month twelve deaths therefrom have been reported. In other respects the condition of the public health is favorable; infant mortality is on the decline, and the rate of mortality is 3 per 1,000 inhabitants below the normal.

DISPENSING MEDICINE TO THE POOR.—The Health Officer has decided to abolish the old plan of having prescriptions for the poor filled at the drug stores. The new system provides that all standard medicines be purchased in tablet form direct from the pharmacists, to be kept in stock and supplied to physicians in pocket cases as needed. In treating a case the physician is not to write a prescription and send to the druggist for it to be filled, but will deliver the medicines at once, thus saving much time. It is not intended to have this new system superseded by the old one entirely at present, but it is to be tried to determine its utility and saving of money.

PHYSICIANS TO THE POOR MUST PASS MEDICAL EXAMINATION. Directly in line with their intention to apply civil service to the District government as far as possible, the Commissioners to-day approved a recommendation of the Health Officer, which takes in the physicians to the poor, and compels applicants for such positions to pass a competitive examination. The Health Officer's recommendation, which has been approved by the Commissioners and issued to-day as an order, says: "That the board to examine practitioners of regular medicine, seeking appointment as physicians to the poor be composed of the attending physician to the Washington Asylum, the medical sanitary inspector of the Health Department, one member of the Board of Pharmacy and one member of the Board of Police Surgeons. The questions should be prepared and answers examined and marked by this board. The examination itself should be conducted by clerks from the Health Department. Candidates passing successfully the written examination should be required, as a practical test of their ability, to examine and to diagnose and outline proposed treatment for one or more patients at some public hospital or dispensary.

THE DOCTORS FOR SENATOR GORMAN.—The medical profession is watching with great interest the political fight of Senator Gorman in Maryland. He is sure to be successful and the doctors are with him. Senator Gorman has always been the friend of the medical profession and enthusiastic in all important medical and sanitary questions. As a member of the Appropriations Committee of the Senate, his good offices have always been exerted in the direction of the most liberal expenditures for the extension of the influence of the Marine-Hospital Service, and he has always appreciated the importance of ample appropriations to guard against the inroads of yellow fever and for the extension of quarantine regulations. To his effort was due the passage of the Congressional appropriation bill which, at the last moment, made the First Pan-American Medical Congress a grand success. Apropos of the success of his exertions, was the brilliant reception to the delegates to the Congress, by the Maryland profession, at Baltimore, on the occasion of their visit to that city.

SENATOR GREY AND A NATIONAL BUREAU OF HEALTH.—Another matter of considerable interest to the medical profession, is the gossip which connects the name of Senator Grey, of Delaware, with the next Democratic nomination to the Presidency. It is now well known, as a fact already

communicated to the nearest friends of the President, that the latter does not expect, and in fact will not accept a re-nomination for a third term. It is also more or less certain that the friends of the President will control the action of the next Democratic National Convention. This being the case, it may be possible for these Cleveland Democrats, as they are known, to virtually name who shall be the Presidential nominee. If it shall be impossible to nominate either Secretary Carlisle or ex-Secretary Whitney, and the latter says he will not accept the nomination, it is known that the President would be glad to see Senator Grey receive the honor. Mr. Grey has always been a steadfast friend of the administration, and as far as the President can aid him, his ambitions will be advanced in the convention. This being the case, it is interesting to note that Senator Grey has been one of the few national legislators who has always been favorable to the creation of a National Bureau of Health. A bill looking to the formation of such a bureau was introduced in the last Congress by Senator Grey and was advocated by him, although in the press of other important matters it did not receive the attention it deserved. Should he be nominated and eventually elected, the medical profession would have an enthusiastic friend in the White House, and the creation of a Bureau of Health with a possible cabinet officer at its head, would be a possibility.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 3, 1895, to August 9, 1895.

First Lieut. CHARLES F. KIEFFER, Asst. Surgeon U. S. A., is granted leave of absence for two months.

Major EZRA WOODRUFF, Surgeon (Ft. Keogh, Mont.), is granted leave of absence for one month.

First Lieut. WILLIAM F. LIPPITT Jr., Asst. Surgeon (Ft. Leavenworth, Kan.), is granted leave of absence for two months.

A board of officers, to consist of: Col. DALLAS BACHE, Asst. Surgeon-General; Major HENRY McELDERY, Surgeon; Major JOSEPH K. CORSON, Surgeon, is appointed to meet at Ft. Robinson, Neb., on Friday, Sept. 6, 1895, for the examination of Capt. LOUIS W. CRAMPTON, Asst. Surgeon, with a view to determining his physical fitness for promotion.

A board of officers, to consist of: Major PHILIP F. HARVEY, Surgeon; Major GEORGE H. TORNEY, Surgeon, and Capt. CHARLES F. MASON, Asst. Surgeon, is appointed to meet at West Point, N. Y., Aug. 15, 1895, or as soon thereafter as practicable, for the physical examination of the cadets of the first and third classes; the cadets of the second class on their return from furlough, and such other cadets of the U. S. Military Academy, and candidates for admission thereto, as may be ordered before it.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 10, 1895.

Surgeon C. G. HERNDON, detached from Bureau of Medicine and Surgery, to duty on the "Lancaster."

P. A. Surgeon F. C. BRATHWAITE, detached from naval hospital, Norfolk, Va., to duty on the "Lancaster."

P. A. Surgeon E. R. STITT, detached from special duty, and ordered to the "New York."

P. A. Surgeon J. F. URIC, detached from the "New York," and granted two months' leave.

P. A. Surgeon I. W. KITE, detached from the monitors, to duty on the "Franklin."

P. A. Surgeon L. L. YOUNG, detached from the "Franklin," to duty at naval hospital, Norfolk, Va.

LETTERS RECEIVED.

Alta Pharmacal Co., New York, N. Y.; Anderson, Willis S., Detroit, Mich.

Bernd, Henry & Co., St. Louis, Mo.; Braymer, O. W., Camden, N. J.;

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The Journal of the American Medical Association

VOL. XXV.

CHICAGO, AUGUST 24, 1895.

No. 8.

ORIGINAL ARTICLES.

VAGINAL HYSTERECTOMY FOR PELVIC SUPPURATION.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY EDGAR GARCEAU, M.D.

BOSTON, MASS.

In an old edition of Thomas' work on gynecology, the following sentence occurs: "A guarded prognosis should always be made as to the time of recovery in pelvic cellulitis, for no amount of experience can foresee the course of the affection; whether the effused *liquor sanguinis* will disappear by absorption in three weeks; whether the discharge of one abscess will end the patient's suffering; or whether a chronic induration will exist a great length of time."

The pathology of pelvic suppuration has undergone some modifications since this was written, but the prognosis, unfortunately, remains practically the same. Many women have the so-called "chronic induration" which makes them confirmed invalids, and in many instances bedridden. Various operations have been devised for their relief, and various treatments. Perhaps no branch of gynecology has received more careful attention than the one we are now considering. It has been made the subject of dispute and is now far from settled. What one surgeon approves of and practices, another derides and condemns, and yet the results of each may be the same. Under these circumstances it is apparent that any new method of dealing with this class of cases must of necessity be open to severe criticism before it is generally adopted. If to this is added the fact that such a method is attended with great technical difficulties the criticism becomes the more severe, and frequently it is condemned before it is even tried. Such has been the case with vaginal hysterectomy for pelvic suppuration. Inaugurated in France by Péan in 1886, it was received with opposition by the French surgeons, and it was only after repeated proofs of the efficacy of the method that it finally gained a foothold in Paris. At the present time it is the method of choice in cases of long-standing severe inflammatory disease of the appendages. The keynote of the operation is one word—drainage—good, free, unobstructed, surgical drainage. The abdominal route has been studied to the point of exhaustion. It was entirely overlooked that the vaginal route was the logical one, and why? Simply because it had never occurred to anybody to remove the uterus which was in the way so that there should be a large, unobstructed highway down which the pus could flow. So much care has been bestowed upon the appendages that the uterus escaped its share of attention. Not only is the uterus a mechanical obstruction in pelvic suppuration, but it also may be a constant source of

future danger to the woman by reason of germs which it may contain, and which may excite active inflammation at a subsequent period. Many a woman has been celiotomized over and over again for inflammatory trouble of the appendages without relief. Dr. Pryor, of New York, told me of a case in which celiotomy had been done seventeen times by various surgeons.

Jacobs' summing up of the operation and its indications is as follows: "Let us now review the indications for vaginal hysterectomy, beginning with the most difficult cases of suppuration complicated with adhesions. There is pus in the dilated tubes, in the ovaries, in the adjacent cellular tissue. The uterus is fixed, and the coils of intestines are glued together above these lesions like a solid roof. In such a case celiotomy displays the adhesions, which can not be separated without opening the bowels, with a chance that we may reach the purulent focus limited by them, open, empty and drain it; and the result may be that the woman will slowly recover, or that she will have an intractable fistula. Often we are confronted by a similar condition in which the pelvis is occupied by adhesions, in the middle of which the uterus is imprisoned, and yet without the presence of purulent foci. In such cases, owing to fear of accident, the surgeon is induced to relinquish the operation as an exploratory incision. It is, of course, always possible to finish the operation, but we have to consider the life of our patient. In just these cases vaginal hysterectomy gives results little short of marvelous—not wholly without danger, but with a security far greater than the abdominal. The collections of pus are opened into the vagina without infecting the peritoneal cavity; the adhesions are severed if possible, but should the finger encounter too great resistance they are abandoned and in a few days they will soften and become absorbed. In pelvic suppuration, and with extensive complicated adhesions, both equally formidable for the celiotomist, vaginal hysterectomy is triumphant."

Recently it has been the practice of many surgeons to remove the uterus as well as the appendages at their celiotomies, for suppurative disease, and the reason was because they found that their patients did not all get well when they removed only the appendages. Pathologic changes of the uterus certainly demand as much attention as those of the appendages. Possibly the reason they have been overlooked heretofore is the difficulty of recognizing their presence. A uterus affected with metritis, and not giving rise to any enlargement, is difficult of diagnosis. In comparatively simple cases the uterus and the appendages can be removed by the abdominal route very much more easily, and perhaps very much more quickly, than by the vaginal route; but to compensate for these advantages the degree of shock attending the vaginal operation is insignificant; added to

this is the fact there is no possibility of subsequent ventral hernia which makes the life of the patient so uncomfortable. In the operation of vaginal hysterectomy, the bowels are neither seen nor touched until the end. Special emphasis must be made in regard to the lesser degree of shock; it is one of the strongest arguments in favor of the operation.

In those cases in which pelvic suppuration is complicated with rectal, vesical or intestinal fistulae, vaginal hysterectomy is the operation of choice. A celiotomy under such circumstances is always dangerous; but by the vaginal method the peritoneum is not soiled; the discharges flow down a natural incline, and the fistula closes by itself. The conditions are favorable for such a result, the healing being aided by cicatricial contraction of the pelvic contents *en masse*. It is rare that a secondary operation is needed. How great this cicatricial contraction is, may be inferred by the fact that in one of Ségond's cases, in which all the feces were passed *per vaginam*, complete closure of the fistula occurred spontaneously after a vaginal hysterectomy. But perhaps the most wonderful result of vaginal hysterectomy is the immediate disappearance of the inflammatory masses. There is no doubt whatever about this. The explanation is probably to be found in the excellent drainage and in the removal of the cause. There is no reason why cicatrization should be any different from that in any other part of the body. An almost analogous condition is to be found in appendicitis. Before operative methods were in vogue in treating this disease, its frequent recurrence was its most distressing feature; the appendix removed, the patient got well. Whether or not leaving behind the appendages, or parts of them influences the final result is perhaps at present unsettled; in most instances, however, it is feasible to remove them with the uterus.

And now a word in regard to the objections to the operation. It has been contended that it is unsurgical, that it is brutal, that it is blind, and that it is unsafe. Furthermore, it has been contended that hemorrhage is likely to occur during the operation; that the ureter and the viscera may be wounded. In regard to the first of these objections, it is not necessary to say much. They have been raised by men who know but little about it, and who have never seen it done properly. To see a skillful surgeon perform the operation is a pleasure. The steps are carefully followed; there is no embarrassment; there is no hemorrhage; and the operator sees exactly what he is doing at each step. The fundamental principle of the operation is never to work at haphazard. It is not a blind operation. If the operator has a hemorrhage it is his fault; if he makes a misstep he is lost, and he must be a skillful man if he would recover himself. The laws which govern the procedures must be as rigidly followed as an algebraic formula, otherwise there is no security against mishap. Heretofore, the operation of vaginal hysterectomy has been to get the uterus out in the best and quickest way possible, each individual operator having perhaps his own method, there being no special rules laid down, beyond the incision of the vaginal attachments and the securing of the broad ligaments. No one before Péan attempted to remove the uterus piecemeal, although the simplicity of the thing is evident on reflection.

In regard to wounding the bladder or rectum, it

may be said that this occurs not more often than in celiotomy with a skillful operator, probably not as often. Ségond has done the operation 400 times and he never lost a patient from hemorrhage. He opened the bladder three times; the wound was sutured at once and recovery followed. Nine times the rectum was opened; three times it was accidental, six times there was a preëxisting fistula; of these, two died several months after the operation from pulmonary tuberculosis; a third still had a small fistula, but it was a recent case; the other six recovered spontaneously without interference, notably the case already cited of the woman who passed all her feces *per vaginam* before the operation. Ségond in all his 400 cases never clamped the ureter once. He uses a special incision in incising the vagina, which gives more room and at the same time allows the ureter to slip away from the bite of the forceps. The viscera can not be injured if the retractors of the Péan model are used. They are long, flat blades which raise the bladder and rectum away from the cutting instruments, and if properly used are an absolute safeguard against accident.

Statistics are unsatisfactory and to many they are no proof; yet in what other way shall we judge the merits of a new method? Jacobs' are among the best. He has done the operation of vaginal hysterectomy for double inflammatory diseases of the appendages 166 times; he had 162 recoveries and 4 deaths—a mortality of 2.4 per cent. On analysis we find that in 113 there were double purulent collections; of these 111 recovered and 2 died—a mortality of 1.8 per cent. The bladder was perforated twice, the intestines once; the opening was closed and no fistula resulted. In ninety-eight of these recoveries the patient was followed for a period varying from one to four years; eighty-eight were absolute cures; of the others a few suffered somewhat from vesical disturbances due to adhesions, and a few from pelvic pain; a few were not relieved at all.

Péan's results are even better. His first 150 cases all recovered with but one exception; she was moribund at the time of the operation. But perhaps the most instructive cases are those of Landau's. He always does celiotomy when there appears to be a chance of succeeding, reserving the more difficult operation of vaginal hysterectomy for those cases of suppurative disease which, if attacked by the abdominal route, would prove perilous to the patient. "These are cases complicated with rupture of the tube into the bladder, rectum, or intestine; reference also is made to multiple abscesses which are intra- or extra-peritoneal." He has done thirty cases of this sort without a single death. It is questionable if statistics of celiotomy can compare favorably with these.

In a short paper of this kind anything but a brief description of the operation is impossible. In the first place, a word about clamps. In a case of adherent uterus they must be used; ligatures will not do on account of the impossibility of securing them properly beyond a certain depth in the vagina. But in cases in which the uterus is low down, for instance, a retroversion with disease of both ovaries requiring removal, ligature holds the preference because of the greater comfort to the patient. Dr. E. W. Cushing, of Boston, has devised a method of ligating the broad ligament which I would like to refer to here because of its neatness, and because it avoids entirely a sloughing stump in the vagina. After amputating the uterus,

which in a simple case can be done in a few minutes, he draws down the broad ligament of one side into the vault of the vagina. Then he passes his needle through the upper edge of the vaginal incision near the outer angle, and then encircles the uterine artery, which has been temporarily held by a clamp; he then finishes the stitch by emerging at the lower edge of the vaginal incision. The uterine artery is thus firmly ligated, and at the same time the ligature closes over the stump of the broad ligament by approximating the lower and upper edges of the vaginal incisions. The rest of the broad ligament is secured in the same way, on each side, by additional ligatures, two or three more being required. The ovarian artery is ligated separately. By this means the vault of the vagina is closed with the exception of a small hole through which a piece of iodoform gauze is thrust for drainage. Necessarily this method is applicable only to those cases in which there is no pus. In cases in which the uterus is adherent and high up, and in which there may be pus on one or both sides, the following method of operating is the one to be adopted:

Briefly it may be described as having three stages; 1, removal of the inferior segment of the uterus; 2, removal by morcellation of the anterior wall of the uterus; and 3, eversion anteriorly of the stump.

The patient lying on the back, four retractors are put in position, one on each side, and one anteriorly and posteriorly. The cervix is now seized with a bullet forceps and a circular incision is made around the cervix; an additional incision is made on each side parallel to the lower border of the broad ligament, two-thirds of an inch long; it gives more room and protects the ureter. Directly the incision is made, the top of the anterior retractor is forced into the wound and pulled upward and backward along the cervix. The sectioned tissue yields a good deal—surprisingly so in fact—and it is just this maneuver that makes the Péan instrument of so great value. While the retractor is pulling back the tissue, blunt-pointed, curved scissors separate by short snips the attachments between the bladder and uterus; with each snip of the scissors the retractor takes a fresh hold, being introduced into the part just cut by the scissors. The finger will sometimes help a great deal in the dissection. Having separated as much as possible in front, the same should be done behind. The forefinger of the left hand is now placed on the anterior surface of the cervix and glides along outward toward the base of the broad ligament; it penetrates between the anterior peritoneal fold and the ligament proper and pushes aside the ureter. The same is done behind. Then two fingers grasp the broad ligament and serve as guides to the first forceps, which seizes the ligament at least an inch from its lower border. The ligament is then cut the whole length of the forceps close to the uterus; the same is done on the other side. The cervix is now split transversely from side to side up to the point of the forceps; two flaps are thus made, an anterior and a posterior. The posterior flap is now amputated and strong forceps seize the anterior flap and pull it downward; the uterus begins to roll anteriorly, thanks to the void which has been created behind by the amputation of the posterior flap. At the same time fresh separation is effected between the uterus and the bladder. The anterior flap is then amputated. If the uterus is not very adherent it may be pos-

sible to make two more flaps which are amputated in the same way after preliminary hemostasis of the broad ligament. But if the uterus is very adherent, the rest of the operation deals with the anterior wall of the organ. Placing a bullet forceps on each side of the canal, the stump is pulled down as much as possible and separation effected between bladder and uterus. After separating as much as feasible, the anterior uterine wall is morcellated in the median line in small pieces. The part removed should include all the tissue down to the uterine cavity. Two more bullet forceps are now inserted on the upper parts of the edges of the excavation; renewed traction is made, more denudation effected and morcellation carried higher up. By repeating the process the peritoneal cavity is reached. The uterus may now be hooked with the finger and everted anteriorly with ease. It is a simple matter to clamp the rest of the broad ligament and to remove the organ. In many instances the appendages are dragged into the vagina and are clamped separately.

If, during the operation, a pus sac has been opened, the operator waits until the flow ceases, then washes out the cavity and proceeds exactly as before. But if it has not been opened, it must be searched for with the finger, for, if undiscovered, it will cause further trouble.

When it is possible to remove the appendages it is proper to do so; otherwise they may remain behind and in the majority of cases will cause no trouble.

The dressing consists of iodoform gauze placed above the tips of the forceps and between them and the vaginal walls. The forceps are removed in forty-eight hours; the gauze not until the sixth day. Pain is controlled with morphin, and in three weeks the patient is up.

The following case which came under my notice is typically illustrative of the sort of patient that is cured by vaginal hysterectomy:

M. J., 29, 2-para, was admitted to the Broca Hospital Aug. 12, 1894. Ever since her last confinement, three years before, she had been suffering from inflammatory pelvic trouble which had confined her to bed most of the time. The longest period of quiescence was three months; the rest of the time she had been practically bedridden from pain and prostration. She had had four attacks of pelvic peritonitis which were severe, the last one eight days before entering the hospital. Examination showed a uterus which was fixed, immovable, and surrounded by inflammatory adhesions; on the right, a mass the size of a good-sized fist filling the pelvis and impinging on the rectum; on the left, a smaller mass. Vaginal hysterectomy was done by Pozzi's first assistant, Dr. F. Jayle. No pus was found. There was no shock to speak of, although the operation lasted over an hour. In three weeks the patient was completely well, suffering no pain and walking about.

I had examined the woman before the operation and easily made out the large masses; when I examined her again, three weeks after the operation, I was astounded to find that on the left side almost nothing remained, and that on the right side there was only a mass the size of a small hen's egg. She told me that she was perfectly well and she looked so, and yet both ovaries and tubes remained behind.

I can not refrain, in conclusion, from referring briefly to the further scope of the vaginal route in dealing with pelvic diseases. In the pre-antiseptic

days it was the only route, and the impunity with which ovaries could be removed through an incision in Douglas' pouch served to put Battey's operation on a sound basis. Not only were ovaries of normal size removed in this way, but also tumors of considerable size. Dr. W. H. Baker, of Boston, assures me that before the celiotomy period he had several times removed a dermoid or other cyst of the ovary through an incision behind the uterus. Perhaps the most prominent advocate of the vaginal route in this country is Dr. Polk, of New York. It was a pleasure, a few weeks ago, to see him operate on a woman who had a cyst of the right ovary the size of a hen's egg. Her left ovary had been removed some time previously by celiotomy and she was much averse to having her abdomen opened again. Most women would be. An incision was made in the posterior vaginal wall close to the uterus, and the peritoneal cavity was soon reached. By means of two large retractors, made after the Ségond model, the operative field was clearly exposed and the cyst brought into view. A few adhesions were readily freed with the finger and the cyst aspirated. The sac was then grasped with a fenestrated forceps and removed. It proved to be a cyst of only a portion of the ovary. Enough of the ovary was left behind to assure the continuance of the catamenial flow. A bit of gauze was thrust into the wound and the patient put to bed. The operation took perhaps fifteen minutes to perform.

Dr. Polk told me that he treats extra-uterine pregnancy in the same way. He never fears hemorrhage, for it is a simple matter to clamp the ovarian artery which supplies the sac. His method is to introduce his forceps along the finger as a guide; to pierce the middle of the broad ligament with one jaw of the forceps, while at the same time the forefinger seeks the top of the broad ligament and protects the intestines, preventing them from being caught in the forceps. The clots may now be turned out at leisure and the cavity washed out. There is no shock to speak of.

In the same way, Jacobs, of Brussels, has removed a very large ovarian cyst, tapping it through the vagina and tying the pedicle, very much as in a celiotomy. Fibroid tumors of the uterus can safely be removed through the vagina. Here the laws of morcellation as set down by Péan must be closely followed, otherwise the operator will be disappointed in his results. A skillful operator has a mortality of almost nothing. It has been shown that fibroids reaching even to the umbilicus may be safely removed by this method. The mortality in 400 cases of fibroids of all sizes was 1.7 per cent.

From these facts it seems as though, in the near future, there must be fewer celiotomies and more vaginal work. The technical difficulties encountered in performing operations through the vagina will perhaps delay the adoption of the method for a time at least, but as the experience of those who are firmly convinced that it is the route of choice in selected cases accumulates, the vaginal route will become more and more popular, and will finally be assigned the place which rightfully belongs to it.

22 Highland Street.

POTABLE SEA WATER.—The salts may be removed from sea water by drawing it, by means of a vacuum pump, through a block of wood in the direction of its fibers.—*Western Druggist*.

THE TREATMENT OF THE STUMP IN OOPHORO-SALPINGOTOMY—A NEW METHOD.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, May 7-10, 1895.

BY L. H. DUNNING, M.D.
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There are three serious objections to the method almost universally employed of treating the pedicle and stump in the operation for the removal of the Fallopian tubes and ovaries. They are:

1. In consequence of many adhesions of the tubes and ovaries and the inelastic condition of the broad ligament, it is not infrequently difficult, indeed, impossible to form a pedicle without producing so much tension upon the extremities of the stump as to render them prone to retract and thus loosen the ligature, or even to pull away so far as to leave unprotected a raw surface, which is liable to bleed, or if the tissues do not retract, the tension may be so great as to induce cutting of the tissues by the ligature and thereby lead to oozing or active bleeding. Again, by the *en masse* ligature it is sometimes found impossible to include the Fallopian tube near the uterine cornu.

2. The constriction of the nerves included in the *en masse* ligature is a source of pain, which will sometimes persist for many days or even weeks.

3. An incised surface is left exposed to engender adhesions, which, if formed, result in painful action or occlusion of the bowels. This is a grave objection to the method and one generally acknowledged. The milder forms of adhesions are a prolific source of pain and obstinate constipation, so serious indeed, in some instances as to demand a second operation for their relief, while not infrequently the intestine will so adhere as to lead to ileus and death, if prompt interference is not instituted. Three cases of obstruction of the bowels, the results of intestinal adhesions to the stump, have been reported to our local society within the last two years. One of the cases occurred in my own practice, one in the practice of a colleague in which I assisted in re-opening the abdomen, to find a coil of intestine so attached to the stump as to induce an acute flexion of the intestine and complete occlusion, and the third one resulted from an operation done by a member of this Section.

Various methods have been resorted to, to avert the danger of adhesions, such as the cauterization of the stump and cutting out a wedge-shaped piece from the distal end of the stump and turning the raw surfaces in by sutures. That cauterization is not efficient is demonstrated by the fact that in two of the cases above referred to this plan was adopted. It is seldom possible to turn in raw surfaces, because the ligatures can not be applied far enough away from the tubes and ovary to leave sufficient tissue beyond the ligature to make the procedure a safe one.

For two years the writer has been earnestly striving to devise some method that is safe and free from the objections of the *en masse* method. He does not claim to have found a method safe and applicable to all cases in which it is necessary to remove the tubes and ovaries. He does claim, however, that when the method he proposes is applicable it is far superior in its results to the older method.

The method is as follows: after proceeding in the operation in the usual manner until the adhesions

are so far broken up as to permit of the tubes and the ovaries being brought into view, the uterus is lifted up toward the abdominal incision by the instrument presented by the finger of an assistant making pressure through the vagina. A provisional ligature is thrown around the Fallopian tube, close to the uterus. With scissors, the tube is cut off beyond the ligature, the severed end is seized by the thumb and finger of the left hand, gentle traction is made upon it, while with a pair of blunt-pointed scissors or knife, the tube is cut away by severing the mesosalpinx close to the tube. After its removal, one or two small arteries will be found spurting. They may be caught with forceps and tied with fine catgut. The ovary may now be taken in hand and its attachments to the broad ligaments severed close to the organ. Here, if one or two small arteries spring, they should be securely tied. Now with a straight needle threaded with fine catgut, begin at the outer margin of the incised surface, and with a running stitch close in all the raw surfaces, using the Lembert stitch.

This completed, tunnel out the uterine end of the Fallopian tube and close in the raw surfaces by one or two stitches of fine catgut. Then remove the provisional ligature. Proceed upon the opposite side in a similar manner. A dextrous and rapid operator will require from five to eight minutes to accomplish this work, if both sides are treated in the same manner. The writer has effected it in three minutes upon one side. It requires a slightly longer time than the *en masse* method, and this may be an objection to it in some rare instances, when rapidity of work is demanded on account of the critical condition of the patient.

The method is not easily applied, when for any reason the uterus can not be brought up near the abdominal incision. This may be the case when the operation is done during the acute stage of pelvic inflammation. In these cases, I question the propriety of energetic efforts to elevate the uterus. In two instances of this kind I have employed the method with satisfactory results, though through a somewhat longer incision than is necessary by the *en masse* method. When there are gross adhesions of the appendages and the uterus, these should be broken up before the uterus is elevated. Ordinarily no difficulty is experienced in this procedure. The vagina should be disinfected before bringing the patient to the operating room. As a preliminary step, the stem may be introduced into the uterus by an assistant before beginning the section, and held in a position ready for use when the adhesions have been liberated.

A large-sized urethral sound may be used instead of the elevator, or the finger of an assistant may elevate the uterus. The elevator I show, however, is superior to these means, for the reason that it gives better command of the position of the uterus. In two instances, I have employed this method without elevating the uterus. In such cases more difficulty was experienced in tying the arteries and in closing in the raw surfaces. For the latter purpose, short curved needles were used, carried by a needle holder, whereas when the uterus is elevated, a straight needle carried by the fingers is the preferable and the quicker course to pursue. The advantages claimed for the method are, that by means of it, the pain following the operation is much less than by the old method and there are left no exposed surfaces to engender adhesions.

The writer has employed it now nine times with great satisfaction in each case. A brief history of four cases are given, to show that the method has a considerable range of applicability:

Case 1.—Mrs. A. was operated upon at her home near Frankton, Ind., with the assistance of Dr. Coverly, of Frankton and Dr. H. E. Jones, of Anderson, May 22, 1893. There were found on abdominal section, a small ovarian tumor upon each side, a pyosalpinx upon the right side and a malignant disease affecting the omentum and mesenteric glands. It was found impossible on account of dense adhesions to lift the tumors out of the pelvis or to discover a pedicle. A circular incision was made around each tumor near the base, but only through the outer coat of the cyst wall. This incised portion was pressed downward and finally the hand slipped under the tumor, when it was lifted out of the pelvis and the left one delivered without rupturing. The right one was ruptured in attempting to deliver it through the abdominal incision.

Two arteries spurted upon each side, and were secured with difficulty. The Fallopian tube upon the right side was severed near the cornu and was removed by cutting the mesosalpinx near the tube. Two small arteries were seized and tied and the raw surfaces turned in by two or three catgut sutures. There was quite an amount of oozing from surfaces caused by separating adhesions upon the right side, so strips of gauze were packed into the pelvis, effectually checking the hemorrhage. The malignant neoplasms could not be removed. The abdomen was closed in the usual way. The patient made an easy recovery from the effects of the operation. In this case the method greatly simplified the operation. It would, however, have been more difficult had we not employed a long incision.

Case 2.—Mrs. B., a colored woman, was operated upon by abdominal section at the regular Wednesday clinic Oct. 17, 1894, at the Indianapolis City Hospital in the presence of the hospital staff of assistants and about one hundred and fifty students. There were gross adhesions. After enucleating a small intraligamentous cyst from each side and a small fibroid tumor from the uterus, one Fallopian tube was found to be distended by pus. The tube was so bound down by adhesions as to make it difficult to form a pedicle, so the cornual end was tied with catgut, the tube cut off beyond the ligature, the severed end seized and the mesosalpinx severed near the tube throughout its entire length. But a single artery spurted. This was tied and the raw surfaces turned in as in the former case. The cornual end of the tube was tunneled out and the edges turned in and sutured. The patient made a good recovery.

Case 3.—Mrs. C., aged 32 years, was operated upon by abdominal section at my private hospital March 14, 1895, in the presence of Dr. Potter and my assistants. This was a case of recurrent diffuse pelvic inflammation of many years' standing. The uterus was retroverted and adherent. The tube and ovaries were prolapsed and adherent. After separating the adhesions the uterus was elevated by an assistant making pressure from below with a finger in the vagina. The appendages were examined and those upon the left side found so much diseased that their removal was deemed advisable. They were extirpated with ease and expedition by the method described above. The fundus was anchored to the anterior abdominal wall by two silk worm gut sutures passed through each horn of the uterus and up through the abdominal wall and fastened to a button upon the external surface of the abdominal wall. The ease with which the operation was done, the freedom from pain and the easy recovery of the patient were most gratifying.

Case 4.—Miss D., a young woman aged 23, was operated upon at my hospital April 24, 1895, in the presence of Dr. Mauk, of Cambridge City, Ind., and Drs. Pfaff and Ferguson, of Indianapolis. The case was one of diffuse pelvic inflammation of three months' standing. There were many firm adhesions. The right tube and ovary were liberated and brought up with considerable difficulty. But little difficulty was experienced in elevating the uterus. The method as described was employed in all its details except that interrupted catgut sutures were used to close in the cut surfaces, and with the addition that the uterus was tilted to one side by making traction upon the provisional ligature. This, to some extent, facilitated the work.

We found it necessary to tie but two arteries and they were small ones. The ease with which the complete removal of the ovary and the tube can be effected was well illustrated by this case. It would have been difficult if not impossible,

to have applied the *en masse* ligatures so as to have removed the whole of the ovary.

This proved to be a pus case (pyosalpinx), and the wisdom of the provisional ligature and subsequent tunneling of the cornual end of the tube was exemplified. The left Fallopian tube and ovary, though imbedded in adventitious tissue were when brought out of the incision and examined, thought not to be sufficiently diseased to demand their removal, so they were dropped back and the abdominal incision closed. The patient is making an easy recovery.

In conclusion, I wish to say, that my experience with the method in the nine cases in which it has been employed has been most gratifying. The pain experienced by the patients has been much less than it has been in other cases in which the old method has been employed. There has been no case of secondary hemorrhage or adhesion to the stump. In some instances, in which the patients are prone to hemorrhage, I should be cautious in employing it; indeed, I abandoned it in one case, where much hemorrhage resulted in cutting the mesosalpinx.

If the hemorrhage does not cease after tying the arteries, a pedicle can be easily made and the whole secured by the *en masse* ligature. In one or two instances after cutting away the tube, the mesosalpinx has retracted. Some trouble was experienced in securing the arteries. This occurrence may be avoided by seizing one edge of the severed mesosalpinx with a tissue forceps. I am sure if the method yields as good results in other hands as it has in mine, the *en masse* ligature will hereafter be employed only in special cases.

THE ETIOLOGY AND TREATMENT OF INFLAMMATIONS OF THE UTERINE APPENDAGES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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For some years past the surgical tendency of the gynecologist has completely overshadowed the rational treatment of diseases of the uterine appendages, and may be regarded as a confession of inability to cure; for it can no more be claimed that ablation of organs so important to the female economy is a cure of the morbid process, than amputation of a limb is a cure of the injured or diseased member.

General surgery has passed this stage of wholesale sacrifice of useful members, and to-day the saving of an injured limb is more creditable to the surgeon than a skillfully performed amputation. Gynecology must soon pass this stage also, for the limit of extreme pelvic surgery has been reached and the sad plight of the woman (?) who has survived the removal of her ovaries, tubes and uterus is beginning to be realized. I venture to predict that the gynecologist who saves the greater number of tubes and ovaries within the next ten years will win greater renown than he who removes the most. Any one who has had experience with diseased appendages will admit that it is much easier to remove them than to attempt to bring about resolution of the morbid process and save them. The same is true of a badly crushed arm or leg. But which is the more credit-

able procedure and which would you prefer to adopt, if the patient was your own wife or daughter?

The contention is not that these inflammations of the tubes and ovaries can always be cured, but that it is frequently possible, and that unless immediate operative interference is actually demanded, the patient should be given the chance and the attempt should be made before submitting her to a radical operation. In view of the fact that treatment directed toward attaining this end does not militate against a subsequent operation for their removal, should it become necessary, but on the contrary, improves the chances of an ultimate successful result—it is a perfectly rational procedure and one which should always be adopted. Remember, that once removed they can not be replaced.

In the light of recent developments in the etiology and pathology of inflammations of the appendages, is not the removal of these organs without previous attempt at a cure or removal of the cause which may be operating to maintain such a condition, to be regarded as a serious error? It would certainly be more rational to institute measures, first, which will bring about a cure of any disease of the uterus or other pelvic organs which may be acting as a maintaining cause. It will be asserted that this is the course usually pursued and that no case is submitted to a radical operation unless it is absolutely certain that it is the proper procedure to be adopted. But is this strictly true? Is it not a fact that tubes and ovaries are being removed every day without any previous effort on the part of the operator to cure the disease or remove conditions which may be producing it? It may be true that not so many are sacrificed now as a few years ago, but they are still removed too often for disease which is amenable to patient and persistent treatment, or which may be cured by a minor surgical operation, involving no risk, such as curettage or repair of a lacerated cervix.

My purpose, in presenting this subject for your consideration, is to show how many of these conditions are curable where a radical operation is usually believed to be necessary, and I will relate briefly the histories of some cases, which are conspicuous examples, substantiating this statement.

It will not be possible, in a brief paper like this, to consider these conditions in other than a general way, for to go into the details of the different stages of the morbid process would consume too much time.

Clinically, inflammations of the uterine appendages may be divided into salpingitis and ovaritis, for though they are often so intimately associated as to render their separation impossible, yet it is sometimes true that either the one or the other (tube or ovary) is more distinctly involved and demands separate consideration. It is quite impossible to institute rational and successful treatment without first ascertaining both the direct and indirect cause of the morbid process. Usually, the cause of salpingitis is readily ascertainable, but that of ovaritis is often remote and obscure. It is evident, therefore, that it will be more satisfactory to consider them separately in outlining the plan of procedure to be adopted.

Salpingitis will be divided into catarrhal, and that due to septic infection from the extension of a similar inflammation from the endometrium. Catarrhal salpingitis may occur coincidentally with a catarrhal

endometritis without previous existence of the latter, and occurs as a result of imprudence which precipitates suddenly and frequently a marked pelvic congestion or engorgement. In this respect it differs from inflammation due to septic infection as well as in another very important particular; viz., that it is less virulent and it is consequently more readily controlled. I believe that it seldom occurs as an acute inflammation but that in the beginning it rather partakes of the nature of the, so-called, subacute process which is simply a hyperemia attended with hypersecretion from the mucous membrane. As a result of continued and repeatedly provoked hyperemia, a chronic inflammation of the mucous membrane is developed which may eventually involve the deeper tissues and produce structural changes. It is possible that the secretions may accumulate in the tube and produce distension, since the caliber of the uterine end of the tube becomes obstructed in consequence of edema and infiltration of the mucous membrane. The abdominal ostium must also become obstructed to permit distension and this occurs no doubt in a similar manner. Such tubes are frequently mistaken for pyosalpinx or hydrosalpinx and removed. I am satisfied that hydrosalpinx when formed on one side only, with the other tube in good condition and functioning, is frequently produced in this manner and is rather the result of chronic catarrhal inflammation than septic infection from the endometrium. Acute exacerbations may occur when the tube is the seat of chronic catarrhal inflammation which may readily be mistaken for a primary acute salpingitis. The process is rather a perisalpingitis due to an extension of the inflammation from the interior of the tube. Such cases may present to a most rigid examination all the appearances of inflammation due to septic infection, and the appendages are often found to be surrounded by exudation if the inflammatory process has been going on for some time. This is the difference, however,—it yields more readily to treatment. This may be due to the fact that the structural lesions are not so extensive.

As a proof of what has been said, we often find the appendages the seat of chronic inflammation and surrounded by more or less exudation in cases where there has been no chance for infection and there is no history of an acute stage having preceded it.

On the other hand, inflammation of the tubes, due to septic infection will be ushered in by an acute inflammatory process of marked severity which must occur sooner or later after infection of the endometrium and as a result deep structural lesions occur early. When they are extensive and especially when due to gonorrheal infection, there is little chance of producing resolution by any method of treatment. The inflammatory process, which first involves the mucous membrane by extension from the endometrium, rapidly spreads to the muscular structure of the tube walls, and even to the peritoneal covering. The abdominal ostium is obliterated early and drainage into the uterus is prevented by infiltration of both the mucous membrane of the tube and the uterus, and also of the muscular structure. This obstruction may or may not be permanent; this depending upon the extent of the lesions produced. Some authorities contend that the uterine end of the tube is seldom occluded, but that the obstruction due to infiltration may be overcome and the tube drained

into the uterus. I believe that when the inflammation has subsided in the tube and it has become distended, the obstruction at the uterine end is often maintained by hypertrophy of the endometrium, surrounding the orifices of the tubes upon its surface, and that it may be overcome by removing this condition. When this is possible and drainage can be maintained a cure is possible, though the function of the tube may not be restored. If, however, actual occlusion of the uterine end of the tube has occurred, drainage can not be established and a radical operation is imperative if there is much distension. Cases where the tube is bent upon itself, prolapsed and is adherent, come under this head.

Ovaritis exists as an acute or chronic inflammation and is frequently a sequence of salpingitis, though it sometimes occurs independently of this condition. The lymphatics may convey infection directly from the uterus to the ovaries and thus septic inflammation may result there independently and without involvement of the tubes, though this is rare.

The acute form may occur coincidentally with salpingitis, being produced by the same causes, but a condition of hyperemia and hyperaesthesia which is sometimes regarded as an inflammation, frequently results from imprudences during menstruation, too frequent and excessive coition, ungratified sexual excitement and constipation.

Structural changes, characteristic of chronic inflammation, may result from the acute stage, but chronic ovaritis does not often follow the acute process. Most frequently it begins insidiously and develops gradually from this condition of hyperemia. Probably one of the most frequent causes of chronic ovaritis is laceration of the cervix during parturition, with consequent infection through the medium of the lymphatics which are well known carriers of infection. It is a well established fact to my mind that this lesion, if unrepaired, is a constant source of irritation which reflects upon the ovaries and maintains in these organs a state of hyperemia and hyperaesthesia. Further on, I will relate several instances of this kind, where a cure was effected by repair of the cervix.

Chronic ovaritis may exist as a condition of atrophy, hyperplasia or cystic degeneration, but the term is most frequently applied to a condition of passive hyperemia which, if unrelieved, may result in hyperplasia. This may be produced by the causes mentioned above or by any other source of irritation of the uterus, such as endometritis or growths within the uterus, especially if located in the cervical canal, such as small polypi. Fissures of the anus, ulceration of the rectum and chronic proctitis are also frequent causes of ovarian irritation and hyperemia which are often overlooked.

Any treatment, which has for its aim the establishment of drainage of diseased tubes into the uterus, the removal of the hyperemia and infiltration and the absorption of the surrounding exudation may be regarded as a perfectly rational procedure, and one which should be adopted, when possible, in preference to their removal. If this object can be accomplished (and it is frequently possible), a cure may be effected and the woman will be restored to a life of usefulness and happiness.

If this much will be admitted, the principal thing to be considered is the best manner of accomplishing this result.

When salpingitis is found to be associated with a severe type of chronic endometritis, with an hypertrophied or granular condition of the mucous membrane, the first step in the treatment should be dilatation of the canal, thorough curettage of the cavity of both the body and the cervix, followed by packing with iodoform gauze to secure thorough depletion and drainage. Especial care must be observed in removing the hypertrophied membrane from the vicinity of the internal os and both cornua. This latter is best secured by using a small size curette which will reach up in the angle at the entrance of the tube and should be employed after the cavity has been gone over by an instrument of larger size. The removal of these granulations or hypertrophied elevations of the mucous membrane about their orifices facilitates drainage from the tubes in the same manner as removing the superfluous granulations about the entrance of a fistulous canal. They obstruct drainage in the same manner. A sharp curette may be required for removing the hypertrophied tissue at the internal os. The extent of dilatation required is not nearly as great as is usually considered necessary. A moderate dilatation under anesthesia gradually accomplished by means of the steel dilator, sufficient for the easy introduction of the curette, is all that is necessary. The gauze packing, if carefully done, will effect still further relaxation. Divulsion is unnecessary and should never be done.

The technique of the operation is important and is as follows: the vagina and vulva are first rendered aseptic, then after sufficient dilatation has been accomplished the double current irrigator should be introduced and the cavity thoroughly cleansed with either a solution of bichlorid (1 to 4000), or what I often prefer, a 1 per cent. solution of lysol (hot). Then the cavity is curetted and again irrigated with the same solution until all oozing has ceased. The cervix is now fixed by a double tenaculum and a strip of 20 per cent. iodoform gauze, the absolute sterility of which has been previously assured, is introduced by means of a long applicator forceps, here shown, and carried well up into both cornua, the cavity filled and the cervical canal also. The gauze is cut into strips one yard long, and three-fourths to one inch wide. Usually, the whole strip can be packed into a uterus of moderate size. The vagina is then filled with wider strips of the same gauze and an aseptic pad is placed against the vulva. The patient is to be confined to bed while the gauze remains in the uterus. Usually, a week is sufficient for this part of the treatment. Instead of permitting the gauze to remain undisturbed in the uterus for several days, which is the practice of some gynecologists, I deem it necessary to remove it every twenty-four hours, at least; for it ceases to drain when the gauze in the vagina becomes saturated. Upon removing it, the cavity of the uterus should always be irrigated with a hot 1 per cent. lysol solution and the gauze is re-applied as described above.

Let it be understood, both by the physician and the patient, that the operation and the subsequent gauze packing is only to be regarded as a preliminary step in the treatment, and that it is necessary to maintain free drainage from the uterine cavity and tubes, remove all sources of irritation and institute measures which will promote absorption of surrounding exudates and relieve the engorgement of the pelvic vessels. To accomplish the first end, a patu-

lous condition of the cervical canal must be preserved and the uterine cavity must be kept free from all *débris*, such as small clots and particles of mucus, which, if retained, would be a source of irritation. This is accomplished by the occasional introduction of a small (clinical) irrigator and washing out with a 1 per cent. solution of lysol; or Thiersch's solutions may be used if an astringent action is desired. I never use anything else and never employ iodine or carbolic acid in these cases. If the canal becomes too much contracted to permit the easy introduction of the irrigator, it is connected with the negative pole of the galvanic current as an electrode and about 10 milliamperes turned on. This will facilitate its introduction and if the current is allowed to remain on during the irrigation it exerts a stimulating action upon the endometrium through the medium of the liquid projected through the irrigator.

The second object (the absorption of exudates and the restoration of the normal circulation of the pelvis) is accomplished by the persistent application of the faradic current of high tension, made sufficiently stimulating to suit individual cases. I know of no better way of accomplishing this end and nothing which I have employed has given such prompt and satisfactory results. It serves a double purpose in these cases, since it not only quickens the capillary circulation and hastens absorption, but by stimulating contraction of the tube walls and the uterus, it favors evacuation of the tubes into the uterus and empties the uterus as well.

In some of these cases it is better to institute some preparatory treatment before the operation which will relieve the extreme sensitiveness, lessen the surrounding congestion and remove the infiltration and exudation, and for this purpose I employ the fine wire faradic current to great advantage. At the same time, the bowels should be kept relaxed and the patient's diet and digestive apparatus must be regulated.

Under this plan of treatment it has frequently happened that tubes which were considerably distended have been evacuated while the gauze was in the uterus and they have not refilled. In other cases evacuation does not occur until after the packing has been discontinued and the stimulation of the faradic current is employed. The probable explanation is, that in some instances, the barrier to drainage from the tubes is infiltration of the tube walls, or the pressure of surrounding exudation, which is removed by this latter method of treatment. Faradic stimulation here promotes the evacuation of the tube into the uterus, by exciting contraction of the tube walls, which is vermicular and in the direction of the uterus.

When salpingitis is associated with a simple catarrhal endometritis, curettage is not needed. The occasional introduction of a conical dilating electrode connected with the negative pole of the galvanic current (10 to 15 m.) to render the canal free, and favor drainage from the uterus, together with frequent applications of the fine wire faradic current to relieve engorgement of the pelvic vessels and promote the removal of infiltration of the mucous membrane will give satisfactory results in the majority of cases. When the secretion is abundant and does

NOTE:—In a paper which I read recently before the New York Academy of Medicine upon the "Physiologic Effect of Periodic Induced Currents," the exact manner of their action in bringing about these results was clearly explained.—See American Medico-Surgical Bulletin, April 15.

not drain away readily, it will be better to irrigate the cavity twice a week with a warm lysol solution by means of the small clinical irrigator, followed each time by faradic stimulation with the fine wire current. This may be done at the office and after a short rest the patient may be permitted to return home. It is astonishing what immediate and lasting relief this treatment affords the patient. If she comes into the office with a dragging sensation in the pelvis and a tender painful condition about the uterus she is immediately relieved by washing out the uterus, because the source of the irritation, retained secretions within the uterus, has been removed. Frequently the symptoms do not return for several days.

Some care is necessary, however, in carrying out this treatment, to avoid provoking undue irritation in introducing the irrigator and washing out the uterus. No force should be employed, but first ascertaining the direction of the canal, the instrument is inserted as far as it will enter readily which is usually up to the internal os, then the current is turned on and it is allowed to slip in under very gentle pressure. The irrigation should be continued until it is absolutely certain that everything has been washed away and the cavity is clean. Then the inflow of the solution must be stopped and that remaining in the cavity of the uterus must be permitted to drain away through the return flow tube of the irrigator before it is removed. The cavity is thus left perfectly clean and empty.

The treatment of ovaritis consists in removing the source of irritation or the cause when ascertainable, as far as possible. When it is associated with and dependent upon an endometritis or salpingitis, these should be treated in the manner described above. When dependent upon an injured or diseased cervix it must be repaired or removed. If it is found that the rectum is the seat of disease, or there is fissure of the anus, it must be cured before we can expect to relieve the ovarian irritation.

Relief of the symptoms may be afforded by treatment directed to the ovary alone, but it will only be temporary and not permanent until the cause of the irritation is removed.

I recall many instances where patients suffering with ovaritis have been brought to me by their physicians who had employed electricity for months without permanent benefit, and it has been found that the cause of the condition has been disregarded and overlooked.

In employing this agent in the treatment of ovaritis, the preference is to be given to faradization in the majority of cases, because it affords quicker relief of the pain and the result is more satisfactory, especially if the condition is one of hyperemia with infiltration or exudation. In conditions of hyperplasia, galvanism or a combination of the faradic and galvanic currents is more appropriate and gives better results. In employing the galvanic current for these conditions a moderate strength continued for a longer time produces the best effect.

The importance of discriminating in the choice of the current to be employed in certain conditions of ovarian inflammation, as well as the necessity of removing the cause of the irritation, is well illustrated in the following case:

Case 1.—The patient, a young girl of 18, had been for over a year under the care of a prominent gynecologist in New York for ovaritis. During this time he had persistently em-

ployed the galvanic current, and failing to derive any benefit therefrom he suggested removal of the ovary as the only possible means of relief. She was then brought to me and began to show immediate improvement when the fine wire faradic current was substituted. But no permanent benefit was obtained until the rectum and anal orifices were restored to a normal condition. The cause of the ovarian irritation and hyperemia proved to be an inflamed rectum, with fissure of the anus, associated with obstinate constipation. Two years have now elapsed, there has been no return of the trouble and the patient is in excellent health.

The digestive apparatus is often at fault in these cases and constipation is frequent and annoying. There is no doubt that this is a prolific cause of ovarian irritation and inflammation which is often overlooked or disregarded.

Malnutrition, which may be attributed often to disorder of the digestive apparatus, brought on by improper food, is also indirectly a cause of ovaritis and is to be counteracted by careful attention to the diet and the state of the excretory organs.

A congestion of the ovary may be maintained by interference with its circulation, due to the pressure of an exudation in the broad ligament, which may be removed by stimulating absorption with the fine wire faradic current.

A condition of atrophy of the ovary is frequently produced by the pressure of exudation which interferes with its circulation and function, and is often associated with either absent or very scanty and imperfect menstruation. It may be cured if the exudation can be removed and the menstruation restored to normal activity, if it has not existed for too long a time.

Cystic degeneration of the ovaries is very rarely benefited by any form of treatment, and if the symptoms are persistent and are sufficiently annoying to warrant it they should be removed. This is a condition, however, which is difficult to diagnose without inspection.

If a septic inflammation of the ovary has progressed to that point where an abscess has developed, its prompt removal is the only course to be adopted, and neglect to do so is as unwarranted as a hasty operation in other conditions when it is not necessary.

Ungratified sexual desire has been stated as a cause of ovarian irritation and inflammation, and there is no doubt that it exists in some instances without the knowledge of the woman so afflicted. A case which serves as a forcible illustration of this was related to me by a gynecologist of some prominence in New York:

Case 2.—A lady of refinement and education who was left a widow after several years of married life, without children, developed a most intense ovarian irritation and inflammation which gave rise to so much suffering as to make her an invalid. Everything possible had been done for her by different specialists whom she had consulted but with no benefit. She was advised and urged to have her ovaries removed and finally consented to the operation, if after an anticipated trip and rest abroad she was no better. On the steamer going over she chanced to meet a gentleman of whom she became very much enamored. They became engaged and on her return to New York she hastened to ask her physician if her condition should prevent her from marrying, and if marriage would aggravate her condition and cause greater suffering. He discouraged her and advised against it, believing that it would be worse for her. He again urged her to have the operation performed. Much to his surprise, a month or two after this he received an invitation to her wedding. Meeting her there she explained that she had not taken his advice because she was so deeply in love with the gentleman that she had determined to take the chances and if she became worse, afterward, with his consent,

she would have the operation performed. Several months elapsed before he again saw her, during which time they were absent from the city. She then told him that from the time they were married she ceased to suffer and was now perfectly restored to health, which her appearance made quite manifest, and asked him if he could in any way explain her cure. He suggested the cause of her suffering which had been removed, but she disclaimed any knowledge whatever of the existence of any such cause.

The following case shows that an intractable inflammation of the ovary may be overcome by restoring a normal condition of the uterus and cervix which was the cause:

Case 3.—Mrs. B., age 35, married at 17, two children, the last 12 years old, came to my clinic in May, 1893, suffering with intense pain in the left ovarian region. The left ovary was enlarged to about the size of a walnut and there was chronic metritis and endometritis with an old laceration of cervix and cystic degeneration. The pain in this case was relieved temporarily by faradization, but returned with the same severity whenever treatment was discontinued. The patient's general health improved greatly while under treatment, but as no permanent benefit to the ovarian condition was obtained, I feared that I would be obliged to remove the ovary. Before doing so, however, I curetted the endometrium and repaired the cervix, being particular to remove all the diseased tissue possible. Upon getting up after the operation she was overjoyed to find that she no longer suffered pain in the ovary and there was no return of it. Within three months she became pregnant, though she had been sterile for twelve years, and subsequently was delivered at term. She has suffered no inconvenience with the ovary since and it is about normal in size.

The next case, one of fixed retroflexion, cervical laceration with metritis and endometritis, salpingitis and ovaritis resembling cystic degeneration, illustrates what may be accomplished by patient and persistent treatment and restoration of a normal condition of the cervix:

Case 4.—Mrs. T., age 33, married fifteen years, mother of three children, last 7 years of age, was sent to me by her physician in Columbia, S. C., October, 1893. Her ill-health dated from the birth of the last child, which was followed by pelvic peritonitis due to septic infection following labor. When she first came under my care, she could not walk a block without great fatigue and suffering; she was anemic and her general health was greatly impaired.

Examination revealed an immovable retroflexed uterus, surrounded by exudation, both tubes and ovaries involved, a bad metritis and endometritis with bilateral laceration of the cervix and laceration of the perineum.

Celiotomy had been advised, as the only possible means of relief.

The treatment instituted was fine wire faradization daily, and drainage from the uterine cavity, promoted by the application of negative galvanism to the canal. Later, when the uterus was rendered movable and could be replaced, a soft whalebone pessary was introduced. Six weeks after beginning treatment the cervix and perineum were repaired. The period occupied in the treatment was three and one-half months. At this time she was able to return home and was directed to have the faradic application continued twice or three times a week. She was able to walk a considerable distance without fatigue or without suffering any pain or inconvenience in the pelvic organs, and was then wearing a hard rubber pessary. She continued to improve and within a year after she had entirely regained her health and strength.

The next case shows how pelvic exudation may be removed by faradic stimulation unaided:

Case 5.—Mrs. L., age 37 years, one child twelve years before and one miscarriage, six years before, came to my clinic in 1893. Menstruation consisted only of a few drops and was attended with great pain. She could walk only with the greatest discomfort, the slightest jar giving her great pain. Examination revealed the pelvic organs absolutely fixed by surrounding exudation. The diagnosis was chronic metritis and salpingitis and ovaritis with exudation. There was an old laceration of the cervix with cystic degeneration. Under faradization alone, nothing else being employed, the pain was immediately relieved and within a few months the exudation had disappeared and the uterus was

movable. Subsequently the cervix was repaired, the diseased tissue being carefully removed. The patient is now in excellent health and menstruation is free from pain and more normal in amount. The uterus is freely movable. Examination under anesthesia at the time of the operation showed no abnormal condition of the appendages remaining.

Case No. 6, illustrates the benefit to be derived from curettage and gauze packing, in securing drainage of distended tubes into the uterus:

Case 6.—Mrs. H., age 28 years, married six years, consulted me in December, 1894. She suffered only slight dysmenorrhea until a miscarriage which occurred two years after marriage, when she began to have more or less pelvic pain and profuse leucorrhea. Examination revealed an endometritis with salpingitis, left tube distended to size of the thumb with some infiltration about the tube and ovary. Dilatation, curettage and gauze packing secured evacuation of the tube after the third day. The subsequent treatment consisted of irrigation of the cavity twice a week. Drainage was maintained and the tube did not refill. Duration of treatment six weeks. The cure has been complete and so far permanent.

The next case, one of pyosalpinx, was drained into the uterus and cured without curettage, and pregnancy followed:

Case 7.—Mrs. A., age 23 years, married four years, sterile, consulted me in May, 1892, for a condition which began shortly after marriage. She suffered some dysmenorrhea before marriage. About a year after she became very much worse and began to suffer with pelvic pain, backache and leucorrhea. Her general health was greatly impaired and she was anemic. Diagnosis: endometritis and salpingitis, the right tube being distended to about the size of a small egg. Celiotomy had been advised by specialists in Detroit and Pittsburg, but was declined. The tube was so much distended and obstructed, I feared that I would also have to advise an operation, and told the patient that nothing could be promised positively from treatment, but under the negative galvanic applications to the uterine canal and fine wire faradization the tube began to drain into the uterus within two weeks and eventually emptied completely. The discharge was muco-purulent in character. The walls of the tube contracted and it did not refill.

The duration of treatment was three months. She was then so well that she went West to join her husband. A year later on her return to New York, I found her pregnant. She was confined in October last, the labor being normal and easy. Her health has been good since.

In marked contrast with the foregoing case, the next illustrates a class of cases which can not be drained, though the symptoms may be relieved by treatment, when operative interference is prohibited:

Case 8.—Mrs. S., age 24 years, married six years, sterile, consulted me in August, 1892, for the relief of a constant dragging pain in the back over the sacrum, and pelvic pain referred more especially to the left side, associated with dysmenorrhea and at times with considerable leucorrhea. These symptoms dated back several years, but had become more pronounced within the last two years. Examination revealed a smooth elastic tumor, posterior to the uterus in Douglas' pouch, which proved to be an adherent hydrosalpinx. The left ovary was sensitive and enlarged, the right could not be made out. The patient was told that the treatment would afford only temporary relief, that an operation for the removal of the diseased tube was advisable and would eventually be necessary. She objected to the operation, but asked that some treatment be instituted which would relieve the symptoms. The attempt was made to drain by means of galvanic application to the uterine canal and faradic stimulation, with the result that the endometritis was overcome and the pain relieved within two months. She then discontinued treatment but was advised to have the operation performed as soon as the symptoms recurred. She returned after four months, stating that there had been no return of the pain, leucorrhea or dysmenorrhea, but for two weeks she had a return of the backache, and she made up her mind to undergo the operation. I operated March 26, 1893. The tumor proved to be a hydrosalpinx of the right tube and the ovary of the same side was cystic. The tube was bent upon itself near its attachment to the uterus, and was consequently occluded and drainage into the uterus was prevented. The tube and ovary of the other side were left

undisturbed. The patient made a good recovery and has enjoyed excellent health since.

Case 9.—Mrs. G., age 26 years, married seven years, consulted me in June, 1889. Examination revealed partial fixation of uterus and a mass to the left which proved to be the tube distended with pus and surrounded by exudation. There was also an endometritis with considerable erosion of the cervix. Celiotomy had been advised. Her trouble dated from a miscarriage and an attack of pelvic inflammation one year later which confined her to bed for eight weeks. The treatment instituted in this case, was drainage through the uterus, by means of negative galvanic applications to the endometrium and cervix, which acted by overcoming the endometritis and securing free drainage from the cavity, and faradization to promote absorption of the exudation and stimulate evacuation of the tubal contents. The treatment extended over a period of six months but her attendance was irregular, as is the case with many of these patients when they notice improvement.

The result obtained was absorption of the exudation, drainage of the tube into the uterus, disappearance of the tumor because the tube did not refill, cure of the endometritis and mobility of the uterus. The patient was in good health two years afterward.

The next case is one which illustrates how catarrhal salpingitis yields to this method of treatment:

Case 10.—Miss E., 19 years, consulted me in April, 1892. About eight months previously, after exposure to cold during menstruation, she began to suffer pelvic pain, backache and bearing down with profuse leucorrhea. This continued some time before she consulted a physician. She improved somewhat under treatment, instituted at that time, but shortly afterward she got a wetting which precipitated an attack of acute inflammation, confining her to bed for four weeks. After being about for two weeks she was again taken sick and was sent to a hospital in this city. There she was treated by rest in bed, blisters to the hypogastrium and hot water vaginal douches with only slight benefit. Celiotomy, for the removal of the ovaries was then urged, which she refused.

At the time of consulting me she was the picture of abject misery, pale, anemic, haggard and was never a minute free from pain except when asleep. Walking or the least exertion greatly increased her suffering. Her appetite was poor and she did not sleep well. I found her so exquisitely sensitive to vaginal touch that a satisfactory examination was impossible. There was a profuse mucus discharge and the uterus was fixed by infiltration of the surrounding structures. The diagnosis was catarrhal endometritis, salpingitis and ovaritis.

The treatment instituted was fine wire vaginal bipolar faradization. The first application which was continued for twenty minutes dispelled all pain and rendered her perfectly comfortable for eight hours afterward. This was repeated every day. After the third application she remained free from pain twenty-four hours, and moderate exercise caused no pain. This plan of treatment was continued and supplemented later with mild negative galvanic applications to the uterine canal to facilitate drainage. At the end of two months and a half she was able to resume her occupation as stenographer and typewriter. Her health has been good since and there has been no recurrence of the trouble.

This is another case of catarrhal salpingitis, associated with ovaritis and endometritis, which yielded to treatment after celiotomy had been advised:

Case 11.—Mrs. E., age 21 years, married five years, was referred to me by Dr. R. W. Taylor of New York in April, 1894. Three years previous, according to her statement, exposure brought on ovarian trouble which resulted in inflammation. This did not yield to the usual treatment and celiotomy was advised, which she declined. The diagnosis, made at the time she came under my care, was catarrhal salpingitis, ovaritis and endometritis with antelexion; some infiltration about right tube and ovary.

The treatment instituted was drainage of the uterine cavity, secured by negative galvanism to the canal, and fine wire faradic stimulation, which afforded prompt relief and resulted in a cure. The period of active treatment was about two and a half months. She was kept under observation for several months afterward but there was no recurrence of the trouble. The extreme antelexion was

overcome. At the present time the patient is in excellent health.

Case 12.—Mrs. C., age 31 years, widow, one child 17 years old, was referred to me by her physician. Some years before, she had an attack of pelvic inflammation resulting from septic infection which caused fixation of pelvic contents. The uterus was retroflexed and surrounded by exudation which involved the appendages of both sides. Both ovaries were enlarged and exceedingly sensitive. The right tube was distended. The cervical canal was contracted and consequently drainage was defeated. Her menstrual period was accompanied with so much pain and prostration that she was compelled to remain in bed for the entire period. The attempt to dilate the canal and promote drainage by means of negative galvanism provoked so much irritation that it had to be abandoned. But the extreme sensitiveness was relieved by faradization and the uterus was rendered partially movable. Then under anesthesia the canal was dilated, the uterine cavity was thoroughly curetted and packed with gauze. Before the gauze was introduced, the uterus was replaced by careful manipulations which freed the adhesions. The vagina was then tamponed with iodoform gauze to maintain the position of the uterus.

The distended tube discharged into the uterus within a week, the fluid being thin and serous in character.

This treatment was followed by frequent irrigation of the uterine cavity with faradic stimulation and a pessary was inserted as soon as it could be borne.

Now (three months after the operation) the position of the uterus is maintained by a pessary which is worn without discomfort. The tube has not refilled. She experiences no pain, though she is constantly on her feet in attending to her duties as housekeeper. She menstruates without pain and does not remain in bed during the period. This patient can not be considered cured yet, but she is in a condition where improvement will continue and a cure will result. Celiotomy had been advised in this case and, at one time, I feared it would be necessary.

I could relate many more cases similar in character, but these will suffice to illustrate my point. Remember, they are selected cases, many of them being chosen because a radical operation had been advised by another operator before they came under my care.

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DISCUSSION.

DR. CHARLES P. NOBLE, Philadelphia—said that the method of treating the stump, advocated by Dr. Dunning, was practically the same as that employed by Dr. Pratt, of Chicago. The only difference he saw was that the latter did not put in a provisional suture. With reference to Dr. Goelet's paper, while it was interesting, it did not contain anything particularly new in the treatment of inflammatory diseases of the uterine appendages.

DR. M. PRICE, of Philadelphia—wished to criticize the constant tendency to new methods, and calling them "my method." This is not necessary, because the rules laid down by the older surgeons, such as Tait, Keith and Bantock, answer every purpose. He agreed with the statement made by Dr. Goelet in his paper, that many patients with ovaritis and salpingitis are being operated on unnecessarily. During the past year he had turned away many women, telling them that there was nothing the matter with their tubes or ovaries, and yet nearly all of them succeeded in finding another surgeon to remove their appendages. In cases where actual tubal or ovarian disease exists, he regards simple curettage and drainage of the uterus as futile. In many of these cases the cervical end of the tube is entirely obliterated by the inflammatory condition.

DR. DUNNING had little to say in closing the discussion. With regard to the question of priority, he had nothing to say whatever, except that if Dr. Pratt, of Chicago, had been pursuing the method which he had proposed, he was not aware of it. Dr. Noble had, it seems, treated the subject in a very flippant manner and Dr. Dunning thought he would some day encounter a case of obstruction of the bowels, caused by adhesion of a loop of intestine to the raw surface left there, cutting off the tube and ovary, and then he would remember his paper and the method he had advocated.

CELIOTOMY FOR PUERPERAL SEPTICEMIA AND FOR PUERPERAL INFLAMMATORY CONDITIONS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The conditions under which it is desirable to perform an abdominal section in the treatment of the septic and inflammatory complications of the puerperal state are as yet not definitely determined. The problems involved are now pressing for solution, and the subject is receiving serious consideration by many members of the profession. So long as it continues to be a fact, that large numbers of women annually lose their lives from puerperal septicemia, this subject must be studied by the obstetrician and gynecologist, until the prevention and cure of puerperal septicemia are placed upon a thoroughly satisfactory basis. This paper has been prepared upon the invitation of our President, to serve as an introduction to the general discussion of the problems involved. As I have recently discussed this subject upon two occasions, my remarks will be based upon the papers referred to.¹

Cases of puerperal sepsis and of puerperal inflammatory conditions may be divided into two classes: 1, those in which some pathologic condition is present in the sexual organs before labor; 2, those in which these organs are normal at the beginning of labor.

The first class embraces those cases of sepsis and peritonitis caused by the bruising or rupture of tumors situated in the pelvis, or of purulent or other septic accumulations in the Fallopian tubes, or the adjacent pelvic organs. It is unnecessary to discuss this division of our subject at length, as there is little difference of opinion concerning it, and the nature of its treatment is reasonably plain. That puerperal peritonitis may be due to the bruising or rupture of tumors during labor has long been recognized. Any variety of pelvic tumor may be bruised, or have its blood supply cut off by torsion of its pedicle, and become inflamed and gangrenous, and thus set up a more or less serious peritonitis. Dermoid cysts are especially liable to undergo inflammatory changes when they form a complication of labor. The cardinal points to which attention should be called in this class of cases are, that the birth canal and lymphatics are not involved; hence the conditions present are very similar to those in non-puerperal peritonitis. Prompt operation, with the removal of the tumor, has been followed by a high percentage of cures.

Puerperal peritonitis due to the rupture or bruising of purulent or other septic accumulations in the uterine appendages, existing prior to labor, is not of frequent occurrence. This phase of the subject has not been very systematically studied. The references to it in the literature are very few. In 1891 I called attention to this subject², and reported three cases, in which the bruising of pus tubes during labor had set up peritonitis. I have personal knowledge of two other cases which occurred in this city. Of thirty-two eminent American gynecologists, from whom I

have received replies to a letter of inquiry concerning this, among other subjects, I find that but three have operated for peritonitis due to a pus tube, which had antedated labor, and each of these gentlemen has operated upon but one case.³ My other correspondents either had no personal knowledge of such cases, or at the most had merely suspected that the diseased tube may have antedated the labor, instead of resulting from infection after labor. Dr. Lusk⁴, of New York, states that he has seen three cases of puerperal peritonitis due to the bruising of diseased tubes during labor.

The fact that such a large percentage of my correspondents have not met with this variety of peritonitis, is conclusive evidence that it is not common, and therefore that its practical importance is not so great as was anticipated some years ago. The comparative infrequency of puerperal peritonitis due to this cause is explained by the fact, that women having even a single pus tube, or other septic accumulation in the pelvis, are usually sterile. The relative dangers of puerperal peritonitis of this variety and the results of operation done for it can not be determined at this time, because there are so few of such cases on record. Theoretically, the prognosis from operation should be relatively good, because the uterus and the pelvic tissues and lymphatics are not involved. The conditions are similar to those of operation for peritonitis in the non-puerperal state. I believe that the proper method of treatment to be pursued in such cases is prompt operation, irrigation and drainage.

The second class of cases, in which sepsis or inflammatory conditions result from infection of the birth canal, in women having normal sexual organs previous to labor, is a far more important one than that just considered. This is the common form of so-called puerperal fever. It embraces cases in which the infection is limited to the utero-vaginal canal, those in which the infection has spread to the broad ligaments through the pelvic lymphatics or veins, and those in which the infection has spread to the peritoneum, either by way of the Fallopian tubes or by way of the lymphatics. As a matter of convenience we will consider first the conditions under which it is advisable to perform an abdominal section for puerperal peritonitis.

Puerperal peritonitis may arise either through the spread of the septic inflammation by way of the Fallopian tubes to the peritoneum, or through the inflammation spreading along the lymphatics, either directly through the uterus to its peritoneal covering, or by way of the lymphatics of the broad ligaments. I am not aware of any investigations which have definitely determined the distinctions in the clinical history of the two varieties of puerperal peritonitis, to which reference has been made. My own opinion is, that in the first variety (by way of the Fallopian tubes) relatively speaking the inflammatory element is more decided and the septic element is less marked, whereas the reverse is true in the second class of cases (by way of the lymphatics). In the first class of cases, I believe it is the rule to have marked efforts at the localization of the peritonitis, by nature's method of pouring out inflammatory lymph,

¹ Puerperal Pelvic Cellulitis and Puerperal Peritonitis, *American Gynec. and Obstet. Journal*, January, 1895. Celiotomy for Puerperal Septicemia and Peritonitis, *American Gynec. and Obstet. Journal*, April, 1895.

² Salpingitis Considered in Its Relation to Pregnancy and the Puerperal State, *Trans. Amer. Gynec. Society*, vol. XVI., p. 489.

³ Dr. Edward Reynolds, of Boston, Dr. E. B. Davis, of Birmingham, and Dr. Hirst, of Philadelphia. Dr. Coc, of New York, reports that he has assisted at such operations.

⁴ Discussion before the New York Academy of Medicine, Feb. 28, 1895, on Dr. Noble's paper "Celiotomy for Puerperal Septicemia and Peritonitis."

and that where this result is accomplished, many of these cases go on to a natural cure, and that more of them result in the formation of post-puerperal pus tubes, and of circumscribed intraperitoneal collections of pus. On the other hand, in the cases in which septic lymphangitis is a marked feature, the element of peritonitis is merely an epi-phenomenon, the condition present being a general septicemia.

Puerperal peritonitis of the first variety may end in death or recovery within a few days, or it may continue for several or even many weeks, in those cases in which it is of mild type at its onset. Lymphatic peritonitis is of relatively short duration, many cases having a fatal termination after a course of a few days. The distinctions just made, I believe, represent the facts of the case from the clinical standpoint, and they are supported by the experience of those who have had large opportunities for observation. If the distinctions here made are correct, I find no evidence that abdominal section has been performed for lymphatic peritonitis in any considerable number of cases. The reports of celiotomies for puerperal peritonitis, with which I am familiar, show that the operations have been done in general after the end of the first week; in other words, at a time in which the subjects of lymphatic peritonitis have either died, which is the rule, or have begun to recover, which is the exception. As supporting this inference, I find that among the thirty-two eminent gynecologists already referred to, only four—Drs. Boldt, Polk, Carstens and Etheridge—have performed celiotomy for general peritonitis within seven days after labor; and only four—Drs. Smith, Etheridge, Polk and Baldy—have operated for localized peritonitis within the same limit of time.⁵

Lymphatic puerperal peritonitis is not amenable to treatment by celiotomy. I know of nothing, either in my own experience or in the literature, which gives the least encouragement for operating upon this class of cases. All who have been operated upon have died. It is not difficult to understand why operation done for lymphatic peritonitis should accomplish so little. A simple celiotomy, with washing out of the peritoneal cavity, does not influence the principal seat of the trouble, which is in the uterus and pelvic lymphatics, and necessarily can not influence the multiplication of germs which already may have entered into the general circulation. The more radical operation of hysterectomy offers but little in these cases, as by the time peritonitis has become a marked feature, either the patient is so reduced as to be unable to withstand the shock of a serious operation, or she is already suffering from marked general septicemia. If these patients are to be saved, they must be operated upon at a much earlier stage, before the development of peritonitis or of marked general septicemia.

Cases of puerperal peritonitis of a more decidedly inflammatory type, that is, in which the septic element is less marked, are more amenable to treatment by operation. In these cases, I believe that the peritoneum has been reached by the spread of the infection along the Fallopian tubes, rather than through the pelvic lymphatics, so that these latter structures are but slightly involved in the morbid process. Polk and Outerbridge have reported successful cases of celiotomy for localized peritonitis done within the first

week after labor, and many cases are on record in which celiotomy has been performed at a much later period. I have nothing new to offer concerning the indications for operation in puerperal peritonitis. So far as I know, patients operated upon for general puerperal peritonitis have died; hence, excepting the hope that the diagnosis may be wrong, one would hardly be justified in recommending operation with such a diagnosis. I am aware that certain cases are on record, which have been reported as operations for general purulent peritonitis, including some of the puerperal variety, but an analysis of these cases, I think, will convince the impartial investigator that they were really instances of circumscribed peritonitis, although involving a considerable area. In cases of localized peritonitis, during the first few days of the disease the abdomen should be opened if the attack be a severe one, and if it does not yield promptly to treatment. In cases presenting well marked local lesions, to be made out by bimanual examination, the indication for operation is more urgent than in those in which nothing can be determined by physical exploration. In my judgment such cases should be carefully studied, and operation be elected or rejected because of the conditions present—the symptoms and general course of the case—rather than in accord with any rules applied to such cases in general. Celiotomy is certainly indicated if the attack of peritonitis be a severe one, which does not yield promptly to medical treatment. Also, later in the course of puerperal peritonitis of a milder type, operation is indicated if the patient fails to improve, and is demanded should the case take an unfavorable course. In such cases, however, it should not be forgotten that bimanual examination will usually disclose marked local lesions.

At the present time it is safe to conclude that the prognosis of celiotomy done for general puerperal peritonitis is fatal. In localized peritonitis, the prognosis is best in those cases in which the inflammatory process has become well localized, and in which septic symptoms are slight, or else altogether absent—the case having resolved itself into one of pyosalpinx, of abscess of the ovary, or of pelvic abscess of puerperal origin. The prognosis is fairly good in cases of circumscribed peritonitis operated upon promptly, that is within two or three days of the beginning of the attack, which is equivalent as a rule to the fifth, sixth or seventh day of the puerperal period. Cases which have gone from bad to worse, and in which the operation is done as a last resort, usually terminate fatally.

Celiotomy is occasionally called for in cases of true pelvic abscess, located usually in the broad ligament or iliac fossa, and resulting from a lymphangitis, which has ended in suppuration of the pelvic connective tissue. It is at times difficult to determine whether or not the inflammatory process is limited to the connective tissue of the pelvis, or whether it is complicated with tubo-ovarian or intraperitoneal mischief. In such cases an exploratory celiotomy to determine the extent of the inflammatory trouble is desirable. If the broad ligament abscess is complicated by tubo-ovarian disease, or by intraperitoneal suppuration, the whole trouble can be dealt with through the abdominal incision. If, on the other hand, the morbid process is limited to the connective tissue of the pelvis, and has resulted in the formation of a true pelvic abscess, this can be

⁵ Seventeen of them have operated for puerperal peritonitis later than the seventh day of the puerperal period.

evacuated by a second, extraperitoneal, incision, made either in the groin or through the vault of the vagina, as may be best in the individual case. The personal experience of the writer with this method of treatment has been such that he recommends it highly in this class of cases.⁶

We have still to deal with cases of infection of the birth canal, fairly well localized in the uterus, in which the progress of the disease is from bad to worse, in spite of irrigation and curettement of the utero-vaginal canal. This class of cases logically should have been considered first, but because of the nature of the treatment which will be recommended in a certain percentage of them, it has been thought best to treat of it last. In these cases, septic intoxication or beginning septicemia are marked features, the absorption of ptomaines, or of microorganisms, taking place from the uterus or the vagina. Peritonitis, cellulitis or lymphangitis, are either absent or in their incipency—the infected uterus is the nidus of the morbid process. In other words, we are considering these cases as a class distinct and apart, although it is recognized that within one or two days they would develop into cases similar to those already described. Some years ago a case belonging to this class would have been treated day after day by irrigation of the birth canal, and by internal medication, until the termination of the case either in death or recovery. Under this method of treatment, undoubtedly, a few cases have recovered, but in the great majority, when in spite of curettement and thorough irrigation of the uterus, the septic process increases instead of diminishing in intensity, the issue is a fatal one. The proposition to perform hysterectomy in such cases, and thus to remove the seat of the disease, has the merit of being logical. This proposition has been carried into effect by Kelly and Smith with a favorable result, and by Montgomery with a fatal issue. I have read of another successful case in the hands of a German operator—but am unable to find the reference. In these cases abdominal hysterectomy was performed. In Kelly's case there was a beginning lymphangitis, in Smith's a beginning peritonitis, and in Montgomery's pus was found in the uterine sinuses.

At the present time I am prepared to advocate the performance of hysterectomy for infection of the uterus, when in spite of thorough curettement, followed by copious irrigation of the utero-vaginal canal, and the use of an iodoform suppository and gauze within the uterus, the septic symptoms increase in severity. In general, the less radical measures of treatment should be employed for twenty-four or forty-eight hours (and longer in cases of mild type, in which the symptoms are not urgent), this time limit to be varied according to the severity of the septic symptoms. In such cases not only should the uterus be curetted and douched, but the patient should be purged with salines; and the use of quinin, baths and anodynes, should not be neglected. In all such cases the general condition of the patient, including the pulse, temperature, stomach and *morale*, is the best guide in deciding for or against immediate resort to hysterectomy. In other words, it is by no means proposed to do a hysterectomy because the patient has a septic endometritis or a septic metritis, but to do this major operation only in those

cases in which the methods of treatment, at present recognized as most efficient, fail to arrest the morbid process, which, in spite of the employment of these measures, goes on from bad to worse.

It will be observed that my advocacy of hysterectomy has been in cases of infection of the uterus early in the course of the disease. There is another class of cases entirely distinct from this, clinically speaking, in which it may be wise to add a hysterectomy to the removal of the uterine appendages, either because the suppurative process may include the uterus itself, or because the removal of the uterus as a technical point in the operation may facilitate the recovery of the patient. A number of such operations have been reported, but this class of cases must not be confused with that which has just been considered. In the one class of cases, the septic inflammatory process is acute, and a hysterectomy if needed at all, will be needed somewhere about a week after labor; whereas, in the other class of cases, the process is subacute, and results in suppuration late in the puerperal month. In the one class of cases, the removal of the infected uterus is the principal object aimed at; in the other class of cases, as a rule, the uterus is the least diseased of the pelvic structures.

At this time the great success which has been achieved in hysterectomy done by way of the vagina, for non-puerperal conditions, in the hands of the French school of surgeons, raises the question as to whether or not this method of operating should be selected in puerperal cases. Experience alone must determine this question. This is one of the problems of the future, as only a small number of cases have as yet been operated on by the lower route. Upon theoretical grounds, I am not inclined to advocate hysterectomy by the vagina for puerperal infection, as when it is employed we are precluded from inspecting, irrigating and widely draining the peritoneal cavity. This method would best fulfill the indications when employed very early in the course of the disease, as then the chances of peritonitis would be small, and the necessity for extensive drainage of the peritoneal cavity would be absent. The advocates of the vaginal route for removing the diseased structures from the pelvis, will probably take issue with the general position, that abdominal section is the operation indicated to deal with the various consequences of puerperal septic infection. I am prepared to agree with them that large pus accumulations can be more safely dealt with by way of the vagina than by operation from above, but with this exception, from my point of view, the preferable method of operating for puerperal septic inflammation and its results is by celiotomy.

The present status of the subject of celiotomy for puerperal septicemia and for puerperal inflammatory conditions may be summed up as follows; the cases may be divided into two classes:

a. Those having morbid conditions in the pelvis antedating labor, such as tumors, pus tubes, or other septic accumulations, the bruising or rupture of which during labor leads to peritonitis or septicemia. Prompt operation in these cases has given good results.

b. Those having normal pelvic structures at the onset of labor. The infectious process may spread through the lymphatics to the peritoneum, and give rise to peritonitis, cellulitis and septicemia. It may

⁶ Noble, Charles P., Acute Puerperal Cellulitis and True Pelvic Abscess, Amer. Jour. Obstet., 1893, XXVII, 427.

spread by way of the Fallopian tubes to the peritoneum, setting up peritonitis. Or it may be limited to the utero-vaginal canal. Celiotomy is not indicated in lymphatic peritonitis, as the morbid process is too widespread to be reached by operation. Celiotomy has been followed by a fatal result in cases of general puerperal peritonitis. The only ground for advising operation with such a diagnosis is the possibility that this may be erroneous. The prognosis is best when celiotomy is done for localized peritonitis, when the process has become well circumscribed and the element of sepsis eliminated; in other words, when the case has resolved itself into one of pyosalpinx, abscess of the ovary, or of pelvic abscess of puerperal origin. The prognosis is good when cases of localized peritonitis are operated upon promptly, that is within two or three days of the beginning of the attack, or at about the end of the first week of the puerperium. Cases which have gone from bad to worse, and in which the operation is done as a last resort, usually terminate fatally. Hysterectomy is indicated for those cases in which the infection is limited to the utero-vaginal canal, when, in spite of thorough curettement of the uterus, together with copious irrigation of the utero-vaginal canal, and the employment of proper systemic treatment, the infectious process increases in severity.

In dealing with the results of puerperal septicemia by operation, celiotomy affords the opportunity for satisfactory diagnosis and adequate treatment. The organs involved may be palpated or inspected, and when necessary the operation may be followed by irrigation and satisfactory drainage. The vaginal route for operation is indicated for large pus accumulations which are found late in the puerperium.

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EXTRA-UTERINE GESTATION—ITS EARLY DIAGNOSIS AND TREATMENT.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. L. JEPSON, M.D.

WHEELING, W. VA.

(ABSTRACT.)

The following were the author's conclusions:

1. Extra-uterine gestation is probably always primarily tubal; the ovarian is a possible rare exception.

2. Diagnosis before rupture may often be made with reasonable certainty. In some cases it is impossible.

3. Diagnosis after rupture can in most cases be made so certainly as to justify opening the abdomen.

4. Electricity—preferably galvanism—should be used when a diagnosis is made before rupture, unless the patient can and will secure the services of an expert operator.

5. Celiotomy by an experienced abdominal surgeon is always proper in early unruptured cases.

6. After intraperitoneal rupture with free hemorrhage, the abdomen should be promptly opened and the tube grasped near the uterus. The operation may be completed at once or delayed to restore the patient, as her condition requires.

7. After rupture into the broad ligament, abdominal section is not urgent, and often is unnecessary.

8. While condemning operations by the inexperienced in cases of no urgency, yet an emergency may arise after intraperitoneal rupture, when celiotomy by the inexperienced may become a duty, but this should never be resorted to without counsel.

DISCUSSION.

DR. A. H. GOELET, of New York—said that while Dr. Jepson had covered the subject pretty thoroughly, there were some points in the paper from which he wished to differ with the essayist, and first as to the necessity of operating upon every case of unruptured tubal gestation. In the first place, the necessity of the operation is the danger of rupture, and that danger is removed if the death of the fetus is accomplished. That can unquestionably be done by electricity. If rupture has taken place between the folds of the broad ligament, it is admitted by some of our best authorities that it is comparatively harmless and may be left alone. He has had several cases of this character, and they resulted very satisfactorily by leaving them undisturbed until the ruptured vessels had sealed up, and then, when necessary, emptying the sac through the vagina. In this way we avoid opening the peritoneal cavity. Statistics show that even when the hemorrhage occurs within the peritoneum it is seldom sufficiently severe to demand celiotomy for its arrest. No one would hesitate to open the abdomen in cases where the bleeding is very severe, but if it has ceased it is far safer to let it alone. When the danger of secondary hemorrhage has passed, we can open the sac through the vagina and empty it. This procedure is far safer to the patient, and it is our duty always to consider this point.

DR. RUFUS B. HALL, of Cincinnati—said it was very often difficult to decide whether rupture had occurred between the folds of the broad ligament or directly into the peritoneal cavity. In sixteen cases coming under his observation, a diagnosis of rupture into the broad ligament was made in fifteen cases, and they were treated as such for varying periods. Later on, in operating for the removal of the blood clot, it was proved in every case that the rupture had occurred into the peritoneal cavity. When we teach that rupture takes place into the folds of the broad ligament more frequently than it does into the peritoneal cavity, he thinks we do not treat our patients fairly. We should assume primarily in these cases that rupture has occurred into the peritoneal cavity and be governed by the condition of the patient, or the loss of blood, as to when we shall operate.

DR. CALEB R. REED, of Middleport, Ohio—said that these cases are not infrequently met with in small country towns, where the assistance of an experienced surgeon can not be readily obtained, and he expressed the opinion that in such an emergency, any physician who has an ordinary knowledge of the anatomy of the parts and who has the boldness to use the knife should not hesitate to operate. While he has had personally but little experience with the use of electricity in these cases, he would not advocate it unless he was reasonably sure that it would succeed in destroying the fetus, and according to his reading on the subject, electricity was in the majority of cases a failure.

DR. J. M. COBLE, of Dallas, Tex.—said he had had three cases of extra-uterine gestation come under his care. He regards the operation for extra-uterine pregnancy as a very simple one, and said a man who has any skill and knows how

to do it, should go ahead and perform it as soon as the diagnosis is made.

DR. A. LAPHORN SMITH, of Montreal—is in favor of operating for extra-uterine pregnancy as soon as the diagnosis is made. He also regards it as one of the easiest of the abdominal operations.

DR. J. M. DUFF, of Pittsburg, had had no experience with electricity in cases of extra-uterine pregnancy, but it occurred to him that it would be just as dangerous for one who is not skilled to attempt to use it as it would be for an unskillful operator to use the knife. A case came under his observation some three years ago in which he diagnosed extra-uterine pregnancy; there was a tubal abortion at about the third month. He could not get the consent of the patient to let him operate. The woman had a miscarriage about a year later; he was sent for, found her in collapse, and discovered that she had an extra-uterine pregnancy on the other side. He operated and found the product of the first pregnancy, which was almost as natural as that of the last one, which he knew to be of only eight weeks duration. There was no absorption.

DR. H. W. LONGYEAR, of Detroit—said if a case of tubal pregnancy is diagnosed before rupture has taken place, the physician should operate at once, or he should get the most experienced surgeon to do so. He cited a case in which the pulse fluctuated more or less for two months. At the operation the abdomen was found full of blood clots, partly organized and mixed up with the intestines, and it was with the greatest difficulty that the blood was removed from the abdominal cavity, and he believes that the length of time necessary to do this was the cause of death.

DR. JERSON, in closing, insists upon the operation being done by an expert when possible. He said his remarks were addressed to the average country practitioner who is not competent to operate in these cases. There was in his town to-day a man who was doing a large amount of operative work. Two years ago this physician was called to a neighboring town to operate upon a case of ruptured tubal gestation. He opened the abdomen, and before he could find the ruptured tube, the abdomen was full of blood. He was horrified. He filled up the abdominal cavity with towels and let his patient die. This man was a post-graduate student.

With reference to hysterectomy, the expert surgeon who stands up before a Section composed largely of general practitioners and asserts that it is a trifling operation creates a false impression, and it may be the means of leading other men to do operations that are grave, although to him they may be comparatively easy.

THE VALUE OF SYMPHYSIOTOMY.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY HUGH HAMILTON, M.Sc., M.D.

HARRISBURG, PA.

Operative obstetrics is an essential part of a physician's education. The process of natural birth is merely an incident, but a birth may become eventful and ultimately tragic. Cases demand action in the order of their occurrence, namely: detention from want of maternal power; due to fetal malposition; arising from deformed fetus; by deformed maternal parts. Nature makes an effort to sacrifice upon these occasions the child for the mother, because her preservation is the conservation of the species—following this guide, accoucheurs strive to do this and more; therefore the highest aim of the art of midwifery is to save both, through the application of therapeutic remedies and other means. More Madden questions if we have an emmenagogue in the special sense in which we use it. Recently I had a letter from a Philadelphia physician, stating that brown sugar was an excellent uterine tonic! Upon this question at present it is not necessary to enter. When medical aid fails, recourse must be had to manual or instrumental skill or surgical relief, bearing in mind the simple classification, a birth is detained through lack of ma-

ternal power. The reflexes having been used to stimulate these powers and failed, turning may be resorted to, or the forceps, or both consecutively. Forceps do not always fit and will often slip; to overcome the difficulty, contrivances have been made to secure the necessary force in the proper axes of expulsive power. (Demonstrated clamp.)¹

2. Malposition of the fetus may be regarded as all but the four vertex ones, *i. e.*, dexter et sinister; anterior et posterior. For although breach presentation gives less risk than others, for all that, the after-coming head is not always a problem of easy solution. Presentations may be modified by manual dexterity and expediency; even then they do not result in living infants.

3. Should the deformity of the fetus prevent birth, then instrumental function asserts itself; if possible, only upon the lifeless infant, but not reprehensible upon the living one, under certain restricted conditions. (Demonstrated my great forceps.)

4. When dystocia comes from deformed maternal parts, then modern surgical technique renders pronounced aid. These are divided by the anterior-posterior diameter of the pelvis. Then means for accurate measurement becomes of great moment. The most recent and complete pelvimeter is that of my friend Dr. Philander A. Harris, of Paterson, N. J. (Demonstrated.)

A. Pelves of a conjugate vera of less than 7 c.m.

B. Pelves of a conjugate vera of more than 7 c.m. modified by symmetrical contraction. In class A section is the only method advisable. In class B, symphysiotomy, etc., are the proper operations. (Demonstrated by charts and my new symphysiotomy knife.)²

Recent statistics³ covering the year 1891 before symphysiotomy, and during the subsequent years in that period, at the Clinique Baudelocque in Paris: there was, in 1892, 13, in 1893, 14; in 1894, 22 symphysiotomies; total, 49. The maternal mortality was four from those undergoing the operation. The infantile mortality attributable to those whose mothers underwent the operation was five. To go into more details in these years, Pinard reported at the Baudelocque in 1891, a total of 1,654 cases treated, of which number there were 140 deformed pelves, being 8.456 per cent. on 1,654; of this number natural delivery took place in 18, or 4.89 per cent. upon 1,654, or 57.85 per cent. on 140, the whole number of those with deformed pelves. The remaining fifty-nine were delivered by artificial means (including premature artificial births, high and low forceps operation, version, Basiotripsy and conservative Cæsarean operation.) Or 3.55 per cent. on 1,654; or 42.15 per cent. on 140. The maternal mortality was 4, or 0.241 per cent. on 1,654; or 2.85 per cent. on 140; or 6.77 per cent. upon 59, the whole number operated on. The infant mortality was 31, or 1.87 per cent. on 1,654; or 22.14 per cent. on 140; or 52.52 per cent on 59.

At the Royal Dresden Clinic⁴ during the period from Jan. 1, 1892 to July 1, 1893, eighteen months, there were 2,512 cases of confinement. Of this number 610 or 24 per cent. had deformity of the pelvis; however, there were 146 of these whose deformity was so slight as not to demand any anxiety whatever, so that the number is reduced to 464 or 19.40 per cent.

¹ Ann. Gynecol. and Pediat., Vol. viii, p. 103.

² Amer. Gynec. and Obstet. Jour., Vol. v, p. 624.

³ Ann. Gynecol. et D'Obstet.—Tome xliii, 1895.

⁴ Arb. a. d. Kgl. Frauenkl., Bd. i and ii, 1893-95.

upon 2,512; 424 of this number were fortunate in having unassisted births, or 16.87 per cent. on 2,512; or 88.98 per cent. on 464; the revised number of deformed pelves. Those requiring assistance (in procedures as follows: forceps, version, Basiotripsys, premature births, Cæsarean sections, symphysiotomy) were 89 or 3.54 per cent. upon 2,512; or 11.01 per cent. upon 464. Those who were subjected to operations other than symphysiotomy were 83 or 93.85 per cent. on 89 of those totally operated on, or 3.30 per cent. on 2,512; or 9.72 per cent. on 464. Consequently there were six symphysiotomies performed, giving rise to the following comparative proportions: 0.23 per cent. on 2,512; or 1.29 per cent. on 464; or 6.7 per cent. on 89.

In the published account there was a mortality of mothers, due to operative interference, of 4, being 0.159 per cent. upon 2,512; or 0.864 per cent. upon 464; or 4.49 per cent. on 89. It is but fair to state that out of this number there were 5 deaths in 194 primipara which were expected to give birth naturally although their pelves were deformed. They really do not belong to operative statistics; yet they should have been operated on by symphysiotomy and the lives saved. This would make the percentage more than double. It is difficult to make tabular statements to represent at a glance all we wish, although the Paris figures include *all* deaths and the comparison is more favorable than it seems to the Clinic Baudelocque. The infantile mortality was 43 of which there is 1.70 per cent. on 2,512 cases; 9.48 per cent. upon 464 deformed pelves; and 48.30 per cent. upon all operations, 89. The same parenthesis can be made in this respect as upon the mothers' mortality, in there being an additional loss of infants of 9, making in all when added to 43, 52. This would increase the percentage to beyond 10 upon 464.

The maternal mortality in operations other than symphysiotomy was 3 which gives 0.119 per cent. upon 2,512; or 0.646 per cent. upon 464; or 3.37 per cent. upon 89 operated cases; or 3.53 per cent. upon 83 operations *not* symphysiotomy. The mothers' deaths in symphysiotomy were only 1 *i.e.*, 0.037 per cent. upon 2,512; or 0.21 per cent. upon 464; or 1.23 per cent. upon 89; or 16.66 per cent. upon the operation (symphysiotomy) itself. No deaths of infants were due to symphysiotomy.

The Clinic Baudelocque in 1894 gives the most recent report and presents the following: the whole number of confinements were 2,147; of this number 94 were deformed in the pelvis; the measures were taken by the pelvimeter, being 4.37 per cent. on 2,147; even of this number 64 gave unassisted birth, being 2.98 per cent. of 2,147 cases; or 67.97 per cent. upon 94, the number of deformed pelves; allowing 30 to be artificially assisted (these consisted in Basiotripsys 6, Porro operations 1, symphysiotomies 22, Vec-tis 1) being 1.39 per cent. upon 2,147; or 32.03 per cent. on all cases operated on. Those cases in which symphysiotomy was not used being 8 or 0.37 per cent. upon 2,147; or 8.51 per cent. upon 94, all deformed pelves; or 26.66 per cent. upon 30, all the cases operated on. There was performed 22 symphysiotomies, being 1.22 per cent. of all cases. upon 2,147; or 23.41 per cent. upon all deformed cases, 94; or 73.33 per cent. upon all operations, 30. The total operative maternal mortality was 3, which upon 2,147 is 0.139 per cent.; 3.20 per cent. upon 94; or 9.99 per cent. upon 30. The total infant mortality was 8, being

0.37 per cent. upon 2,147; 8.51 per cent. upon 94; or 26.66 per cent. upon 30. The maternal mortality with operations other than symphysiotomy was 2, being 0.0925 per cent. of all cases, 2,147; or 2.13 per cent. of deformed pelves, 94; or 6.66 per cent. of 30, the operated cases, or 25 per cent. of the operations other than symphysiotomy, 8. The maternal mortality under symphysiotomy was 1, being 0.046 per cent. upon 2,147; or 1.07 per cent. upon 94; or 3.33 per cent. upon 30; or 4.55 per cent. upon 22, the operation (symphysiotomy) itself. The infant mortality was *nil*.

	Division of Cases on which percent- age is based.	Total Confinements.	Deformed Pelves.	Natural Delivery in Deformed Pelves.	Artificial Delivery in Deformed Pel- ves.	Operations other than Symphysio- tomy.
Paris, 1891.						
Clinic Baudelocque. . . .	1654	1654	140	81	59	59
All cases.			8.456	4.89	3.55	3.55
Deformed pelves. . . .	140			57.85	42.15	42.15
Operated cases.	59					
Symphysiotomy.	None					
Dresden (Jan. 1, 1892 to July 1, 1893.)		2512	(610) 464 (24)	424	(186) 89	83
Royal Maternity.	2512		19.41	16.87	3.54	3.31
All cases.	461			88.98	11.01	9.72
Deformed pelves. . . .	89					93.85
Operated cases.	83					
Op. other than "S." . . .	6					
Symphysiotomy.						
Paris, 1894.						
Clinic Baudelocque. . . .	2147	2147	94	64	30	8
All cases.			4.37	2.98	1.39	0.37
Deformed pelves. . . .	94			67.97	32.03	8.51
Operated cases.	30					26.66
Op. other than "S." . . .	8					
Symphysiotomy.	22					

	Symphysiotomy.	Total Operative Mortality.		Maternal Mortality.		Infant Mortality was only in <i>other</i> operations.
		Mothers.	Infants.	Other Op- erations.	Symphysio- tomy.	
Paris, 1891.						
Clinic Baudelocque. . .		4	31	4		31
All cases.		0.241	1.87	0.241		1.87
Deformed pelves. . . .		2.85	22.14	2.85		22.14
Operated cases.		6.77	52.52	6.77		52.52
Symphysiotomy.						
Dresden (Jan. 1, 1892 to July 1, 1893.)		6	43	3	1	43
Royal Maternity. . . .	0.23	0.159	1.71	0.119	0.037	1.71
All cases.	1.29	0.864	9.48	0.646	0.21	9.48
Deformed pelves. . . .	6.7	4.49	48.31	3.37	1.23	48.31
Operated cases.				3.58		
Op. other than "S." . .					16.66	
Symphysiotomy.						
Paris, 1894.						
Clinic Baudelocque. . .	22	3	8	2	1	8
All cases.	1.02	0.139	0.37	0.0925	0.0462	0.37
Deformed pelves. . . .	23.41	3.20	8.51	2.13	1.07	8.51
Operated cases.	73.33	9.99	26.66	6.66	3.33	26.66
Op. other than "S." . .				25.00		
Symphysiotomy.					4.55	

[A comparison with American statistics may be made from the admirable paper by R. P. Harris, in *American Gynecol. and Obstet. Jour.*, Vol. iv, p. 788.]

The results are that symphysiotomy relieves the peritoneum from being disturbed; does not divide the uterus; becomes as easy of reparation as any section or re-section of the long bones; permits the passage of a head, frequently without forceps; beside making a perineal rupture less probable; the time required for union of the symphyses allows the uterus time to become completely involuted. Its disadvantages are non-union at the symphyses, which affects locomotion.

tion; at any rate it offers much in attracting attention to accurate pelvimetry which will exercise caution in prognosis, and facilitate the progress toward scientific obstetrics.

1. Creating no necessity for premature artificial confinement.

2. Giving up all application of forceps and of all operations implicating the force of the head against the bony resistance of the pelvis (when it is developed or remains in the superior strait, in the excavation or in the inferior strait).

3. The absolute abrogation of embryotomy upon the living baby.

4. The enlargement of the size of the pelvis (by symphysiotomy, pubiotomy, ischio-pubiotomy, coccyotomy) in all the cases where the osseous resistance is not overcome by the uterine contractions, the position of the head being well determined, and together with its size, where the calculation demonstrates that when section of the pelvis is made, its enlargement will not be under 7 c.m., allowing the passage of head of the fetus at term.

5. Where absolute contraction of the pelvis is present (under 7 c.m.) the section serves for the Porro operation.

SUSPENSIO UTERI—THE PROPER METHOD OF PERFORMING IT, AND ITS RESULTS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HOWARD A. KELLY, M.D.

BALTIMORE, MD.

(ABSTRACT.)

Dr. Kelly refused to accept the name of ventrofixation or hysteropexy. The uterus is not fixed. He prefers the name of suspensio-uteri as more accurately describing the condition. In the past five years he has performed this operation one hundred and seventy times and thirty-seven times in the past year. The indications for the operation are extreme local discomfort associated with uterine displacements, and neurasthenia, with backache and headache. In the first class of cases, with local symptoms but no general symptoms, the operation is plain. In the last series of cases it is difficult to say just when the operation is indicated. The most brilliant cures, however, have been in this class of cases. He is willing to take the chances and fail in four cases in order to get one good cure. Of the 132 cases reported, 90 were married; and of the 78 per cent. had borne children, and 14 of them had had miscarriages. Not one died or showed bad symptoms. Transient mania has occurred in three cases, pneumonia in one case, and stitch-abscess in three cases. Cystitis and frequent urination had occurred in four cases only, and had been but transient.

The operation is simple. The pelvis should be slightly elevated, and a small incision made just above the symphysis pubis about one and a half or two inches in length. The peritoneum is incised and drawn out with forceps. Two fingers are inserted to the fundus, and the uterus hooked up. Adhesions are stripped off with the fingers or cut with scissors or knife, and the uterus ante flexed. The abdominal wall is lifted on the left side until the peritoneum can be seen for one inch away from the line of the incision. A needle is then carried through the peri-

toneum, but not entering the muscular tissue, and then through the posterior uterine wall just below the fundus, taking in about one-fourth of an inch in length, and extending about one-eighth of an inch in depth. The suture is then carried to the opposite side of the abdominal wall. Another stitch is passed just above the first, near the incision, and inserted into the uterus below the other, and then carried back to the opposite side of the abdominal wall. This increases the ante flexion. A third suture may be inserted. The peritoneum is then closed by a continuous suture; then the fascia is closed and then the skin incision. The distance between the uterus and anterior abdominal wall is about one or one and one-half inches. The organ is attached by a strong fibrous cord which contains the sutures close to the abdominal wall. Pregnancy is not seriously interfered with. In only one case, and that after two years, did the uterus drop back.

THE TREATMENT OF HEMORRHAGIC CONDITIONS OF THE UTERUS BY ZINC-AMALGAM ELECTROLYSIS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY G. BETTON MASSEY, M.D.

PHILADELPHIA.

The use of a soluble metallic electrode as the positive pole of a galvanic current is specially avoided in the usual applications to the uterine and other mucous cavities whenever the pure action of the electricity alone is desired. To avoid this disintegration of the electrode and the consequent local action of the nascent metallic salt produced by its erosion, it has been necessary to employ non-oxidizable electrodes with this pole; platinum and carbon being the only practicable materials. It has however, been more recently discovered that the nascent salts produced by the corrodible electrodes have a distinct value in certain cases, particularly those in which a local alterative and antiseptic action is desirable. The salts produced by this erosion of a base metal anode are oxychlorids, produced by union of the free oxygen, and chlorin developed by the electrical action, and being in a nascent condition are particularly active. Copper, zinc and iron have been the substances employed by Onimus, Gautier (who has especially studied the method), Morton, Goelet, Cleaves and others, under the designation of interstitial electrolysis, metallic electrolysis and cupric electrolysis.

My own work has been almost entirely with zinc, and was originally directed exclusively toward the treatment of incipient malignant conditions, in which the nascent zinc salt has been a most valuable adjunct to the lethal action of a concentrated current. Owing to the practical difficulty that at times resulted from the adhesion of the electrode to the surface after a prolonged application, and also on account of the roughened surface rapidly attained by the electrode, I was led to amalgamate the zinc freely with mercury before using, and am convinced that the expedient is a valuable one. Not only does this keep the zinc surface always smooth, lubricated and non-adhesive, but a new value is attained in the use of a nascent oxychlorid of mercury in addition to the oxychlorid of zinc and a far more efficient alterative and antiseptic action results.

The additional effect given by this process to the galvanic treatment of hemorrhagic endometritis is shown in the following case histories:

Case 1.—Mrs. J. F., aged 54, was referred to me by Dr. H. W. Elmer, of Bridgeton, N. J., April 17, 1894. For three or four years she had been suffering from an almost continuous hemorrhage, resulting in great prostration. Shortly after the beginning of the hemorrhages, a tumor of the uterus was discovered, which was the size of a large fist when I first saw her. She was placed under the Apostoli treatment, which produced considerable improvement in the hemorrhages but did not even after six months' occasional treatment entirely correct the hemorrhagic tendency. Fearing that the case was a malignant one in spite of the absence of marked pain, I decided to substitute an amalgamated zinc electrode for the carbon one previously employed. It was found that the applications with this electrode were better borne, enabling them to be used more frequently. Six applications were made in a period of two weeks in December last, completely checking the dribbling, and since then there has been no real hemorrhage and the patient has been restored to health. The tumor was materially reduced in size.

Case 2.—Miss C. F. H., aged 31, had been under treatment for some time for a uterine fibroid of large dimensions, accompanied by profuse and exhausting menorrhagia. Under the ordinary Apostoli treatment the tumor had been reduced somewhat and the menorrhagia lessened, but she still had periods that were too profuse for her impaired strength. In January and February of the present year the electrode for intra-uterine treatment was changed from carbon to amalgamated zinc, the same current strength, 150 milliamperes, being employed. All periods subsequent to these applications have been absolutely normal.

Case 3.—Mrs. F., aged 47, had also been under treatment for a hemorrhagic fibroid of smaller size, with a similar history of decrease and partial control of the hemorrhagic feature. The metal of the intra-uterine anode was changed from platinum to amalgamated zinc about the same time, a current strength of 60 being employed. Up to this time her periods had always anticipated by several days, notwithstanding her age, but the first period after the changed treatment was postponed a week, and they have been delayed and normal in amount since.

1636 Walnut Street.

AËRO-URETHROSCOPY.

Read in the Section on Surgery and Anatomy at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WILLIAM K. OTIS, M.D.

ATTENDING SURGEON TO THE CITY HOSPITAL, NEW YORK; TO ST. MARK'S HOSPITAL, NEW YORK, ETC., ETC.
NEW YORK.

Notwithstanding the very great improvements made in urethroscopic instruments during the past few years, the urethroscopic field, in point of size, is still far from being entirely satisfactory. Since the invention of the original illuminating apparatus, little if any change has been made in urethroscopic tubes, though they have borne various names and been constructed of many different materials.

Glass from its transparency seemed especially adapted to this purpose, but the reflections from its surface and the changes produced by pressure on the mucous membrane, together with the danger of fracture if used in the deeper urethra, render it practically valueless. The discovery in 1870 of the great underestimation of the normal urethral caliber permitted the use of much larger tubes, with a corresponding increase in the size of the field; but the practical urethroscopic tube remained and still remains a simple straight tube.

In the year 1887 the late Geza von Antal, of Budapesth, in the endeavor to extend the urethroscopic field, evolved the ingenious idea of distending the urethra with atmospheric air. He invented an

instrument for this purpose which was eminently successful, consisting of a tube with a well-fitting obturator, 6 cm. long, with a concave metal shield at its proximal end which fitted over the glans penis, the urethral orifice being drawn upward against this so as to prevent the escape of air. After the introduction of the tube an ocular portion, rendered airtight by a glass plate, was attached by a sliding joint. By means of a small tube entering the ocular portion at right angles, the urethra was inflated with a rubber bulb and an inspection of its mucous membrane obtained by a beam of light reflected from a head mirror¹.

This instrument, however, failed to attract much attention and the method met with but little favor among urethroscopists in general.

The examination of the inflated urethra was taken up, independently of von Antal's work, in this direction, by Heule of New York (1890) who devised a simpler but equally effective instrument for accomplishing the same results.

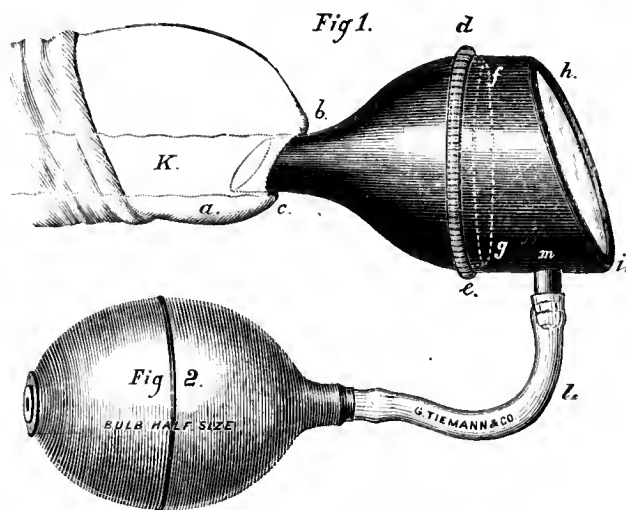


Fig. 1.—Heule's Aëro-urethroscope.

Heule's instrument consists of two parts, viz., "the speculum, a, b, d, e, and the cover, f, g, h, i. The speculum is made of rubber, glass or metal, shaped like a truncated cone, with the end a, b, cut obliquely to facilitate its introduction into the urethra without the aid of a stylet. At the other or proximal end is a flange, d, e, which is useful in separating the cover from the speculum. Into this proximal end is closely fitted the removable cover, f, g, h, i, having at h, i, a transparent glass crystal, fitted air-tight, and at m an attachment for a rubber tube with bulb (Fig. 2) for forcing atmospheric air into the endoscope.

"To prevent the glare of reflected light, the glass crystal at h, i, is placed at an obtuse angle to the line of vision, and the inside of the instrument is blackened. The specula at a, b, c, are made of various sizes to fit small and large openings, but at the proximal end, d, e, are all adapted to one cover, f, g, h, i.

"In using this instrument the flaccid penis is grasped between the ring and middle fingers of the left hand, the lips of the meatus being opened with the index finger and thumb of the same hand. The endoscope held in the right hand by the flange, d, e, can now be readily introduced into the urethra by means of the oblique end, a, b, c, until the thicker portion of the speculum, near d, e, fills the opening. Air is now

¹ Vierleijerssch, f. Derm. u. Syph.

forced in by the rubber bulb in the hands of the surgeon or patient until the requisite distension of the urethral canal is obtained. In case there should be too much distension, the air may be allowed to escape from the meatus at the side of the speculum by slightly withdrawing it."

Two years later, (1892) E. Hurry Fenwick, of London, having followed the work of von Antal and Heule, induced Leiter to add an aëro-urethroscopic attachment to his electro-urethroscopic illuminator and was thus the first to combine the source of illumination with the air apparatus in a single instrument.

This instrument consists, as I have said, of the well-known Leiter illuminator arranged with an inflation apparatus. The nose piece is closed with an obliquely set glass diaphragm, so that air forced into the canula by means of an India rubber ball can not but distend the penile urethra up to the commencement of the deep urethra (the compressor urethræ muscle). The cup at the proximal end of the canula receives the convex glans penis, and effectually prevents the indriven air

from a concave mirror (reflected light) is inferior to that obtained by means of a plano-convex lens.

Fully recognizing the advantages which at times must be derived from an examination of the inflated urethra, I have designed an aëro-urethroscopic attachment to my "perfected" urethroscope which obviates the objections pertaining to previous instruments of this character.

This consists of a hard rubber disc, one and three-fourth inches in diameter and one-sixteenth of an inch in thickness, backed with metal. In the center of this disc is a circular aperture, one-half inch in diameter, to the inferior edge of which is soldered a metal rim one-fourth inch in depth, forming the male half of a sliding joint by which the different sizes of urethral tubes are attached to the instrument. On the superior surface of the disc, a glass diaphragm, held in a metal collar and placed at an oblique angle to prevent the reflection of light, is arranged on a pivot so as to swing over the aperture, hermetically closing it; or, when desired, instrumental applications through the tube beneath may be made by simply swinging it in the opposite direction. A slight projection on the side of the cap, locks under the outer end of the metal shoulder, by means of which my illuminator is fastened to the plate in exactly the same manner as it is to the Klotz tube. A small metal tube extends from the edge of the plate into the

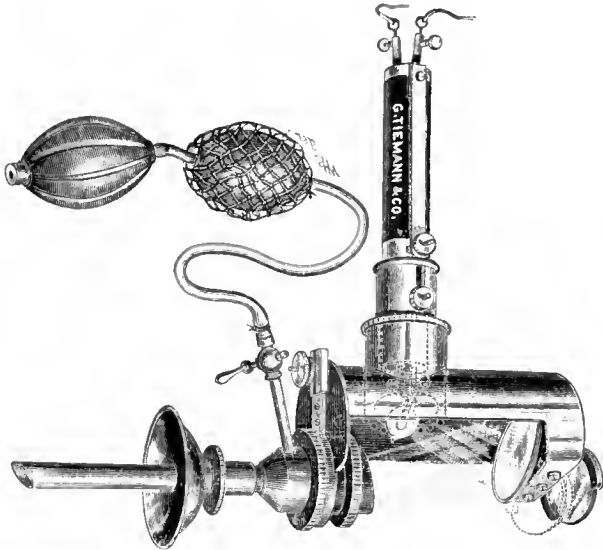


Fig. 2.—E. Hurry Fenwick's Aëro-Urethroscope.

escaping from the urethra, unless a great pressure is exerted. The diaphragm, fastened in a collar, is held in place by means of a sliding joint with a bayonet catch, so that when a granular patch, ulcer, or tumor is discovered by means of inflation, the end of the canula is held firmly in position, the diaphragm is removed, and the operation proceeds through the open tube under the direct control of the electric light.

While this instrument is sufficiently effective to accomplish very excellent results, at the same time it presents several marked disadvantages, so that it can by no means be considered as the ideal instrument for this purpose. It is heavy and cumbersome, the distance between the glass surface of the diaphragm and the meatus is over two inches and a quarter (a decided consideration when we remember that the intensity of the illumination diminishes as the square of the distance). In making an application the diaphragm must be removed and laid aside, then found and replaced, making an annoying break in the rhythm of the operation, while it is not always easy to immediately connect the bayonet catch. The illumination

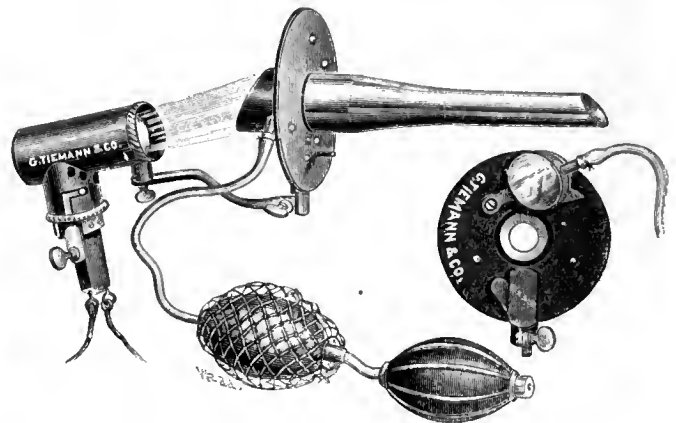


Fig. 3.—W. K. Otis's Aëro-urethroscope.

movable cap. To the outer end of this tube is fastened a piece of rubber tubing with double India rubber bulbs, like those used in the Paquelin cautery, by means of which the urethra is inflated. Urethral tubes of any length or caliber may be used with this instrument. To prevent the escape of air from the urethra the proximal ends of the ureteral tubes are made conical so that they may be firmly wedged into the meatus urinarius, though if the metal cap covering the glans penis is preferred, tubes of that pattern may be adopted. The advantages of this instrument over others designed for a similar purpose are:

1. Ready access to the urethral field for the purpose of making local applications under the direct control of the light.
2. Minimum distance between the eye and the urethral mucous membrane, hence a better and clearer view of the field.
3. Extreme lightness.
4. Simplicity of construction and moderate cost.

Aëro-urethroscopy is undoubtedly a valuable addition to our means of obtaining a visual inspection of the urethral mucous membrane and will, in many

cases, render a diagnosis possible which would otherwise be obscure, nevertheless the field of vision, even in this method, is limited and by no means as perfect as some observers would lead us to believe. The manipulation of the inflating apparatus slightly complicates the technique of the examination, and the occasional escape of air into the bladder is unpleasant to the patient and annoying to the surgeon. The clouding of the glass diaphragm by the exhalations from the moist, warm mucous membrane sometimes renders the view hazy and unsatisfactory. The pressure exerted by the air also adds an element of uncertainty in correctly diagnosing the exact condition of the mucous membrane, while the view of the walls of the urethra is indirect; as when looking down a gun-barrel, flaws may escape notice which would be readily observed if we were looking directly at the surface of the metal, so lesions of the mucous membrane may escape detection by this method of examination. We are, however, able to obtain a direct view at any point by removing the diaphragm and allowing the air to escape. When this diaphragm is not in place this instrument practically becomes a simple urethroscope and the same view is obtained of the urethral mucous membrane as through the ordinary tubes.

The difficulty in obtaining a thorough appreciation of the morbid conditions present in the many obscure cases which present, when the urethra is implicated, renders any additional assistance to our present methods extremely desirable, so that despite these drawbacks the aëro-urethroscope furnishes us with a new means for investigation and an aid to diagnosis which no urethroscopist of the present day, no matter how skillful, can afford to ignore. Aëro-urethroscopy does not supplant the older method of visual urethral examination, but rather is a powerfully, by whose aid we are enabled to increase our appreciation of the conditions existing in the urethra by obtaining more extensive pictures from different points of view. The advantages of ocular examination of the inflated urethra have already been demonstrated, and the simplicity and facility of manipulation of this instrument, it is hoped, will add to the growing popularity which the method already enjoys among those who have given it a practical test.

5 W. 50th Street.

VAGINAL FIXATION IN RETRODEVIATIONS OF THE UTERUS, WITH SOME REMARKS ON VAGINAL CELIOTOMY.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY N. O. WERDER, M.D.
PITTSBURG, PA.

The newest addition to our operative treatment of the backward displacements of the uterus is vaginal fixation. It is the result of a gradual evolution of Schücking's method, and its modifications by Zweifel and Sänger, and has been developed to its present form by Dührssen and Mackenrodt, each of whom claim priority, and is known by their respective names, their methods varying very little from each other.

The technique of Dührssen's operation, which is the simpler of the two is as follows: the cervix, having been seized by a volsellum forceps, is drawn down toward the vulva; a transverse incision is

made through the anterior vaginal wall close to its attachment to the cervix, care being taken to avoid the bladder. The latter is then dissected away from the uterus just the same as in vaginal hysterectomy. It is important to push the vesico-uterine fold as far up toward the fundus, by the finger, as we can, in order to expose as much of the body of the uterus as possible. If thereby the peritoneum should be opened accidentally, no attention is paid to it; the important point upon which the success of the operation depends being to be able to secure the uterus by the fixation sutures at or near its fundus. A stout silk ligature is now passed through the anterior uterine wall at its highest visible point; traction on this enables us to catch the uterus a little higher up by a second provisional suture. If drawing on this does not bring the fundus into the vaginal wound, a third similar suture usually accomplishes this. It is now fixed by silkworm gut sutures to the edges of the vaginal wound; two such sutures being generally employed. The provisional sutures having been removed, the rest of the vaginal wound, which is usually converted into a longitudinal one, especially when there is a shortening of the anterior vaginal wall, is now closed by a continuous catgut suture. The patient is returned to bed and kept there about ten days. The fixation silkworm gut sutures are removed about six weeks after the operation. In my last eight cases I have employed buried silkworm gut sutures and have found no harm resulting from them thus far. After the operation the uterus is found firmly fixed to the anterior vaginal wall and is, I believe, in about as nearly a normal position as any fixation operation can possibly bring it.

Mackenrodt's operation differs from the one just described only in the method of vaginal incision. Instead of separating the anterior wall of the cervix from the vagina by a transverse incision at the cervico-vaginal junction, he makes a longitudinal incision extending from the center of the cervix to within an inch of the meatus urinarius, dividing the anterior vaginal wall into two equal flaps which are dissected off the bladder; the dissection is carried up along the anterior wall of the uterus until the entire bladder is separated from it. The fixation is done in the same manner as in Dührssen's operation.

Failures in both of these operations have been due to the fact that the fixation sutures were inserted too low down in the body of the uterus. In order to guard against a return of the malposition the fundus must be sutured to the vagina. In the only case, my first one, in which I followed this method, and which was at least a partial failure, the uterus returning into the position of slight retroversion shortly after removing the sutures, I no doubt made the mistake of fixing the uterus below the fundus. It is rather difficult to strip the vesico-uterine fold up to the fundus without tearing through the peritoneum. This probably induced Dührssen to open the peritoneum as soon as the bladder has been separated from the uterus in all of his more recent cases, as it allows the operator to see the exact point where he wishes to insert his sutures, which is at the fundus, between the cornua—the fundus is reached and drawn down in this *intrapertitoneal* method in the same manner as described above; that is, by climbing up along the anterior wall of the uterus with provisional sutures. This is preferable to seizing the body of the uterus by

means of tenacula or volsellum forceps, which tear out very easily.

In the thirteen cases in which I have performed vaginal fixation, in twelve I have operated by the intraperitoneal method and regard it as much preferable to, and more satisfactory than, the older ones. Thus far I have not seen a single failure in these twelve cases, though they are all too recent to justify an opinion as to the permanency of the results, they all having been operated upon within the last seven months.

In all cases the operation of vaginal fixation should be preceded by a thorough curettage, not only because an endometritis is present in nearly all the cases requiring an operation, but because it is advisable to have an aseptic uterine cavity, should any of the sutures pass through the endometrium. If an operation about the cervix is required, it should be performed before fixation is undertaken. In most of my cases, in addition to a curettage, trachelorrhaphy or excision of cervical erosions, or an amputation of the cervix was done previous to fixation and followed by an Emmet's perineum operation, all at one sitting. An anterior colporrhaphy can easily be combined with this operation, especially when Mackenrodt's method is employed; the only additional step being required is an incision of a crescent-shaped piece from each vaginal flap before bringing them together by the continuous catgut suture.

Pregnancy has occurred only in one of my cases, the first one, who went to term and was delivered without any difficulty. Dührssen says in regard to this point: "Pregnancy continues to term without any disturbance and no harm has resulted during labor which can properly be attributed to the preceding operation. By observing a few precautions, the uterus will remain in the position secured by the operation after pregnancy and labor."

The intraperitoneal method of vaginal fixation termed "vaginal celiotomy," by Dührssen, has, beside permitting of a more satisfactory fixation of the uterus, the great advantage that it allows the fundus to be drawn down to the vulva and outside of it, and with it the adnexa, which can then be carefully examined both by touch and visual inspection, as I have repeatedly been able to demonstrate in my cases. When necessary, diseased ovaries and tubes can, as a rule, be removed with ease in this manner. Adhesions about the uterus and appendages can be separated with little more trouble than by abdominal section. Small fibroid tumors have been enucleated from the body of the uterus during this operation^{2,3}, and A. Martin⁴ has divided the anterior wall of the uterus by a median incision up to the fundus and after removing small growths from the uterine cavity, closed the uterine incisions and re-attached the bladder to the uterus. From this we can see what a large field is hereby opened to the conservative pelvic surgeon.

In two of my cases the retroflexed uterus was adherent with its appendages and the adhesions were broken up during the operation. In one of my cases an ovary and tube was removed. In two others, cystic ovaries were punctured, once with the thermocautery. In all cases the convalescence was that

following an ordinary curettage, excepting one in which some complications delayed the recovery, and the patients were usually up on the tenth day.

The only precaution necessary in the cases in which we wish to bring the uterus and adnexa out of the vaginal incision before the vulva, is to provide a free vaginal incision and to make the opening through the peritoneal fold connecting uterus and bladder, just as large as that through the vaginal wall. A neglect of this precaution may lead to serious difficulties in returning the uterus, with its appendages, as I experienced in one case. Since then I have been in the habit, when I wish to examine the adnexa, or to separate adhesions, to connect the transverse vaginal incision with a longitudinal one; in other words to combine Dührssen's and Mackenrodt's incisions, which gives ample room for any operations indicated.

From what has been said we can place the indications for vaginal celiotomy or the intraperitoneal methods of vaginal fixation on the same level with ventrofixation. Its advantages over the latter operation, however, are:

1. The avoidance of an external incision, which is always regarded with more or less fear by the patient, and which is liable to be followed by stitch and mural abscesses, fistulae and hernia, accidents not common, but always within the range of possibility.

2. Less danger from septic infection, as there is no manipulation of intestines, which hardly ever come into view during the vaginal operation, and less exposure of the peritoneum.

3. The shorter and smoother convalescence with absence of the distressing symptoms usually following laparotomies, such as intense thirst and flatulence.

To this I may add another advantage, which is, that patients with retrodisplacements, who require operation for some other lesion about the cervix or vaginal outlet, will readily consent to an operation correcting the malposition of the uterus, provided this can be done by some vaginal operation without increasing the risk or time of convalescence; while the operator frequently hesitates to urge, and the patient is loth to consent to an operation requiring some external incision. Many patients, however, as I have learned from experience, are very much disappointed after recovering from some plastic operation, when they learn that they still have a displacement of the uterus for which they may require the use of a pessary. In most cases in which a displacement complicated other lesions requiring plastic operations, I have advised vaginal fixation and this explains in a measure, the comparatively large number of cases operated upon within a short period of time.

The only contra-indication to the operation is a very narrow vagina, though my list includes two unmarried patients, in whom, however, the operation proved rather difficult. It may be said in favor of ventrofixation, that it is easier than vaginal fixation, which is, no doubt, true; but the gynecologist who has been trained in plastic work and has had experience in vaginal hysterectomies will find no difficulty in its technique.

¹ Ueber die Operative Heilung der Mobilen und Fixirten Retroflexio Uteri auf Vaginalen Wege, Archiv für Gynaek. 37 Bd., 1891, page 447.

² Dührssen, op. cit.

³ Vineburg, New York Medical Record, March 2, 1895.

⁴ Centralbl. für Gynaek., 1895.

A REMARKABLE CASE OF VISCERAL ANOMALY AND INVERSION.

BY G. E. CRAWFORD, M.D., Ph.D.

CEDAR RAPIDS, IOWA.

A very remarkable and interesting case of congenital deformity and anomaly of the heart and other viscera came to my notice a few days ago at the autopsy of a young girl of 16, who had suddenly died of heart disease after a brief incidental illness of a couple of days.

I had had the child under observation for about five years. Her people are ignorant Bohemians and I was not able to get much history of the case previous to that time. Though a delicate child she had not been sick much; had measles when 3 years old. They had no knowledge of her heart trouble, and did not know that there was anything the matter with her until her chest became much deformed, and this they did not notice until she was 10 years old and then attributed it to a fall, but there was no evidence that she had had any fall.

I mention these trivial matters in the absence of a better history, merely to show how mild the symptoms must have been not to have attracted any attention until she was 10 years old.

When I first saw her, about five years ago, she was suffering from some febrile disturbance, probably having no causative relation to the heart trouble. The heart at that time was much enlarged and beating tumultuously, with a loud mitral murmur. Dyspnea and cyanosis were marked; I expected her to die, and told her parents that she was liable to die at any moment. But the fever passed off and she soon recovered and was as well as usual again. A year ago she had a similar attack, which was followed for a time with pain in the chest, dyspnea and very bad heart action. I prescribed two or three times for this, and then saw nothing more of her until the day she died. Her father told me since that for some time past whenever she stooped over she would spit up some blood. On the evening of June 17, they sent to me for something to stop vomiting; the girl wrote the note herself. I prescribed for that symptom. Two days after I was called to see her and found her with quite a high fever and in a restless, excited state bordering on delirium; the heart beating violently, the pulsation seen and felt on the right side. The impulse was so strong that the concussion of the chest could be seen across the room. I called again at noon, found her extremely cyanotic, pulseless at the wrist, though the heart was still beating violently. She soon afterward died.

I made a post-mortem at 5 o'clock in the presence of several of my medical associates. The form was tall and slender—rather above the average height of a girl of 16, with a marked deformity of the thorax, which was narrow and protruding in the front—a marked condition of pigeon-breast; also protruding posteriorly in a posterior curvature of the spine—a veritable visceral hump or dome. The heart, immensely enlarged, was found to fill the entire left side of the thorax; it was turned half over to the right, with the left ventricle to the front, extending diagonally across the chest downward and to the right, bringing the apex well over in the right side. The pericardium was greatly thickened and abnormally adherent, both to the heart and the diaphragm; contained no fluid. The left side of the thorax was thus entirely filled with the heart; there was no left lung whatever.

On the right side of the thorax, behind the apex of the heart, was a double lung, consisting of two long narrow lobes, side by side, connected in the middle for about two-thirds of their length. This anomalous lung was healthy, and seemed to have about the capacity of one normal lung.

The heart as it was taken out with the pericardium, with the auricle collapsed, measured nine inches in length and six inches in greatest breadth, and weighed three and a quarter pounds. There was but one common auricle, which was greatly dilated, which opened into each ventricle. It would probably hold a pint and a half of blood when distended. The auriculo-ventricular valves were very defective, especially the mitral, which could have offered very little resistance to regurgitation. The ventricles were greatly hypertrophied, especially the left. The aortic and pulmonary valves were intact, and this alone made it possible for any circulation to be carried on. The arch of the aorta was dilated, but beyond this it was remarkably small. The pulmonary artery was short, dilated and bifurcating about an inch and a half from its origin, passed into each side of the double lung.

The liver was also enlarged to several times its normal dimensions, extending entirely across the body, with the gall-bladder on the left side.

The stomach was long, intestinal shape, having scarcely any of the form of the normal stomach.

The spleen, or rather three distinct spleens, were situated in the right side, also enlarged. The larger one measured seven inches in length by three inches in breadth; the second one, which is about the size of the normal spleen, is three inches by two inches; and the smallest one two inches by an inch and a half. These glands are entirely distinct, but connected by large blood vessels, about two inches in length.

The kidneys were about double the usual size.

The other abdominal and pelvic organs were healthy and in their normal relations.

All who saw the case were agreed that it was the most remarkable of its kind of which they had any knowledge. And it is especially interesting to know that a child could live in this condition to be 16 years old, and nearly all the time in quite a comfortable degree of health.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

BY BYRON ROBINSON.

PROFESSOR OF GYNECOLOGY POST-GRADUATE SCHOOL,
CHICAGO.

(Continued from page 152.)

The omentum colicum Halleri is the right lower border of the great omentum. It can be distended with air driven through Winslow's foramen. If one follows the peritoneum from the right kidney upward and outward over the pars descendens duodeni, upward to the anterior part of the transverse colon, it will be noticed that this layer of the peritoneum passes into the anterior layer of the great omentum. This is Haller's omentum and it will extend along the ascending colon for a considerable distance; the point of its lower end may reach the cecum in some embryos which I have examined. This same process of peritoneum which I traced from the right kidney until it was lost in the anterior layer of the great omentum, can also be traced up to the ligamentum hepato-duodenale with which it may blend and form

what is known as the ligamentum hepato-colicum. This fold of omentum reaches from the hepatic flexure of the colon to the liver. It seems to be often no more than an increased projection of the ligamentum hepato-duodenale. In quite a number of cadavers I have actually noted the gall bladder lying in this coli-hepatic ligament. There was a mesentery of over an inch between the liver and the gall bladder, and also a mesentery reaching from the gall bladder to the hepatic flexura of the colon. The gall bladder lay in this ligamentum hepato-colicum exactly as the pancreas lies in the great omentum between the stomach and colon (in embryos). This hepato-cysto-colic ligament is of great importance in subjects of gall stone. For it will serve two valuable purposes, viz.: 1, it will conduct an hepatic calculus ruptured through the gall-bladder toward the colon external to the peritoneum and induce it to enter the colon on a portion not covered by peritoneum; 2, this ligament, when large will especially aid in circumscribing pus which arises from rupture of the gall bladder. It will form a barrier against infectious invasion. By the peculiar ligamentum hepato-colicum, there is formed a more or long distinct cone-like sac in the right border of the great omentum, just as there is formed a sac in the lower left border of the ligamentum phrenico-colicum. Any evaginated peritoneal sac is liable to obliteration, so this sac no doubt is more or less obliterated by coalescence or readjustment.

Bochdeleck asserts that Haller's omentum gradually loses the capacity of being distended with air being blown through Winslow's foramen toward the fifth embryonal month through coalescence. Yet some embryos at five months allow a large sac to be distended by air in the omentum colicum Halleri. I have observed in adults that the omental sac is frequently limited in various directions by adhesions. In an adult male which I recently examined, I tore through the gastro-colic omentum to make careful observations of the lesser omental cavity for two reasons: 1, because the case possessed a mesenterii commune and I wished to note the existing omental relations; and 2, the remnants of ancient peritonitis were quite general and I wished to note its effect on the omental cavity. In this case the omental cavity was chiefly limited toward the left by approaching adhesions or coalescence of the walls where the sac was prolonged between narrow layers and peritonitic bands stretched across the space, and the lesser omental bag lacked the space of an adult form encroaching adhesions on the margin of the sac. I could find no constricted off sacs, but could find depressions constricted off, which could easily become constricted off sacs by further coalescence due to inflammations. I have found peritoneal pockets or sacs constricted off by inflammation frequently along the colons. Such sacs or peritoneal pockets appear to be lined by genuine peritoneum and are of various sizes, from that of a hazel nut to that of an apple. The only typical lesser omental sacs are those of embryos under seven months of intra-uterine life. For in adults I find the lesser omental sac, especially at its left end, variously limited in size by various kinds of encroaching adhesions at its margins. In short, the encroaching adhesions or coalescence of the lesser bag is apt to occur on the left, adjacent to the ligamentum phrenico-colicum and at the right in the omentum colicum Halleri. Bochdeleck gave

a splendid illustration of the relations of the ligamentum hepato-colicum by noting that it will distend with air driven through the Winslow's foramen and also that in some cases the distension will actually reach to the neck of the gall-bladder, along the descending part of the duodenum and even in front of the pancreas. All the above distensions are in direct communication with the lesser omental bag. The lesser omental cavity becomes partially obliterated at different periods of existence, without any rule I can formulate. However, my examinations report that the chief variations arise at the extreme right or left of the omental sac. Now to retrace the steps by which the great omentum becomes the meso-colon is impossible so far as it relates to Meckel and Miller's views. Coarse instruments will fail, and even air driven through Winslow's foramen is insufficient to note the original boundaries. One can not tell what his instrument has divided or what the distending air has separated, and I am sure that much manipulation does not bring one to the goal of primitive structures. I must state, however, that embryos show very distinctly that the origin and method of formation of the meso-colon transversum as well as the circumference of the bursa omentalis vary very much as regards individuals and time.

It may be summed up as follows: from the ligamentum hepato-colicum to the ligamentum phrenico-colicum, the peritoneum consists of one membrane, *i. e.*, one blade of the great omentum at its lower border. It may be said that the lesser omental cavity is the diverticle of the mesogastrium posticum. The lesser omental cavity may consist of diverticulæ constricted off at either right or left ends or both, *i. e.*, closed off sacs may exist in the ligamentum phrenico-colicum or in the omentum colicum Halleri.

THE GREATER OMENTAL CAVITY, THE GREATER CAVITY OF THE PERITONEUM, THE GREATER BAG OR SAC OF THE PERITONEUM.

The greater sac of the peritoneum is that one placed between the viscera and anterior abdominal wall. It comprises all the peritoneum except that of the lesser sac. The greater or lesser sacs are not placed in regular order, but may be compared to an hour-glass with one end smaller than the other, and also the smaller end bent over the greater end, *i. e.*, the hour-glass is not in the same straight line. The smaller sac lies almost wholly within or below the greater sac. The greater sac with its posterior layer lies on and faces the anterior surface of the viscera. Its posterior layer lines the anterior abdominal wall. The posterior layer of the sac lies on the surface of the viscera and sends back folds and tucks into the clefts between the viscera. The various diverticulæ which the greater bag projects between the viscera not only line the visceral clefts, but pass back in places to most the projections of the lesser bag, *e. g.* one diverticle passes back between the liver and diaphragm to meet the lesser omental bag. Another projects between the stomach and liver to meet the lesser bag at the transverse fissure of the liver. Still another pouch of the greater bag passes to the dorsal wall between the transverse colon and the small intestines. This pouch comes in contact with the lesser bag at the under surface of the upper blade of the mesocolon transversum. The long, wide, pendulous, pars colico-omentalis hangs freely into the greater omental sac. In short, the greater sac almost sur-

rounds the lesser sac. The anatomic fact is that the two sacs greater and lesser, are not and should not be separated. They are one and the same membranous bag simply constricted at the foramen of Winslow, lying between the portal vein and the inferior vena cava. At the lower end of the great omental sac there are some smaller diverticula. There is one between sacrum and rectum, one between uterus and rectum and one beside the omental sac envelopes the viscera lying along the dorsal wall and in the pelvis, and then its anterior layer lines the anterior abdominal wall. The great omental flap consisting of four layers (the pars colico omenti) hangs like a veil in the middle of the great bag.

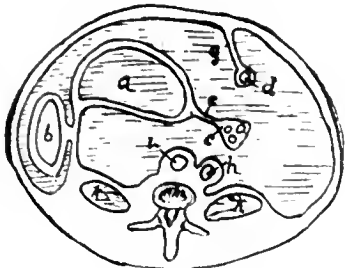


Figure 36.

At this place the figure of Cruveilhier (See JOURNAL, p. 149.) can be referred to as it is an apt cut in illustrating some of the views of coalescence. It will be observed by this figure that the two blades of the mesogaster, one from the posterior and the other from the anterior surface of the stomach, converge at the greater curvature of the stomach and pass downward below No. 5, whence the two blades return on themselves, passing upward entirely in front of the transverse colon, onward to the dorsal wall of the abdomen. Now, the posterior blade of the great omentum ascends on the dorsal wall of the abdomen, while the anterior blade descends on the dorsal wall for a short distance, thence it passes forward to form the upper blade of the transverse mesocolon. When this upper blade arrives at the transverse colon it passes around the bowel and forms the under blade of the transverse mesocolon, whence it descends to form the mesentery of the small intestines. The dispute between the coalescence and displacement theories concerns the pouch No. 2. The coalescence theory claims that the peritoneal pouch No. 2 becomes obliterated by adhesion. The displacement theory claims that the pouch No. 2 is drawn out and readjusted so that no part of the serous layer lining the peritoneal pouch is destroyed. v. Hansen wrote a treatise on the physiology and anatomy of the peritoneum in 1839 in Latin, in which he claims that in the fetuses there are five peritoneal layers in front of the transverse colon (as in the figure) and not three as in (Fig. 21, JOURNAL, p. 108.) In the adult the adhesions of the layers forming pouch No. 2 and the dotted line into one single layer obliterates pouch No. 2 and produces conditions observed in grown persons. But the readjustment or displacement theory allows of no coalescence or obliteration and insists on the dragging out of peritoneal pouches during the progress of visceral development. The displacement theory readjusts the serous surface over the viscera during their varying vicissitudes of growth and fluctuations of size. The displacement theory is a very elastic and widely applicable affair. It allows viscera to appropriate serous membrane to the disadvantage of other organs. It

is an evolutionary theory, a survival of the fittest, *e. g.*, the growing cecum steals away from the atrophying appendix its covering, appropriating it to its own needs.

In regard to the great omentum, it may be said that not all the mesogaster is involved in the formation of the lesser omental cavity. Only that part of the mesogaster which is in contact with the stomach itself is involved in making the smaller peritoneal bag. That part of the mesogaster which is attached to the duodenum does not enter into the formation of the lesser sac.

The mesoduodenum, minus the serous epithelial layers which originally faced both sides, lies against

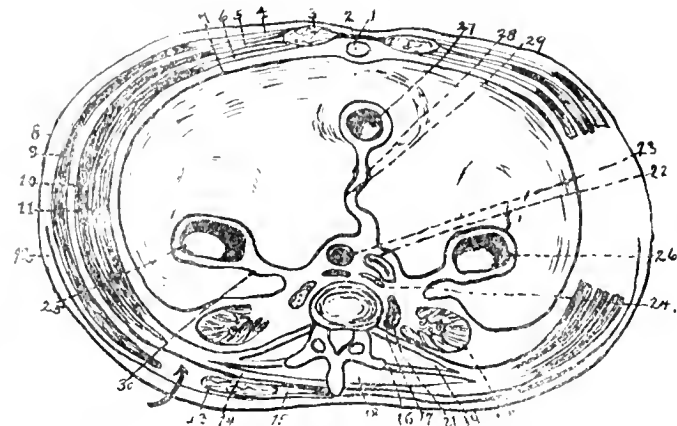


Fig. 37 (after Dehlerre, 1890, modified) represents a horizontal section of the body on a level with the umbilicus to show the disposition of the peritoneum. 1, white line; 2, round ligament of liver; 3, rectus abdominis muscularis; 4, aponeurosis of external oblique; 7, parietal peritoneum; 20, kidney; 21, psoas muscle; 22, vena cava; 23, aorta; 24, pillars of the diaphragm; 25, left descending colon; 26, right ascending colon; 27, small intestine; 28, right blade, 29 left blade, of the mesentery; 30, mesocolon, left. It must be observed that the vertical colons in this diagram are represented as possessing each a mesocolon, which long investigation in the viscera has convinced me are abnormal. The normal vertical colons appear to me to possess no mesocolon. The arrow points to Petit's triangle.

the left dorsal wall and does not engage in forming the lesser sac. It may be allowed that a small part of the left serous surface of the mesoduodenum enters into the formation of a small part of Haller's omentum, but that is not settled. Hence only the gastric portion of the mesogaster is involved in the formation of the lesser sac of the peritoneum.

As regards the views of the coalescence of the peritoneal surfaces or displacements of the same,

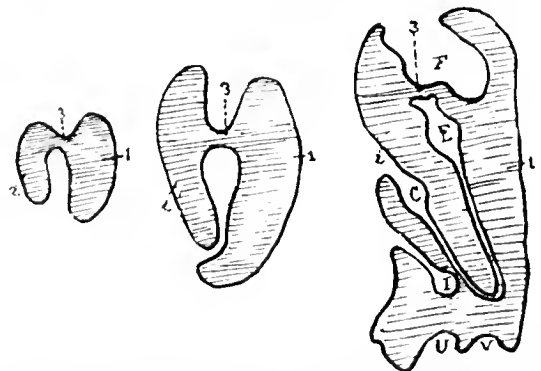


Fig. 38 (after Dehlerre, 1890, modified) represents diagrammatically the development of the greater and lesser cavities of the peritoneum. 1, greater cavity; 2, lesser cavity of the peritoneum; 3, hiatus Winslowii; E, stomach; F, liver; I, intestine; C, colon; U, uterus; V, bladder.

considerable has been said by only a few authors. Those who support the coalescence theory must present reasonable grounds, especially, to show why it applies to distinct localities of the peritoneum as, *e. g.*,

the great omentum. The view of coalescence must be based on: (a), local peritonitis whereby the epithelium of the peritoneum is destroyed and the two bared, denuded surfaces simply unite as in any other wound; (b), the advocates of peritoneal coalescence must show that the epithelial cells of the serous layer are not genuine epithelial cells or that they are another structure—endothelial; (c), they must show that these endothelial cells are of such a character that they will coalesce and disappear in a physiologic manner, *i. e.*, the peritoneal surfaces are of a connective tissue type and hence a normal physiologic coalescence may arise; (d), such advocates must show why this “physiologic coalescence” occurs in local places in the peritoneum, as the great omentum, and not anywhere and everywhere in the peritoneum.

As far as regards the first view of coalescence by local peritonitis, all agree that it is correct; that coalescence of peritoneal surfaces is an actual and frequent occurrence. But the theory will not fit when it only applies to a particular locality and not to all parts of the membrane alike. Why the anterior blade of the great omentum should be subject to a peritonitis and blend with the superior blade of the transverse mesocolon by peritonitis in intra-uterine life, is not tenable because, under the same circumstances any other part or the whole of the peritoneal surfaces might be endangered to peritoneal coalescence. In this theory no adequate reason is offered why the great omentum alone is attacked with the process of coalescence.

The second theory of coalescence comes, so far as I am aware, from the venerable pioneer, Professor His of Leipsic. This theory advocates the idea that the serous epithelium is not genuine epithelium, that it is endothelium, or rather nothing but connective tissue cells. Therefore as connective tissue cells it can coalesce at any other point as any other connective tissue surface. If this were the case it may be asked why coalescence, especially in the great omentum and not everywhere on the serous surface; why this predilection for the great omentum and not any and all the peritoneal surface. If the epithelial cell on the serous surface is only connective tissue, a person is in constant danger of having his whole peritoneal sac obliterated at any time.

This theory does not explain any more than the first, its selective affinity for the great omentum to the exclusion of other serous localities. So far as regards “physiologic coalescence,” it does not differ from the second theory. We would not know when and how it began, nor its method of progress nor when or where it would end, so that the coalescence theory has no especial favor, except a local peritonitis. In that case the whole matter rests back as to what induces local peritonitis. Will the passage of the right end of the bowel over the mesoduodenum create sufficient friction to arouse a (plastic) peritonitis and consequent destruction of epithelium which will be followed by cohesion of surfaces?

(To be continued.)

Trustees of Insane Asylum to Receive No Compensation.—Section 3, of chapter 330, of the Wisconsin Laws of 1889, entitled, “An act relating to the maintenance and care of the chronic insane in counties having a population of more than 100,000, and an asylum therefor,” is amended by adding a provision that “such trustees shall receive no compensation.”

SOCIETY PROCEEDINGS.

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

(Continued from page 201.)

SECOND DAY—MORNING SESSION.

DR. JOHN A. THOMPSON, of Cincinnati, Ohio, read a paper on

DEAFNESS FROM INTRANASAL DISEASE.

Diseases of the ear are more intractable to treatment than those we encounter in any other department of medicine. Late cases of chronic catarrhal otitis media in either of its forms, are regarded by experienced otologists as being almost hopeless by modern methods of treatment. From this hopelessness arises the constant suggestion of new procedures directed to the ear itself, in the hope of at least partially restoring the function which is so important to the happiness and success in life of the individual. A few observers, notably Swineburne, turning from the attempt to cure the already established condition, have sought to lessen the number of hopelessly deaf by seeking the cause, and method of prevention. Swineburne examined the nose and throat carefully in a thousand cases which presented themselves at the Harlem Eye, Ear and Throat Infirmary, complaining of deafness. Where deafness resulted from disease of the middle ear, his conclusions are that in 95 per cent. of all cases the primary lesion is in the nose or naso-pharynx.

Just how disease in these organs produces chronic inflammation in the tympanic cavity, has been a question of dispute. Some experienced writers assert it is due to the direct extension of inflammation by continuity of tissue. In structure, the tympanum is only one of the accessory sinuses of the nose, though it differs entirely from that organ in function. Others have thought we could trace the resultant ear disease, secondary to obstructive lesions in the upper respiratory tract, to imperfect aeration of the middle ear. Still other authorities have thought that the interference with the circulation in the internal and middle ear by the inflammatory and neoplastic changes in the nose or nasal pharynx, was the cause of the secondary disease. It is probable that each method plays a part in the production of secondary diseases in the middle ear.

While I have seen many cases where the secondary deafness could be accounted for, and the cure understood from the well-known relations of nasal and aural diseases, I have encountered others that are not susceptible of explanation by any of the known facts in rhinology or otology. I wish to report three of these cases, chosen because they are dissimilar in many of their features. They suggest that there is a relation not yet understood, between the healthy condition of the nose and naso-pharynx, and the sense of hearing. In all of these cases there has been a serious and irremediable impairment of the organ of hearing, yet in all, the ability to hear has been greatly increased by restoring the nose and throat to their normal condition.

Mrs. S., aged 31 years, married when 16 years old, has suffered from diseases of the generative organs since the birth of her first child. She is very nervous, weak and anemic. She suffered from pains in the chest, headache, cardiac palpitation, rapid pulse and dyspepsia. These symptoms could not be relieved by ordinary constitutional treatment. She was referred to me by her physician, Dr. W. H. DeWitt, for the treatment of the upper air passages, with the hope of relieving these intractable symptoms, which he believed were secondary to the local disorder.

The patient had marked hypertrophic rhinitis with a deflected and thickened septum. The thickening was in the right nostril. There was also marked naso-pharyngeal catarrh. The right ear was deaf to all ordinary tests. She could not hear the watch on contact. She could not hear the conversational voice. She could hear loud voices only as an indistinct noise. She gave a history of this ear as follows: seven years before, while suffering greatly from her uterine trouble, the ear became inflamed and was intensely painful for several days. The drum was finally perforated;

the pain diminished with the free discharge of pus from the ear. She had had occasional attacks of acute suppuration in the middle ear from that time. Inspection of the ear showed a cicatricial drum membrane with evidence of old perforations. There was no suppuration at this time. The ossicles were firmly bound together by old inflammatory adhesions. The condition revealed by inspection was so bad that no attempt was made then or subsequently to improve the hearing by treatment of the ear. The hypertrophic rhinitis was treated by the usual method and the spur on the septum was removed March 13, 1894. The headache and neuralgia of the chest which the patient had supposed were all due to her uterine trouble, were entirely relieved within six weeks after this operation. The rapid pulse and cardiac palpitation yielded to the combined effect of the operation and heart tonics administered internally. The patient began to improve in health and strength and in a short time felt better, weighed more, and was better able to do her work than she had been for years. About ten months after the operation, she discovered that the hearing had returned to the supposed incurably deaf right ear. A careful test of this organ in April, 1895, shows that the patient is able to hear the conversational voice fairly well, and hears the watch, which was not heard on contact before the operation, two inches from the ear.

F. J. H., aged 18, had scarlatina when he was 13 years old. The scarlatina was complicated by purulent otitis media in both ears. The drum membrane and ossicles of the right ear were completely destroyed. In the left ear three-fourths of the drum membrane was destroyed and the ossicles remained bound together by cicatricial adhesions. With every cold the patient caught, there would be suppuration from one or both ears. I saw him first in March, 1894. At that time he heard a conversational voice one foot, could not hear a watch on contact, and could not hear a whisper at all. There was no appreciable difference in the hearing powers of the two ears. He was about to lose his situation as clerk, because of his inability to carry on a conversation with customers in the store.

Examination of the nose and throat showed hypertrophic rhinitis and a large spur on the septum in the left nostril. There was a complicating naso-pharyngeal catarrh. After treating the acute inflammation that was present when I saw him, for a few days, I removed the spur and cauterized the hypertrophied turbinated bodies so as to give him free breathing room through the nose. The left ear was suppurating when I first saw him, but this suppuration readily yielded to the dry treatment. The patient was under treatment six weeks and was dismissed with the ability to hear a whisper three feet and to distinguish ordinary conversation so readily that he still retains his position as clerk. Dec. 1, 1894, he caught a severe cold, and with the resultant swelling and inflammation of the nose and throat, his hearing became again seriously impaired. Ten days of local treatment cured this attack, and with the return of the nose to the normal condition, the hearing distance for the whispered voice again became three feet for either ear.

Mrs. F. L. J., aged 35, has been deaf from childhood. I can get no distinct history of the cause of this deafness. She had repeated attacks of acute purulent otitis. In her earlier years she was treated by a number of good otologists who succeeded in checking the suppuration, but did not prevent the total loss of hearing power in the right ear. She had been constantly under the care of a competent man for three years before I saw her. She had visited him once or twice a week all this time to have the left ear inflated by the Politzer method. This inflation gave temporary relief from the tinnitus aurium and improved the hearing temporarily. In spite of this treatment, the deafness was progressive and at the end of the three years she was worse than at the beginning of this period. Examination of the ears showed the right ear with only a perception of loud sounds. Inspection of the drum showed only a mass of cicatricial tissue, through which nothing could be seen to throw any light on the condition of the middle ear. The left ear showed a badly retracted drum membrane with cicatrices where old perforations had healed. Loud voice heard only one foot, watch not at all, in left ear. Examination of the nose showed a bad hypertrophic rhinitis, and in the right nostril at the junction of the perpendicular plate of the ethmoid with the triangular cartilage, there was an enchondroma with a broad base nearly an inch in diameter and so thick that it completely filled the upper and anterior portion of the right nostril.

As all known methods of direct treatment had failed to benefit the deafness, I decided to remove the enchondroma

and to restore the lumen of the nostril by cauterization of the hypertrophied tissue in the turbinated bodies. The operation was made under chloroform Oct. 11, 1894. I cut the nasal branch of the ophthalmic artery in the first incision for the removal of the tumor. This complicated very much an operation always difficult to perform on account of the free bleeding hiding the field of operation. I removed the tumor as rapidly as possible and packed the nose with cotton saturated with McKenzie's styptic solution. Recovery was further complicated by an attack of follicular tonsillitis which began three days after the operation. The patient was already weakened from loss of blood and from the shock, so the attack of tonsillitis was unusually severe and prolonged. The immediate effect upon the hearing was disastrous. As soon as the patient was able to resume her visits to the office, the hypertrophied tissue in the turbinated bodies was destroyed by the galvano-cautery as rapidly as this could be done without exciting severe inflammation. The patient remained under treatment for four months and was dismissed with hearing distance for the watch, left ear, of nine inches. She hears the ordinary conversational voice with ease. Up to the present the improvement has continued, and I have no doubt the hearing will be better a year from now than it is to-day.

These three cases present a few similar features. There was in all marked nasal obstruction from hypertrophy of the normal tissues and from the growth of abnormal structures. The condition of the ears in all was such as to offer no hope of cure by treatment of the ear itself. All were benefited so they could hear ordinary conversation, the best test of hearing power, by treatment of the nose.

In the first case reported the ear was never treated, either before or after the operation on the nose, yet as a result of this operation, hearing was restored to an ear which to all appearance was hopelessly deaf.

In the third case, the patient had been under the constant care of competent men from childhood to mature life. In spite of this care, the hearing power was entirely lost in one ear and so far diminished in the other ear that common conversation could not be heard. Yet, in this case, the hearing power is restored to the ear by restoring the normal lumen of the nostrils. During the time she was my patient, the ear received no treatment. It might be said the result in these cases was due to the fact that normal respiration and aeration of the middle ear through the Eustachian tube was restored. While this is a possible explanation, I do not believe it to be the true one. In the third case the Eustachian tube had been kept open by constant treatment, yet the deafness was increasing. The tube remaining open, no attention was paid to it while I was treating the nose, yet there was a remarkable gain in hearing power. It certainly will not apply to the second case, where in one ear there was no drum membrane at all and in the other ear only a remnant. The recurrence of the deafness months afterward when the nose became inflamed and swollen, and the prompt restoration of good hearing power by treatment of the nose, is an additional demonstration of the controlling influence that, in this case at least, the nose has, on the power of hearing.

While I do not pretend to explain the influence which brought about the deafness or the cure in these cases, there is a practical conclusion to be drawn, upon which we can act, even if we do not understand thoroughly the theory or the principle on which our action is based.

This practical deduction is that no case of supposed incurable deafness is really so, unless the nose and naso-pharynx have been examined and treated, if necessary, by a competent rhinologist.

DR. A. H. HEWETSON, of St. Clairsville, Ohio, read a paper on

COMPLICATIONS AND SEQUELÆ OF EPIDEMIC INFLUENZA (LA GRIPE), AND THEIR PROPHYLAXIS.

ABSTRACT.

Of complications, undoubtedly pneumonia and bronchitis are more often present, but there is a dispute among observers as to which of these occurs more frequently. A recent French writer believes that the complex pathology of these chest complications is explained by the presence of different microbes in different forms. There are thus congestive, inflammatory and suppurative pneumonias; these produced by pneumococci and those caused by streptococci.

It is an admitted fact that the virulence of microorganisms is raised to the highest degree in all forms of influenza and its complications.

The important duty is to remember the depressing nature

of the original affection. Especially remember the importance of sustaining and energizing the cardiac and respiratory nerves. In my limited experience I have found nothing that can compare with strychnia and digitalis; full doses of digitalis and much larger than the ordinary dose of strychnia. We are too timid in our dosage of strychnia. In those cases where the influenza is still active, I add to the above, fl. ext. aconite in small doses. This may appear heterodox, but I believe it to be a sensible combination. Phenacetin and its companions of the coal-oil group, with codein, may be continued in some cases from the original influenza to the complicating pneumonia and bronchitis. An early recourse should be had to cod-liver oil and syrup of hypophosphites or similar tonic remedies.

Pleuritis is a complication which is not very frequent, nor is there any particular management required except to remember the nature of the previous trouble. A more frequent complication, as well as more troublesome, is pleurodynia. In our part of the State it has been of very frequent occurrence the past season. The pain is often severe, resembling pleuritis or pleuro-pneumonia. Pressure along the course of the intercostal nerve will promptly locate the trouble. It is usually located on the left side. Great alarm frequently results from the feeling that the heart is or would be involved.

At certain times in some epidemics, rheumatism is a complication. Disorders of digestion are frequently complications; they constitute a very troublesome form of the disease. Fortunately, however, the stomach is, as a rule, only functionally affected, the disturbance of digestion being due largely to the effects of the general disease upon the nerve centers.

Of complications we must view those having a nerve origin as the most important and perplexing. Post-mortem examination of a patient who had died of influenza, revealed serious injury to the brain. Althaus, of London, refers to the results of a series of eleven post-mortem examinations. In every case intense hyperemia of the pia mater at the base of the brain was present. The arteries were distended and the consistence of the brain and spinal cord was increased. In two cases by Fürbringer, the autopsy revealed capillary emboli and hemorrhagic foci in the lobes of both hemispheres, involving the white and gray substance. Mills, of Philadelphia, classifies the organic nervous lesions occurring in the wake of influenza in the following order; neuritis, meningitis, myelitis and cerebritis. He considers no single affection so common as neuritis, occurring in every form as to location and diffusion. By some authors, meningitis is said to cause more deaths in influenza than heart failure.

To name, number, classify and explain the nervous consequences of la grippe is a task too great to be undertaken. While their number and variety is legion, still we believe a careful consideration will show that they result from the exhaustion of the power of the nerve centers, due to the effect of the essential poison upon nerve structure. Cephalalgia, trigeminal neuralgia, insomnia, loss of memory, cardiac weakness, indigestion—in a word, functional derangement of all the organs, can in a vast majority of cases be traced back to a neurotic origin. If a careful examination does not reveal any central cause, then the task may be wonderfully simplified by regarding all as forms of exhausted nerve force or vital power. I do not believe we can do better than place our main reliance upon our friends of other years, strychnia, iron, quinin, cod-liver oil and phosphates. These cases in their multitudinous characters will afford opportunity for the largest experience. There is change of location, out-door life and exercise; there is the rest treatment, massage and electricity.

I wish to name one simple remedy I have found of great benefit, especially in the case of patients in advanced life when the waste products are becoming more and more retained; the coatings of the vessels filling gradually; in these cases I urge the patients to use hot water freely—to drink all the stomach will retain. It is frequently surprising how soon improvement appears. Having applied the teaching of modern scientific hygiene in an intelligent manner to the case, and given careful attention to the mucous lining of the nose and throat, the medical attendant has about performed his duty. For a scientific prophylaxis we must look to the faithful pathologist and bacteriologist.

DISCUSSION.

DR. E. B. FULLERTON, of Columbus—I think there is no doubt as to microbic origin of influenza. There is not that proof which would have been satisfactory some years ago;

but there is proof, that, after the discoveries or proofs in regard to the bacillus tuberculosis, is conclusive I think to reasonable men. There have been a number of experimenters in regard to this. You all have knowledge of the various experimenters, from Pfeiffer, Kitasato, Canon, onward.

There are some very interesting allied diseases. Among animals, the epizootic must have a microbic origin also. The epizootic sometimes attacks men. Influenza, I believe never attacks animals in the ordinary state, although it may be communicated. A remark about the character of the condition in the different years of its prevalence in this epidemic, seems to me not out of place. I should say the typical epidemic we had in Ohio was in 1889-90. Then we had the typical season, and I think since then the disease has been more likely not to be typical. During the last winter I have rarely seen a typical case of grip. There have been more mild cases, which would pass almost for bad colds.

In regard to complications—and that is the matter to which really this discussion should be limited—I think the Doctor has spoken of the most of them. One of the most obstinate cases of brachyalgia I have ever seen was undoubtedly of this origin. I have seen several cases of sciatica that were unusually obstinate as the result of this disease. I have seen one case of cruralgia, also. In regard to the treatment of the complications and sequelæ, this of course merges into the treatment of the disease.

As to the treatment of grip. There has been one treatment I adopted in the typical cases in the beginning that I have seen very little of in the journals, and have heard only little of in discussions, and that is the treatment by the tincture of aconite, one or two drops every hour. This will quiet the fever and the pulse, and relieve the catarrhal conditions about as much as any of the new remedies. Dr. Whittaker, in his very valuable work on the "Practice of Medicine," mentions salipyrin as almost a specific. Whether others count it so, I do not know. I know in my practice I have found it to have no more prompt control than other remedies commonly used; phenacetin, the so-called antifebrin, acetanilin, aconite and the bromids. And, gentlemen, there is no remedy like full doses of the bromids. Where the patient is complaining of pain, interfering with his rest, full doses, 30 grains, of the bromid of potassium will answer like a charm.

DR. CALDWELL—The most disastrous complication I have had to deal with is the tendency of old people to take on degenerative processes. Weakness comes on from the exhaustion of the disease. This has not occurred in the last year or two that we have been having the grip. And I would rather agree with the last speaker, it has become rather a popular name, and as physicians we are prone to use the term a little recklessly.

DR. NORTON—I have seen within the last few years quite a number of cases of influenza; that is, the form of grip called influenza, attacking the respiratory tract. I believe this disease to be of microbic origin. It has become quite a fad with the profession. I do not know how we would get along without the grip. We are in the habit of calling everything we do not understand, "la grippe." Now I believe it arises from the presence of a microorganism, and this microorganism develops or generates a ptomaine, and this ptomaine enters the system and affects the ganglionic system. Why it affects one ganglionic system in one person and not in another, I can not explain. Sometimes it affects the celiac axis and sometimes other ganglia. I want to protest against the use of quinin in this influenza in any form. The paper read gave an account of post-mortem examinations, where hyperemia and inflammation had taken place in the membranes of the brain. I believe I have treated a number of cases of deafness, due to quinin given in influenza. It is one medicine that should never be given in influenza. I am a great friend of quinin, but would not use it in influenza. It causes hyperemia and inflammation of the brain. If you study the cases which go on to insanity, you will find the majority of them have been treated with quinin. I have used in these cases a combination of salol and phenacetin. It has acted almost as a specific. I combine two and a half grains of salol with an equal quantity of phenacetin. If you go into the decomposition of salol and phenacetin, you will find a physiologic reason for its action. You will find some of these patients blue from paralysis of the heart, due to the action of coal-tar products. But with the quantity in these pills, it takes only a few hours to get good results.

(To be continued.)

Chicago Pathological Society.

(Continued from page 111.)

Regular Meeting, May 18, 1895.

DR. WELLER VAN HOOK, President, in the chair.

DR. ARTHUR R. EDWARDS read the first paper on the program, entitled

REPORT OF CASE OF CHRONIC FIBROUS MYOCARDITIS PRODUCING
A RELATIVE AORTIC REGURGITATION.

The patient was 54 years of age, drank hard and had rheumatism. For four weeks he had suffered from dyspnea, edema, tympany, anorexia, coughing and occasional vomiting. On examination, there was orthopnea, ascites and anasarca. The heart was enlarged, especially the left ventricle, to which were added the signs of hypertrophy of the same chamber, as evidenced by the quick pulse and heaving apex beat. The physical findings were those of aortic regurgitation; weak second aortic tone, soft protracted blowing, diastolic aortic murmur heard over the second left intercostal space near the sternum, the alterations in the left chamber as already mentioned, and appropriate sphygmographic and auscultatory arterial phenomena. While the clinical diagnosis was aortic insufficiency, the autopsy disclosed an extensive fibrous myocarditis with secondary ventricular hypertrophy and dilatation. The cause of the myocarditis was atheroma of the coronary arteries and coronary thrombosis. Relative insufficiency is very rare and myocarditis has never been described as one of its causes. A complete review of the literature of this variety of relative insufficiency gave but twenty-five cases.

Two main etiologic agents exist: 1. ventricular dilatation; 2. dilatation of the aorta. Ventricular dilatation producing relative aortic leakage has resulted from muscular exertion, myocarditis, idiopathic cardiac hypertrophy, arterio-sclerosis, aortic atheroma, increased arterial tension, synechia cordis, and parietal endocarditis. Aortic dilatation is caused by atheroma, aneurysm, trauma and acute inflammation.

The clinical diagnosis is involved. Groedel's "distance" murmur and percussion of a dilated arcus ascendens have made diagnosis *intra vitam* possible. Accidental venous diastolic murmurs may complicate the diagnosis. Murmurs, even diastolic, do not constitute a valvular lesion. Renvers has demonstrated the intimate connection between the walls of the left ventricle, the auriculo-ventricular ring and aortic valves, whereby ventricular dilatation may render the aortic valves incompetent.

DISCUSSION.

DR. JOS. M. PATTON—This is certainly a very interesting subject, because it brings before us the diseases of the heart which are very difficult of recognition in a clinical way. Fraentzel congratulated the profession a year ago on the fact that diagnoses of myocarditis were much less frequently made than formerly. Virchow has always maintained that myocarditis was a rare affection, and has always been inclined to deprecate the freedom with which this diagnosis was made. Certainly, so far as clinical signs are concerned, it is very difficult to make a diagnosis of myocarditis. There are four forms of myocarditis which it is claimed can be observed clinically with more or less distinctness, viz: the acute circumscribed myocarditis, acute diffused myocarditis, chronic circumscribed myocarditis, and chronic diffused myocarditis. The two first mentioned can probably never be diagnosed of themselves, but may be suspected on account of the associated conditions with which they may appear. The third mentioned might be diagnosed by a physical examination in case of a localized area of degeneration, where resultant dilatation from the area would present in such a way as to be perceived by palpation or percussion (a so-called cardiac aneurysm), otherwise it could not be diagnosed. The fourth is the most interesting one, because we will meet with it as we become acquainted with these ill-defined cardiac diseases. Chronic fibrous myocarditis occurs most often on the left side of the heart. It is associated with many other conditions of the vessels and of the other internal organs. It may affect small portions of the cardiac muscle; or the cardiac muscle may be excessively changed by the aggregation of these cicatricial patches and deposits, as described by Dr. Edwards. The clinical interest centers in our ability to formulate some class of symptoms, by which we could deduct this condition in life. There are no symptoms which are in any degree pathognomonic to chronic myocarditis. The symptoms which do present are essentially those of either uncompensated valvular lesion,

or of failure of the lesser circulation. The symptoms of marked ataxia of the muscle are the same. They may take the form of severe dyspnea, or there may be symptoms of pulmonary infarction or edema. The dyspnea may simulate that which accompanies advanced sclerosis of the peripheral vessels, but even if it is associated with infarction or edema, the condition is transient, and it is doubtful what part this might play in the production of symptoms. The physical examination of the heart will reveal nothing, except the enlargement of the left cavity in the earlier stages of the disease, and that dilatation may disappear later on. Very often there is marked enlargement, as in the case presented by Dr. Edwards. There is one symptom that is practically always present, and that is cardiac arrhythmia, very often amounting to the condition known as tremor cordis, with a pulse of 200 or upward, the pulsations being almost inappreciable; but then this condition is associated with so many others that it is difficult to place the responsibility for its occurrence. The fact remains that a rapid and arrhythmic heart is an almost constant clinical sign of chronic myocarditis. Then again, there is a distinctive feature in regard to the character of the heart sounds. The second sound is usually weak, and that is somewhat indicative, because in a great many conditions of weakened heart muscle we have a relatively louder sound as compared with the bulk—the volume—of the first sound; whereas, in advanced conditions of chronic myocarditis the second sound is usually weak. The principal feature in regard to the sounds is the variation that occurs in the character of the tones, a few tones being loud, sharp and snappy, and then a few following being weak and indistinct, a regular tic-tac, there being a greater variation of the force and volume of the tones than in any other condition of which I am aware. The report is certainly very interesting, particularly so because it is by just such clinical histories, accompanied by pathologic specimens, that we are to learn more of these very imperfectly defined cases, as we understand them at present.

DR. J. B. HERRICK—One of the lessons that is brought home to me by the very interesting and very instructive paper of Dr. Edwards, is the lesson that has been impressed upon me more and more, as I have studied heart cases, particularly in the light of autopsies—and that is the lesson that the murmur we hear from the heart does not always tell us the condition of the valve over which we hear the murmur.

Fraentzel, from whom Dr. Patton has quoted, makes the statement that of the physical signs of the heart that lead us to diagnose valvular disease, the murmur is the least important. I am sure that we have, all of us, more than once been deceived by an anemic murmur. It seems to me that we do not pay enough attention to the other evidences of cardiac disease that are really open to examination. For instance, the very inspection of a patient will often enable us to make a fairly accurate diagnosis. We can, by inspection and palpation, alone, almost make an accurate diagnosis of aortic regurgitation. We have in such cases diffuse apex-beat with heaving impulse, tortuous, pulsating temporal and brachial arteries; and we have the peculiar water-hammer pulse of aortic insufficiency. We can find, too, the tones that are peculiar to the latter lesion in the peripheral vessels, so that we could, without even listening to the heart, make a diagnosis of that variety of valvular disease. What Dr. Patton has said with regard to the second tone of the heart is, I think, worth a great deal. We frequently make mistakes because we do not pay enough attention to the condition of the second tone. We all know how valuable the second aortic tone is in cases of cardiac hypertrophy due to renal diseases, and, again, the value of the second tone as an aid in estimating the muscular tone of the heart itself is not to be underestimated. It seems to me then, that one of the lessons of this case is that we should examine, not alone for the murmur of the heart, but examine as well for the enlargement of the heart; examine the second tones, the first tone, the peripheral arteries; in a word, make a complete examination and not rest entirely upon a discovery of a murmur. I do not think it possible in this case to have made the diagnosis during life. All the typical signs of aortic insufficiency were present; no cardiac irregularity to suggest myocardial trouble. But the lesson remains that every cardiac murmur is to be considered in the light of other cardiac findings, before an estimate is to be made of its importance as an evidence of primary valvular disease.

DR. A. R. EDWARDS, in closing, said: One thing is suggested to me by what was said about increased pulse rate. In myocarditis the pulse may be increased, of normal frequency, and there is still another group in which there is a decreased rhythm. In this case we watched throughout for

any irregularity and it never appeared in the clinical course of the disease. Regarding the value of murmurs: it is one of the four cardinal rules of Fraentzel that a murmur does not establish a lesion at a valve, and that applies most especially to systolic murmurs, and the converse has usually been taken as true of diastolic murmurs, the latter always indicating a valvular lesion. I omitted in reading the paper, on account of its length, to state that diastolic murmurs may occur, due to inorganic causes. They have been demonstrated to be due to venous bruits in the jugular vein, in the cave superior and inferior, and furthermore they have been found in the cases which I have cited, nearly all of which have been diagnosed as organic lesions during life. As to the specimen, there is nothing on the slides, as they are shown, that are not found in specimens of myocarditis from other causes—simply, the broad masses of cicatricial tissue, some long cells, and few foci of round cells.

DR. T. A. OLNEY, of Chicago, read

A REPORT OF A CASE OF ANOEMIC LIVER ABSCESS.

Patient was admitted to the medical ward, where a diagnosis of liver abscess was made. This was confirmed by exploratory punctures with an aspirating needle, following his transference to the surgical ward. Drainage was secured by a rubber tube inserted in the posterior axillary line at the seventh rib, and a considerable amount of yellowish pus discharged. Death occurred in a few days following a further exploration by puncture of liver, dullness in front and behind having failed to locate other abscesses. At the autopsy several irregular large abscess cavities were found, one of these occupying the posterior and upper part of the left lobe—which the drainage had not reached. These were all surrounded by a marked zone of necrotic liver tissue and contained thick grayish pus which contained chocolate colored lumps and granular necrotic liver tissue. In the caput coli two or three small ulcers were found. There was no history of dysentery.

DISCUSSION.

DR. A. R. EDWARDS—I saw this case on the medical before it went to the surgical side, and afterward with Dr. Olney on the surgical side. When the pus was drawn from the thorax with the needle, the color of the pus was invariably white and very thin. There was none of the chocolate color in that cavity, at least. And then when it was transferred to the surgical side after free drainage, and the symptoms of sepsis were not abated, Dr. Olney put needles into the liver. The needles were inserted into the area of dullness beneath the hypochondrium on the right side, and once only was pus obtained in something like thirteen punctures. The pus in this instance was quite creamy. The interesting point, clinically, is that the largest abscess of all was concealed by the peritoneal adhesions which bound the lower surface of the left lobe of the liver to the upper surface of stomach, thereby entirely concealing a large abscess by the gastric tympany. If we had pushed the needle through the tympany, we would have reached the liver abscess which caused his death. There were at the post-mortem, other small abscesses, too small for clinical detection.

DR. E. R. LECOUNT—I happened to see the autopsy conducted in this case, and it is interesting from several standpoints. First, the small amount of intestinal involvement. Only three ulcers were found in the caput coli, and those were very small. The amount of liver involvement was very large. Another interesting point in connection with cases of this character is that, as a rule, the pus is chocolate colored, due to the necrotic liver substance contained in the pus. Another interesting feature—the pus was brought into the laboratory from the morgue, placed on a slide and a drop of warm salt solution added, when amœbæ with amœboid movements were seen by a number—Dr. Weaver, Dr. Williams, Bishop and myself, and some of the assistants. As soon as it was found that the amœbæ were active, they were fixed with 2 per cent. Fleming's solution, and in this way they were positively differentiated from the necrotic liver cells.

In the examination of pus from the liver, while the patient is still living, it is frequently very difficult to distinguish possible amœbæ from necrotic liver cells, on account of the vacuoles that will be present in both of them, the amœbæ being frequently dead as well as the liver cells. A 1 per cent. osmic acid solution was used to differentiate fat from vacuoles of the amœbæ and fulfilled expectations. Notwithstanding the small amount of mucous membrane involvement of the colon, the amœbæ coli were very numerous in the mucous membrane and were found down between the

mucous follicles and beneath the mucous follicles lying upon the muscularis mucosæ.

DR. JAS. W. WALKER presented specimens from an ancient empyema, and made the following remarks: I regret that I can do nothing more than offer these specimens. I know nothing of the history of the patient but that he was a man of 60 years, admitted to the hospital for an operation on a neoplasm of the right eyelid which was to be performed to-day. He was in the hospital a few days and died suddenly on Saturday. Unfortunately, no careful history of the patient has been recorded, so I can only show you the result of the post-mortem made this morning. The neoplasm of the right lower eyelid, growing for one year on the site of a pigmented mole, is presumably an epithelioma.

In the ileo-cecal valve (the rest of the intestinal canal was negative) was a small tumor projecting into the lumen of the valve. On section it has the appearance of a fibroma.

The heart is enlarged. It measures over 12 cm. for the left ventricle, and the right ventricle 10 cm. There is a thickening of the aortic valve, but no deformity. There is also myocarditis of the columnæ carnæ of the left ventricle, and most interesting of all is the very marked atheromatous place in the mitral valves, and a few at the beginning of the aorta. The only clinical record is the fact that there was a mitral systolic murmur.

In the left chest the lung was negative, except that the pleura immediately over the apex was markedly thickened. The pleura was much thickened and there were white scars on the pleural surface of the same lung, but the lung substance was entirely negative. The apex of the right lung is quite firm, just as firm as in pneumonia. I have not been able to find anything like tuberculosis in it but it is perfectly solid, and seems to be an old unresolved pneumonia. The pleura was not adherent to the apex, and the lower part of the lungs was normal. In the right pleural cavity, in the lower half of it, laterally and posteriorly and adhering to the diaphragm below, was a bulging mass covered by a yellowish membrane resembling very much the inside of the aorta, calcareous in consistency in many places; with pin point nodules which grated under the finger, and slightly fluctuating on pressure. There was nothing abnormal in the appearance of the ribs on that side of the chest. The covering was so firm that fluctuation was quite obscure. On cutting through it a thick greenish-black fluid oozed through the opening, and on cutting into it more deeply I found this mass. It has a clayey appearance; it is brittle like a piece of blue earth; it has no odor whatever, and the under surface of this is the part that was projecting toward the pleural cavity. I think this clay-like material was between the two surfaces of thickened pleura. I would suggest that an old empyema was the disease leading to the conditions found. The ribs were sufficiently soft to allow my cutting through them with an ordinary morgue knife.

The stomach is not specially interesting. The gall bladder contained thirty-eight small gall stones. The kidneys were both quite small, and the markings of the cortex almost absent, glomeruli distinct, proportion of pyramids being 1 to 5. Spleen small in size, firm in consistency; shows nothing in cut section but its surface had a corrugated, alligator skin appearance, and shows a number of pin-head size, white patches. The liver in places was a cloudy gray color, with entire absence of markings of the lobules around the periphery of the convexity; distinct nutmeg appearance is very sharply defined.

Uterine Flatus.—According to the *Medical Press and Circular* July 26, an interesting instance of "phantom tumor" of the uterus due to tympanitis of that organ, has been reported by Dr. Lichtenstein, of Liegnitz. On account of a chronic metritis, a patient was successfully treated by tamponment with iodoform gauze. A considerable time afterward she suffered from violent pains in the abdomen. On examination the abdomen was found much distended, and the uterus three finger-breadths above the umbilicus. On examining with the sound it passed into a large empty cavity, and air escaped out of the uterus with a distinct pop. The patient was frequently troubled in this way, the uterine tympany always coming on when the stomach or bowels were disordered. A few days after the attack described there was still pain at the side of the uterus. Massage and rhubarb and charcoal still further improved the condition.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, AUGUST 24, 1895.

PATHOGENY OF DERMOID CYSTS.

In *L'Union Médicale*, July 13, ult., is an excellent article by M. PIERRE DELBET, the Parisian surgeon, giving a resumé of the pathogeny of heterotopic tumors (dermoid cysts), which is abstracted from the large work on clinical and operative surgery by PROFESSOR LE DENTU and the same author. The oldest theory seems to be that of GEOFFREY SAINT-HILAIRE—that of diplogenesis by inclusion. This author arranged these tumors in a long series, beginning with the most simple forms, as those of the eyebrow, and going through the more complex varieties in the ovary and sacro-coccygeal region, and ending with parasitic and autositic monsters. In other words, he believed that simple dermoid cysts are to be considered as the "prodigiously incompletely developed" remains of a primitively distinct individual. This theory was strongly combated by LEBERT and BROCA. The latter pointed out that all dermoid cysts do not contain authentic fetal *débris*, while others contain too much,—as those with 300 teeth, etc.

Again, it is difficult to comprehend how one embryo can penetrate the abdomen of another, to lodge, for instance, in the ovary. LEBERT has shown that it is not rare to find dermoids in both ovaries, which, if we adhere to SAINT-HILAIRE's theory, necessitates believing that two distinct embryos have penetrated a third. "It takes," says LANNELONGUE, "a great effort of the imagination and much good faith to recognize the representative of a distinct individual in a simple dermoid, a simple small sac formed by the skin, and often without papillæ or sudoriparous

glands." This theory, however, offers the only satisfactory explanation of these tumors of the jaws, the sacro-coccygeal region and the scrotum where we find fetal *débris*.

LEBERT, in his theory of plastic heterotopics, has taken a diametrically opposite stand to that of SAINT-HILAIRE. He compares dermoids with other neoplasms and admits their autogenous and spontaneous formation. They develop by virtue of "a particular aberration of nutrition." This author did not extend his theory to the more complicated forms and, as DELBET remarks, it is not worthy of discussion.

The theory of inclosure of REMAK and VERNEUIL supposes that a part of the integument is nipped off during growth and buried in the surrounding tissues where it continues to develop. This theory readily explains the formation of simple cysts; moreover, these are always observed in regions with a complicated development—around the branchial clefts, orbits, in the sternal, abdominal and perineal regions, where the ventral and dorsal plates fuse. It may be objected that the structure of these cyst-walls is not the same as that of the skin, for the papillæ and sweat-glands are generally wanting; but these two structures are precisely those parts of the external tegument which are the last to appear. This hypothesis is utterly inadequate to solve the problems of the more complex tumors.

DELBET dismisses the theory of extra-uterine pregnancy, which presumes that these tumors are the result of extra-uterine fetation, with the remark that it will hardly answer for those in the eyebrow and the testicle, and, moreover, it does not suffice for those in the ovary which are to be seen in the newly-born and in virgins.

BARD has proposed a peculiarly unique theory, that of "nodal cells." This author is a great partisan of the absolute nature of the cells; but this must evidently be primitive. The ovule and the first few cells developed from it have the property of giving rise to daughter cells, differing from the mother-cell and from each other. These first cells must, then, be extremely complex, for they may give rise to the most diverse tissues. These are the cells which he calls nodal cells. With increasing stages of development these cells become less complex and finally they become fixed and incapable of producing cells differing in character from themselves. But, according to BARD, some of these nodal cells may persist in the adult tissues and it is the proliferation of these cells which forms dermoid cysts. DELBET remarks that while the contemplation of this theory affords a certain sense of satisfaction, the presence of these nodal cells in adult tissues is absolutely undemonstrable.

The theory of parthenogenesis next claims attention. This, as is generally known, is the develop-

ment of an embryo from the ovule without the intervention of the male element. This form of asexual generation has been shown in some of the lower animals (parthenopinea) where it produces normal individuals. BUFFON and SAINT-HILAIRE believed that possibly this might occur accidentally in the higher animals and give rise to rudimentary monstrous individuals.

REFIN and MATTHIAS DUVAL attributed the formation of ovarian dermoid cysts to parthenogenesis. The former author concludes that all dermoid ovarian cysts contain vestiges of organs and that they represent imperfect beings which can only be of ovarian origin. The possibility of segmentation of a non-fecundated egg has already been shown. DUVAL says we may even say that parthenogenetic segmentation is an ordinary, almost normal, process, but it is quickly arrested by fatty degeneration and does not proceed as far as the formation of a blastoderm, much less that of organs however rudimentary. STEINLIN has seen a very young dermoid, the size of a hemp seed, in the interior of a Gräafian follicle. While this parthenogenetic origin is not directly demonstrated it is very likely. It has two facts in its favor—the frequent segmentation of non-fecundated ovules and the intra-follicular seat of these cysts in their beginning.

DELBET sums up the evidence as follows: the widely different characters which dermoid cysts present and the nearly constant relation between their location and their degree of complexity lead us to believe that they are not of the same nature and are due to different pathogenic conditions. It is very probable that the simple dermoids are produced by inclosure, while the complex cysts, containing fetal *débris*, have two different pathogenic causes according to their situation—first, those which we may call external, in the jaws, sacro-coccygeal, perineal and scrotal regions, are due to diplogenesis; they are double monsters, joined to their hosts like parasites; these double monsters are considered, since the researches of FOL, to be due to polyspermia, that is, the penetration of several spermatozoa into the same ovule, in other words, diplogenesis is uniovular. Second, the complex tumors which we may call visceral, those of the ovary or testicle, are, on the contrary, very probably due to parthenogenesis.

Is this theory satisfactory? Some details are still obscure, especially those of the mediastinum. Most of these tumors are simple cysts which may be explained by inclusions, found at the expense of the front gut or by invagination of the bronchial tree; but there are complex cysts, also, such as that reported by GORDON,¹ which contained bones and seven teeth. The causes of this almost unique case are still unknown.

SIMULATION OF INSANITY.

The case reported in the daily press, of a leading German actor, who, after repeated impersonations of the character of a lunatic became himself insane, is one of some psychologic and medico-legal interest. It is not altogether unique; the same story has been told before, and a somewhat parallel case in this country has been published recently, but it is worthy of attention as evidence that continuous dwelling on, and practical adoption of, insane acts and ideas, even though with full consciousness of their abnormal nature, has a naturally bad effect upon the mental health. It is probable, it is true, that most of those who thus succumb to insanity in this way, were already somewhat predisposed to it, but absolute mental equipoise can be claimed by no one, and the danger is not to be disregarded even by those who are best equipped and fortified mentally.

In a medico-legal point of view it has some importance as bearing on the question of simulation. Some high authorities, among whom we may count SCHUELE and SANDER, assert that protracted simulation is itself pathologic, or, at least, that it becomes so after long continuance. Such instances as the one referred to would seem to support this view, and it has in its favor the well-known psychologic phenomenon expressed in the common saying that habit becomes a second nature. The actor who tries to realize his conception of the character he represents, is moreover, in far less danger than the man who for a purpose endeavors to continually act as a lunatic. His conception may be an imperfect one and his attempt clumsy in execution, but however this may be, he runs a risk of sooner or later making it natural enough if he persists.

On the other hand, actual simulation of insanity does not exclude the possibility of co- and preëxisting mental disease. This has been repeatedly demonstrated, notably by KIERNAN, HUGHES and others in this country, as well as abroad, and marked cases are within the experience and recollection of most observing asylum physicians of long experience. This point is one that ought to be well considered by jurists, and, with the other, may not infrequently have important bearings in cases before the courts.

THE NEW ILLINOIS PHARMACY LAW.

Illinois has what is practically a new pharmacy law. It purports to be only the old one amended, but the differences are more numerous and striking than the samenesses. The indications are strong that it was prepared and passed for the benefit of the pharmaceutical profession rather than the general public. The latter will undoubtedly indirectly gain by it on some points, but only incidentally, and not without loss. For what good it contains, the Governor

¹ Med. Chir. Trans., XIII, p. 13.

apparently did not care to veto it, but let it become a law without his signature.

Its scope can be somewhat judged of from the section headings, which are as follows: "None but registered pharmacists to dispense, etc.; Who may be employed in drug store; Meaning of the words "drug store" or "pharmacy;" Registered pharmacists; Who may be registered pharmacists; Assistant registered pharmacist—who may be; Permits to persons in villages; Duty of registered pharmacist; Annual registration—fee—certificate to be posted; Board of pharmacy—how appointed; Organization of board—duties of officer—place of meetings; Salary of officers—report; Label with name of article—penalty; False representation to procure registration—penalty; Adulteration—penalty for—expert—board to prosecute; Suits for penalties."

To begin with, this law seeks by multiplying descriptive terms and incorporating a definition to specifically cover, not only pharmacies and stores, but also dispensaries, "drug stores," apothecary shops and any "store, shop or other place of business where drugs, medicines or poisons are compounded, dispensed or sold at retail." However, the board of pharmacy is authorized, in its discretion, to issue permits to persons, firms, or corporations engaged in business in villages or other localities, empowering them to sell the usual domestic remedies and proprietary medicines under such restrictions as the board may deem proper, such permits to specifically state just what the holders thereof are allowed to sell.

But nothing in this act is to prevent any person or persons owning a drug store or pharmacy who shall employ and place in active and personal charge of the same, a registered pharmacist, nor interfere with the exclusively wholesale business of any "wholesale druggist," whereas it was before of "any dealers."

Neither is it, any more than did the old law, to apply to or in any manner interfere with the "practice" of any physician or prevent him from supplying to his patients such articles as may seem to him proper, substituting, as above, the word "practice" for "business." It also omits the proviso in this connection of the former act "that no part of this section shall be so construed as to give the right to any physician to furnish any intoxicating liquor as a beverage, on prescription or otherwise."

Not only must appointees to the board of pharmacy be such "competent registered pharmacists in the State, as have had ten years' practical experience in the dispensing of physicians' prescriptions," as heretofore, but they must be persons "who are actively engaged in the practice of their profession."

Other changes require that registered pharmacists must be 21 years of age; prescribe certain qualifications for them; make the original registration fee in

all cases \$5 and the subsequent annual fee not to exceed \$1.50; fix the cost of "permits" at \$1 in the first instance and 50 cents a year thereafter; impose upon registered pharmacists who take into their employ apprentices, to report to the board such facts regarding their schooling and preliminary qualifications as the board may require; empower the board of pharmacy to refuse registration or suspend the certificates of registered pharmacists, or assistant pharmacists, who are proved to be so addicted to the excessive use of stimulants or narcotics as to render them unsafe to handle or sell drugs, medicines and poisons; require the conspicuous exposure of certificates, and display over the door or department the name of the registered pharmacist who conducts the drug store or pharmacy.

What concerns the public yet more, and is to be deplored, is the change with respect to the selling of poisons. The new law on this point, in full is: "No person shall sell at retail any drug, medicine or poison without affixing to the box, bottle, vessel or package containing the same a label bearing the name of the article distinctly shown, with the name and place of business of the registered pharmacist from whom the article was obtained: *Provided*, That nothing herein contained shall apply to the dispensing of physicians' prescriptions. Any person failing to comply with the requirements of this section shall be liable to a penalty of \$5 for each and every such offense."

This, it will be readily seen, opens the gates wide for careless and unscrupulous dispensers and criminal and suicidally-disposed purchasers—if it is not a broad invitation to crime and self-destruction. What protection is there in a registered pharmacist's name affixed as prescribed, when he is neither required to exercise caution in making sales of deadly drugs, nor to mark same "poison?" The old law was infinitely better in this respect. It required all this and the distinctly marking of poisons as such, beside forbidding the delivery of the commonly recognized poisons to any person under 15 years of age, or to any person, without the seller satisfying himself that such poison was to be used for a legitimate purpose, although the penalty for a violation thereof was fixed at the ridiculously small sum of \$5 for each offense.

Comparison with the Wisconsin Legislature at its last session, when it revised the law of that State on this subject, is to the decided credit of that State. It requires paris green to be marked "Paris Green, Poison," and has added to the list of specially proscribed articles: oil of savin, oil of tansy, oil of cloves, phosphorus, sulphuric ether, or any mixture containing any of the specified poisons or of any combination of them sufficient to kill a person taking the same. When lawfully sold, a label bearing the name "Poison" distinctly shown, together with

the name and place of business of the seller must be affixed to the box, bottle, vessel or package containing the same, and to the wrapper or cover thereof. "And every person who shall sell or retail any such poison shall keep in his place of business a book, in which shall be entered an accurate record of the sale of all poisons; such record shall contain the amount purchased, the date, for what purpose purchased and the buyer's name and address. This record shall be at all times, during ordinary business hours, subject to the inspection of the district attorney of the county in which such store is located, or of any authorized agent of said board. Any person failing or neglecting to comply with any of the provisions of this section shall be guilty of a misdemeanor and upon conviction be punished by a fine not exceeding \$50 nor less than \$5."

When the Illinois Legislature meets again, it should certainly "amend" the pharmacy law once more, and restore it in this particular to what it was before, if it can not be induced to emulate the example of the law-makers of an adjoining State and throw still stronger safeguards around human life.

THE DUTY OF URGENT EXIGENCY.

The railway companies are finding themselves held to the strictest accountability in their humane or politic—as different persons consider it—arrangements to furnish their unfortunate employes with medical attendance. In the case of the Ohio & Mississippi Railway Company v. Early, decided April 12, 1895, the Supreme Court of Indiana reverses a judgment for damages obtained in the circuit court. It says that while a railroad company is under no legal obligation to furnish an employe, who may receive injuries while engaged in the service of the company, with medical or surgical assistance, yet where a day laborer or employe has, by unforeseen accident to him while engaged in the line of his duty as such employe, been rendered helpless, the dictates of humanity, duty, and fair dealing would seem to demand that it should furnish medical assistance. This duty could not rest upon the master in ordinary cases, in the absence of a contract to do so, but should rest upon him only in extraordinary cases, where immediate medical or surgical assistance is imperatively required to save life, or avoid further serious bodily injury.

This duty on the railroad company only arises out of strict necessity and urgent exigency, where immediate attention thereto is demanded in order to save life or prevent great injury. The duty arises with the emergency, and with it expires. This duty does not clothe the master with the power to dictate to the injured servant what particular physician or surgeon shall treat him, nor does it deprive such injured servant of the right of making a conscious and delib-

erate choice, while in the possession of his mental faculties, of the time, place and person, and by whom and when and where he will be treated. And if the master, yielding to such right complies with the request to be so treated, and at the same time promptly places before him ample medical and surgical assistance, ready to be rendered to meet the emergency, which he declines, then such emergency has ceased, and the duty with it; and if the choice thus made, in the conscious exercise of his own free will, turns out to be a mistake, the company is not liable, because the duty ceased with the expiration of the emergency.

ASSOCIATIONS AND THEIR JOURNALS.

"The journal is the Association," says DR. THOMAS M. DOLAN, editor of the *Provincial*, speaking of the *British Medical*. He ascribes the wonderful growth of the British Association during the past twenty-five years largely to its journal, and says: "When we come to analyze the work of the Association, and what it is doing for the profession, we are more than ever convinced that without the journal the Association would be a very powerless machine, and that were the journal to cease, the Association would rapidly diminish. The influence of the press has, during the last twenty-five years, been a constantly increasing one, and we need not wonder that the medical press has shared in the general benefits. The *British Medical Journal* has been ably edited. Still more, MR. FOWKE has been able to secure for it that which brings in grist to the mill—viz., advertisements. Without the journal you can hardly imagine an Association. What does the journal do? It brings all the members into communication; it publishes letters on every conceivable kind of subject; it lays down the law on ethics; it publishes long reports of the scientific committees; and it also gives the results of the annual meetings, the papers read furnishing material for the year. Its editorials and all that comes under the "we" are, we believe, alone paid for, and at a very cheap rate. The *British Medical Journal*, then, is the key-stone of the Association, and we hope it will flourish."

It seems hardly necessary to comment upon the foregoing, or to seek to apply its obvious lesson to the AMERICAN MEDICAL ASSOCIATION and its JOURNAL. We will only observe that the "grist to the mill" of the current issue of the *British Medical* is eighty-four pages of well-paid advertisements—netting more than enough, probably, to cover the entire cost of the number.

LET THE GOOD WORK GO ON.—In the last six weeks nearly two hundred Chicago physicians, have added their names to the subscription list of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Many of them have joined the ASSOCIATION, and others have signified their intention. The physicians of Chicago know a good thing when they see it.

CORRESPONDENCE.

Letters to My Hospital Internes, Past and Present.

BY CASEY A. WOOD, M.D., OF CHICAGO.

III.

UTRECHT, July 22, 1895.

No better situation could have been chosen for the largest Dutch ophthalmic hospital than Utrecht. The city is about the geographical center of Holland and is the seat of a university founded in 1636 whose medical department is attended by a large number of students. Ophthalmology, as well as other branches of medicine, owes much to the Utrecht school.

It was the celebrated treatise of Donders on physiologic optics (translated into English) that opened the way for a clear understanding of the refraction of the ocular media, the mode of accommodation and the action of the extrinsic ocular muscles. All these and many other important matters have been elucidated by his worthy successor, Prof. H. Snellen. Two years ago the building of the new ophthalmic hospital (*Nederlandsch Gasthuis voor ooglijders 49 Bleijburgstraat*, seventy beds with over five thousand outdoor patients and five hundred operations yearly—daily clinic 8 to 12, operations at 11) was opened. This is a very handsome eye hospital with wide corridors, high ceilings and cheerful indoor walks for the patients. It is built so that there is plenty of light where a good illumination is required, while convalescents can go about in covered ways suited to their condition. In this building Snellen gives the regular university courses for students. Here, too, other teaching is done by the Professor's sons, Drs. H. J. and W. Snellen and the other assistants. All the operators follow the Professor's example in making the corneal incision (in cataract extraction) extend slightly underneath the conjunctiva. Snellen thinks that if this is done so as to avoid the sclera, that no bleeding will take place into the anterior chamber and so render the subsequent steps of the operation uncertain and difficult. This is, as you know, the chief objection to the conjunctival flaps. Its chief advantage is that such a wound heals in a few hours and binds the edges of the cornea closely together. When he does an iridectomy, as part of cataract removal, he favors the preliminary operation and performs it some six weeks before. When there is increased intra-ocular tension, a sluggish pupil, posterior synechiae or an unripe lens he would advise it. At the time of the operation a 4 per cent. solution of pilocarpin is instilled, instead of eserine which is often very painful and irritating. After dressing the eye, subsequent to any operation where the eyeball has been opened, a thin oval aluminum shield (about 4 x 3 inches) is placed over the ocular region and this is kept in place by adhesive straps. The patient is now carried to bed on a litter made of poles and side-pieces run through folds made in the under operating sheet. He is allowed to sit up the next day, when the lids are also opened for examination.

I was courteously allowed to examine a large number of cataract cases operated upon at various dates, and was greatly pleased with their appearance and the absence of complications. The Dutch people are notoriously clean and live in well-ventilated houses. I was consequently not surprised to learn that they are pretty free of diseases of the lids and conjunctiva. Dr. Snellen informed me that in Utrecht, with a population of 100,000, he sees barely 6 or 7 cases of trachoma yearly. On the other hand, among members of the large Jewish colony in Amsterdam (most of whom work in factories and live in dirty, ill-ventilated tenements) granular lids has been endemic for over a century, and has apparently resisted all attempts to eradicate it.

Professor Snellen is at present engaged in perfecting the ophthalmometer and believes that the University optician (office in the Physiologic Institute) has succeeded in grinding the prisms and other lenses connected with the instrument with a precision not attained by Parisians or other workers. He also showed me a new scheme for testing the color vision of railway employees. This consists, essentially of illuminated colored discs of glass which are exposed for a second or less, to the view of the person under examination, by means of the rubber ball and shutter used in the ordinary photographic camera. The size of the disc and its distance from the eye correspond to the visual angle for which the Snellen test types are arranged. The short exposure and artificially illuminated test color make it more difficult for the color-blind person to escape detection than when the Holgren wools are alone employed. Moreover, the Snellen apparatus can be used at night time and the illumination does not vary, as does that of any other method that depends upon daylight.

It seems to me that at least a portion of the post-graduate student's stay in Europe might profitably be spent in one or more of the smaller university towns like Utrecht. He would in this way escape the over-crowded clinics of larger cities like Vienna, and be able to get nearer both patients and teachers. It is true that in the case of Utrecht, for example, the average student does not know and would not care to give time to the study of Dutch, but since both Professor Snellen and his assistants speak admirable English, and many of the patients understand a little German, this drawback is not a serious one. I think, also, that it is a mistake for the student of German medicine to give all his time to Berlin and Vienna, where he often has to take his chances with the members of a large class in getting partial views of operations between the heads and over the shoulders of numerous assistants who crowd about the operating table. In smaller places, like Prague, Königsberg, Göttingen, Kiel, Budapest, etc., the American student will generally have the advantage of personal instruction from as good teachers as he will find in Vienna, and will secure advantages and opportunities which he can not hope for even in the much-vaunted and more costly courses of the Austrian capital.

BERLIN, July 30, 1895.

There have been remarkably few changes in the personnel of the Berlin medical faculty during the past eight years. It would require more space than I have at my disposal even to mention all the celebrities at whose feet students, both graduate and undergraduate, might sit at this great teaching center. I renewed my acquaintance with so many of them as I could find in town. This is, however, the time of the midsummer vacation which every North German keeps who can.

Virchow is still working away, pretty much as usual. His celebrated early morning (*Pathologisches Institut, Charité*, Mon., Wed. and Sat., 8 to 10 A.M.) demonstrations in pathologic anatomy and microscopy is just ended but will begin again, like all the other university classes, with the winter semester about the middle of October and last until March. Virchow's former assistant, now Professor Israël—well known friend of the American—also gives courses on pathology in the same place.

Berlin, when the convenience of the post-graduate student and the opportunities for study are concerned, is, to my mind, superior to London, while equivalent courses are much less expensive than those of Vienna. In the latter city everything medical practically centers about the large *Allgemeines Krankenhaus*; there is no running about to distant hospitals or lecture rooms for instruction or to witness operations. Both the regular University lectures and the other Vienna

courses (which go on month after month with little change) on the same or allied subjects, are generally so arranged that one can constantly pursue even a single line of study without much conflict of lecture hours. The proportion of teachers who speak English is probably greater in Vienna than in either Paris or Berlin.

Although Vienna is perhaps the best place for the student who has but a short time for study abroad, yet Berlin and other German cities occasionally offer superior advantages in most departments of medicine to the physician or surgeon who can remain for a year or two. A prolonged stay will enable him to learn the language thoroughly and he will be better able to mentally digest what he sees and hears. He will also cultivate the acquaintance of teachers (a numerous class here) who follow their particular studies with an eye single to the service of science—not always casting furtive glances at the pocket books of the class before them. The University issues an admirable calendar (to be had at every book store) and time table of lectures—a pamphlet that will be appreciated by those who have studied in London and Paris. Armed with this, and having chosen a centrally located lodging somewhere near the *Charité*, he can profitably set to work at almost any time. Berlin should, however, be avoided by the new arrival during the months of July, August and September unless he has previously arranged to act as *locum tenens* for some assistant or chief of clinic who has gone for the usual holiday. Moreover, unless he wishes to follow some special advanced course or courses it would be wise for him to begin at the commencement of one of the semesters (the next begins October 26), or one of the *Ferien course*—vacation courses—for practicing physicians. The latter can not be too highly praised and should be attended by every post-graduate student who can conveniently reach Berlin toward the end of September. Full information regarding each course with the address of the clinic where it is held, name of teacher, honorarium, etc., is given in an announcement to be found in most medical bookstores or at the “Langenbeck house” (10 *Ziegelstrasse*).

The lecturers and instructors in the *Ferien* courses are not confined to the professors and *privat doctenten* of the University—although these are in the majority—so that several competent and popular instructors outside the sacred precincts are afforded an opportunity to display their merits.

As many of these courses are limited, an early application is usually desirable before September 30, when certain of them begin. They all come to an end on October 26, each single course lasting four weeks. The fees are usually 40 marks (\$10) but range from 20 marks—e.g., Westphal's class in mental diseases, limited to five, twice a week—to 150 marks for Baginsky's practical course in otology, limited to three, and held daily. No department or departmental subsection of medicine or surgery seems to be forgotten in this scheme. For instance, there are thirteen courses, no two of which cover the same ground, in bacteriology, normal and pathologic anatomy; seventeen in internal medicine; eleven on the eye and ear; eight on gynecology and obstetrics; two on physiology; six on medical jurisprudence, toxicology and hygiene; eight on nervous diseases and electro-therapy; five on general surgery; fourteen on diseases of the ear, nose and throat; seven on syphilis, skin diseases and diseases of the genito-urinary organs, and one on medical photography.

Berlin has for us rather a melancholy interest in presenting most of the sanitary advantages that our large towns lack, and but few hygienic shortcomings, of which American cities furnish such conspicuous examples. Every medical visitor should inspect as part of his studies, the extensive municipal slaughter houses and their laboratories, where every animal is examined, macro- and microscopically before its flesh is used for food. And woe unto the butcher who dares

expose for sale a carcass lacking the proper sign of examination! He should also inquire into the system by which a daily and thorough (I had almost said non-political) examination is made of the milk sold within the city limits, and by which a careful search is instituted for adulterations in other forms of food. These matters are fully gone into by Meyer in a little book (*Das Gesetz betreffend den Verkehr mit Nahrungsmitteln*) published by Springer in Berlin. During this study of municipal hygiene, he will find that smallpox is practically unknown in Berlin and that everybody is, without exception, vaccinated. Finally, not to further expand this letter, he will discover that the sewage of the town does not pollute the Sprey, but is pumped out to, and spread upon a municipal farm of some 1,200 acres where it is used as a fertilizer. This estate is thus made to pay, over and above current expenses, more than 3 per cent. on the original outlay for the land.

The Code—Once More.

CHICAGO, ILL., Aug. 1, 1895.

To the Editor:—Will you grant me a little space to consider three questions which in the midst of all the present discussion upon the Code of Ethics, I do not remember to have seen presented in print in exactly the same way they have presented themselves to me. A clear, precise answer, devoid of all eloquent circumlocution, to each one of them will, I believe, go far toward establishing the value of the Code in the minds of many doubters in the profession. These questions stated briefly are as follows:

1. Is any written Code of Ethics compatible with free competition?
2. Is any code which does not assume the form of law with penalties attached, likely to have more than a poetic influence upon competing men?
3. Is the medical profession free from the “commercialism” so much condemned by the Code?

Upon principle and policy I will confess that I am a rigid code man, but I nevertheless fail to see the advantage of a written code of ethics for the medical profession or any competitive avocation and I am without hope of such a code ever being universally practiced though it may be universally admired. The weakness of the Code in the matter of personal competition and want of provision for appropriate penalties, I can best show by a couple of illustrations:

A young man, industrious and well-trained, honorable and talented, graduates at the head of his class and then begins the practice of medicine upon a limited capital. He expends a large part of his surplus cash fitting up his office and otherwise equipping himself for his life work. Like all beginners, he has but few patients, and these far between. Some morning while wearily waiting in his office, an individual walks in to consult him in regard to a small tumor. The young physician recognizes the nature of the growth, is fully cognizant of the ability and willingness of the individual to pay him a handsome fee for removing it, and has furthermore, every confidence in his own surgical skill gained by hospital experience. The patient, however, suddenly informs him that he has just come from Dr. X, whom the young man knows by repute and personal knowledge to be a man of inferior attainments. He furthermore learns that Dr. X has been in charge of the case, and for the last three months has been endeavoring to remove the tumor with all sorts of internal and external medication. Dr. X, being a regular physician, a confrère and personal acquaintance as well as a near neighbor, the young man at once thinks of the Code of Ethics. He also thinks of his own sore need of money to meet his coming rent, and of this rare opportunity afforded him to reveal his superior skill and experience. To send the patient back to Dr. X, would not bene-

fit the patient but would merely turn him away to some other physician. It would moreover, probably bring down upon his own head all the jealous wrath and backbiting of an angry rival—a result which he is likely to bring about whatever course he may pursue.

What, Mr. Editor, is the young man to do in the light of the Code of Ethics? One specific answer in such instances which are so common, is worth a volume of general platitudes.

Permit me to relate an actual occurrence, for these are the cases that are troubling many honorable men in the profession who admire the Code and yet seem strangely opposed to it:

A young friend of mine was treating satisfactorily several members of a well-to-do family. One of the daughters of this family suffered from excessive dysmenorrhea, the attacks of which were so severe as to resemble hysteria. A consultation was proposed and a popular gynecologist summoned. Glancing at the patient, the latter at first declined to make the examination, saying that the case was merely one of nervous dysmenorrhea so frequent among young girls and that marriage would relieve her of all her trouble. The family physician, however, insisted upon a physical examination, stating that the family expected it. It was made. The consultant still declared that nothing was the matter except general neurasthenia which was to be treated upon general principles, and with electricity to the spine, notwithstanding the fact that he had been told the girl had undergone such treatment for about two years at the hands of one of the best neurologists in the city. This was in the spring of the year. The gynecologist went to Europe, and the young physician not having made an examination himself, carried out the consultant's suggestions to the letter. There was not a particle of improvement, but rather the reverse. In the fall, the gynecologist returned and the attending physician after much earnest persuasion got the patient to go and see him. She did so, but note the result! The great man now said she had "inflammation of the womb," that she always had had it and that it was the inflammation which had given her all the trouble in the spring and while he was away. She was told to visit his office (the gynecologist's office!) once or twice a week to receive local applications, for which she paid him \$5 a visit. To complete the story, she went regularly, still continues to go, so far as I know, though much dissatisfied with the result obtained, as she seems but little better than she always was.

The family physician who graduated with intense enthusiasm for the Code, told me he was astounded at two things: first, that the gynecologist whom he had often heard speak glowingly and eloquently before medical audiences in behalf of the grand Code of Ethics, should have so ignored his rights; and second, that he should have played him so false as to recommend a line of treatment in the spring so utterly at variance with the requirements of the case. The family physician being still in attendance is asked all sorts of questions in regard to the gynecologist's sudden change of opinion, line of treatment, results obtained, etc. To preserve his own credit and to act up to the spirit of the Code how, Mr. Editor, should the attending physician reply to these questions?

A simple answer in such a dilemma is worth a dozen generalities. I wish space was permitted me to cite from actual occurrences even more glaring than these; and I furthermore wish that the valuable space of our better journals now filled with "sweet talk" and "platitudinous nonsense" about the grand old Code were used to report specific instances of flagrant misdemeanors. We would then secure some perceptible light upon many a dark problem haunting the minds of honest would-be high code men.

Mr. Editor, when a man's living is at stake, it is not in the power of human nature for him to make a martyr of himself. One may be persuaded at times to sacrifice one's personal ambition for an ideal principle, if by so doing he does not cause himself or family to starve; but it is perfectly useless to talk to a man about declining to receive certain patients when he is dependent upon these patients for his daily sustenance. It is simply Utopian. Competition exists in the practice of medicine as in every other walk of life. Endow a man with a life competency and he may rise above the spirit of competition except as a means of personal gratification. He may then live up to the letter of the Code or any other divine rule of conduct. On the other hand, while

it may not be a glorious act of martyrdom, neither is it a form of dishonesty for a man to accept all that the world chances to send him and all that his superior talent and education entitle him to enjoy. The socialistic notion is a dream of the imagination; it is neither desirable nor practicable in this intensely human world of ours. It is not to be expected or commended in human nature to hide its light under a bushel. It is a fact, all too apparent, that the one hundred and forty medical colleges of our country turn out doctors of widely varying abilities. The spirit of the Code, if not the actual words, seem to require that every doctor should defer and bow to every other doctor, which as a matter of Chesterfieldian courtesy is all right, but as a matter of a competitive struggle for existence is simply impossible. The medical profession consists of *men* having all the various feelings, unequal talents and differing ambitions of *human beings*. The practice of medicine being almost universally the means of earning a livelihood is a matter of pure competition, and competitors in the very nature of the case can not afford to be self-sacrificing for one another.

It has been said by some of our rigid code friends that the preceding argument is an ancient one and in a few words amounts to this: because "men do not live up to an ethical, religious or even a legal ideal, therefore the ethical, religious or the legal law or ideal should be abolished." In reply, I must recall to our friends the fact that unanswered and unanswerable arguments, only, become ancient, otherwise they would cease to exist at all as arguments; and secondly, that ethical, religious and legal laws or ideals are totally free from the influences wrought by competition. To speak of ethical, religious and legal ideals in the same category as the medical code is a willful misconception or lamentable ignorance of them all. Ethics has to do only with a man's own conscience and is largely a matter of education. A disregard of ethics may injure the man himself but he has only himself to answer for it; when a disregard of an ethical question amounts to a positive injury to one's neighbor, the law steps in and takes charge of the question which has now ceased to be one of pure ethics. Law, however, knows that its ethical enactments must be enforced with appropriate penalties. A man may lie, if he wishes, to his neighbor and he may even become an habitual liar, which is unethical and may prove unprofitable, but at all events the man is free to do as he likes and from his particular point of view may even reason that it is right to lie. If he commits a forgery, however, he injures another beside himself and the law then takes charge of him and punishes him.

Ethical questions are all controversial. They range from questions of mere self-preservation to questions of heroism and martyrdom. A Hottentot's ethics differ from the ethics of the North American Indian. In all sincerity each will act in accordance with his own conscience. Two men and their families watch a burning house. A child belonging to neither of the men has been left in the house and it is positive death for either one of them to attempt to rescue it. One man says: "My family is dependent upon me. I will not risk my life"—(self-preservation); the other says: "I will try and save the child if I lose my own life." He rushes in and does lose his life—(heroism). The ethical question in the case of each man was answered by his own conscience. A man steals for his starving little ones at home; another lets them starve rather than steal. They both know it is wrong to steal, but their respective reasoning leads them to different results.

So illustration after illustration might be given to show that ethical questions are, as a rule, controversial, and are usually answered according to a man's *individual* conscience. Recognizing this fact, common law strives to eliminate the controversial element out of the ethical questions it takes in hand, by assigning penalties for their disregard. It says to both men who steal: "I care not what reasons you may have had for stealing, reasons perhaps conclusive to your own mind. Stealing is wrong and you must be punished for it." That is just where the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION is at fault. It is a mere code of ethics and is therefore controversial; on the other hand, it is not law and therefore without the force which law with its penalties usually exercises.

Religion is so absolutely a matter of private opinion and so utterly free from all shadow of human competition, that I marvel any rational being should have compared it and its teachings in any way with the practice of medicine. Jew and Gentile live most harmoniously together so far as their particular religious opinions are concerned, but may fight like the Killkenny cats when bartering over a piece of silk. I am ashamed that any one in this nineteenth century and

in this tolerant land should even so much as insinuate that religion and religious tenets enter as a part of the competitive scheme of life. Religion is a matter of the soul, and has to do with man's relation to his Creator. The nature of that relation may and does influence in one way or another the man's actions in life, but for those actions he is responsible only to his Creator from the *religious* standpoint. A Moham-medan with his dozen wives, a Jew denying the Messiahship of Christ, an Atheist and a Christian may buy and sell, practice medicine upon each other and do a thousand other things mutually needful in life, and yet never know one another's religious opinions.

Let us not lose sight of plain common sense in our discussions. The Code, therefore, while theoretically a most commendable set of rules, just as Plato's "Republic" and More's "Utopia" are theoretically admirable governments, is practically valueless because it can not overcome (nor would it be desirable for it to overcome) the worldly spirit of competition, and because it offers no appreciable deterrent against its own infringements.

Why, Mr. Editor, it seems almost absurd that it should ever have been thought that such rules would be effective. Every organization that I know anything of, such as militia companies, literary societies, clubs and beneficiary bodies, impose fines for misdemeanors or delinquencies against their rules, and yet these delinquencies and misdemeanors, while involving more or less disgrace, do not involve a man's livelihood. On the other hand, the AMERICAN MEDICAL ASSOCIATION adopts a set of rules utterly devoid of all punitive provisions and then expects it to be effective against misdemeanors and delinquencies that are not only at times irresistibly tempting but, occasionally, seemingly necessary for a man to commit in making his living.

I verily believe, sir, in that as a profession we injure and belittle ourselves in the eyes of the people, with all this shallow, ineffective nonsense of the Code, and with the effort to set ourselves up as superhuman beings, too good for this terrestrial existence with its sharp competition and intense rivalry. I wonder that lawyers, statesmen and legislators, leaders of men and all those who have to do with men *en masse*, do not laugh at us more than they are in the habit of doing, for our refreshing gullibility in expecting laws without penalties attached to have any very profound or extensive influence.

Let me say emphatically right here, sir, that for one, at least, I disclaim all such slurs upon our great merchants, bankers and commercial houses as are insinuated in the cant frequently appearing in our journals to the effect that, as a profession, we are too good to stoop to commercialism and commercial methods. We do stoop to commercialism and when honorably done we need not be ashamed of it. We exchange or *barter*, if you like, our skill, learning and particular experience for a price. Our prices vary with our skill and reputation, just as the merchants' prices vary with the quality of their goods. We advertise too, and it can not be gainsaid. Our successful cases are our advertisements. College and hospital appointments are eagerly sought after by most reputable men for the advertisement such positions give them. We join social organizations and enter clubs, unions and all forms of corporate life for the advertisement we get therefrom. We solicit patronage by seeking for examinations in insurance companies, railway offices, beneficiary unions and other associations. If we are specialists we are not averse to accepting office in special societies and even giving banquets and receptions to the medical profession in our own homes. As editors of reputable journals, we publish our names in full at the head of the editorial columns. Our libraries groan with the accumulated weight of books in which positively the only new thing is the author's name with a long string of self-laudatory honors attached. Perhaps 50 per cent. of our periodical literature is written for mere advertisement. Is it from the simple love of speechmaking and a self-sacrificing devotion to poor humanity that some of the best of us give lectures upon medical topics before Young Men's Christian Associations, popular institutes and other public assemblies? If we are rich enough to drive a team and keep a luxuriously appointed office with an extra maid in attendance, do we not do so? Show me the doctor who, in dress, manner and mode of living does not endeavor to put himself in the best light (professional light, I mean) before the community, and I will show you a man who has ceased to be human.

And what is this all done for? Legitimate advertisement, call it by what other name you please. Let us not ostrich-like hide our heads in the sand and chuckle to ourselves that we are unlike other men. Let us, for our own credit's

sake, at least, not try to parade around in the masks of angels, in the hope of making a shrewd world believe that we are something more than human.

No, sir! I, for one, most honestly believe and aver that doctors as a class are no better, no worse than any other class of men. Pray, who does not know that the entire commercial world has an unwritten code of ethics? The great and honorable merchants deal courteously, gentlemanly and diplomatically with one another as all men should do; they compete for customers in a legitimate manner; and they strive to surpass one another by availing themselves of their respective superior opportunities. They are charitable in their way just as we are in ours. They give of their wealth as we give of our skill. It is high time that we should cease the cant phrase and vulgar insinuation that we as a profession are something better than the commercial world. We are what we are, solely because we are the *men* we are. I believe if we acted less superciliously, and met the laity on their own footing, there would be less friction between hospital boards and medical attendants, between courts and experts, between public functionaries and physicians in public places.

Let us have done, then, with all this unbecoming, childish, self-laudatory, namby-pamby nonsense about the angelic qualities of the medical calling. It is a practical, very practical profession in a practical world among practical men. An unwritten code will always exist among medical gentlemen, just the same as an unwritten code exists among gentlemen in other walks of life. For the other fellows of the medical profession, as well as for the other fellows of the other avocations, the only code that will be of any avail at all will be the code that has some effective punishment provided against its infringement. AMERICUS VERITATIS.

BOOK NOTICES.

Gunshot Injuries. A New Edition of Sir T. Longmore's Work.—Gunshot Injuries; their History, Characteristic Features, Complications and General Treatment; with statistics concerning them as they have been met with in warfare. By SURGEON-GENERAL SIR T. LONGMORE (Retired) C.B., O.H.S., F.R.C.S., etc. Second edition. London and New York: Longmans, Green & Co.

Surgeon-General Longmore, although on the retired list of the Army, has not given up his active work on behalf of the medico-military profession. There has just been issued a second edition of his volume on gunshot injuries. The first, published in 1877, contained 686 pages; the second is a solid volume of 821 pages. In the intervening years, radical changes have been made in the firearms of military nations which will alter the character of the gunshot wounds of future wars and modify the relations which medical officers will bear to the fighting line; meanwhile, also, changes have taken place in methods of treatment. The object of the present volume is to give an account of these changes and to bring the information contained in the former edition on many other topics up to date. The reader will, however, find it a work of much difficulty to sift out the new matter, as it is scattered throughout the many sections and chapters in interpolated paragraphs and sentences and even in modifications of the sense of sentences that are found in the old edition. In fact, the whole work has evidently been rewritten with the utmost care.

In bringing up to date the many other topics to which he refers in his preface, the author has made free use of the third part of the "Surgical Volume of the History of the War of the Rebellion," which was issued subsequent to the publication of his first edition.

In Chapter 2, a paragraph is given to smokeless powder; a second to the special explosive, cordite, authorized in the British service for use with the Lee-Mitford rifle, and a third to the use of compressed air as an agent in the production of gunshot wounds. In Chapter 4, the article on red hot shot gives place to one on machine guns and another on "fougasses." The latter are stated to have been employed largely, under the misapplied name of "torpedoes," in the

defense of places during the War of the Rebellion in the United States. In Chapter 5, the leading features of the principal military small bore magazine rifles and their projectiles are described, including the Lebel, Mauser, Krag-Jorgensen, Berthier, Mannlicher and Lee-Mitford; and this chapter closes with a paragraph which constitutes the text of most of the new matter in the volume: "The alterations that have occurred during the last three or four years in military rifles and their projectiles, the reduction in caliber of the firearms, the introduction of compound projectiles and the use of new explosives in place of gunpowder, have led to extremely important changes in the general aspects of war, as well as in the characters of many of the wounds which are likely to be inflicted in the future at remote distances. So far as Europe is concerned the effects of the new weapons have only been observed, with a few accidental exceptions, experimentally; they have not happily been experienced in actual war. The reports which have been published regarding the results of their partial use during the civil war in Chili have been contradictory. But it is beyond question that the changes referred to have caused a very great increase in the velocity both of translation and rotation of the bullets, in their accuracy of flight over extended ranges, and in their penetrative capacity. The increase in hardness of the surfaces of the projectiles, at the same time the fact of their weight being sufficiently maintained by the core of heavy lead within, effect results which not only increase the power of penetration of these narrow missiles, but also enable them to maintain this power over distances at which the rifle bullets in previous use had parted with considerable portions of their energy. Another important consequence of the great reduction in the diameters of rifle projectiles, surgically regarded, is the fact that, with the narrowing, there has been a proportionate exclusion of air, and of all the irritant and morbid germs which air contains, from the openings and interior surfaces of wounds caused by them. When, therefore, the wounds are confined to some of the soft and yielding tissues of the human body, they become nearly analogous to subcutaneous wounds."

The various properties, as defined by experiment, of the small bore armored bullets are described. Their destructive energy up to 500 or 600 yards is in excess of that possessed by any rifle projectiles that have preceded them, while their penetrative energy up to 2,500 yards, and beyond, is such that no bodily structure is able to resist their passage. There is little difference in the amount of comminution of bone and general damage produced by them at short ranges and the .45 inch bullets in previous use, the main difference between them being that the destructive effects of the small bore bullets are met with at distances considerably beyond those at which they result from bullets of wider diameter. The damage done by the narrow bullets at medium ranges to the shafts of bones is always very great, but has been observed generally to be less than in wounds at similar ranges by old style bullets; while at very long ranges, at which a greater amount of velocity and higher penetrative power are preserved by the narrow bullets, the comminution and splintering are generally greater from the narrow than from the broader projectiles.

In discussing the conveyance of septic germs by bullets the experiments of Captain La Garde, U. S. Army, as published in the Report of the Surgeon-General for the year ending June 30, 1893, are cited, and a synopsis is given of the conclusions deduced from his experiments.

The survivals among patients with penetrating wounds of the chest will probably occur in a much larger proportion in future wars. The slight resistance that can be offered against the passage of the new bullets will cause perforat-

ing wounds of this region to be more common than hitherto; while the narrowness and other physical qualities of the bullets will render their effects less fatal by limiting the areas of the lesions inflicted by them. Penetrating wounds of the abdomen will also be more frequent; while the difficulties in the way of applying the remarkable improvements that have taken place in abdominal surgery in civil life, to military practice after important engagements in the field, will probably prevent any considerable reduction in the large ratio of mortality which has hitherto attended them.

Professor Longmore refers to the rarity of erysipelas in gunshot wounds since the use of antiseptics has been adopted. He speaks of the presence of pyogenic cocci in pyemia and of the special microorganisms and their septic products which give rise to hospital gangrene; but he doubts the connection of tetanus with a bacillus, considering the difficulties insuperable when endeavors are made to reconcile the agency of this reputed cause of tetanus with all the clinical conditions under which the disease has followed gunshot injury on different occasions in naval and military practice.

In the paragraph on examination by the finger, he has introduced a new sentence: "It seems hardly necessary to observe that when making an exploration of the kind in the field, where sources of impurity are so abundant, very strict care has to be taken to prevent the introduction of septic matters into the wound by the explorer's finger or by the fingers of assistants." A paragraph on antiseptic dressings, not found in the old edition, discusses the use of sublimate solutions, sublimate wool, iodoform and the double cyanid of mercury and zinc.

In the old edition, the chapter on inflammation began with the enunciation of the principle: "Every gunshot wound, the most trivial as well as the most severe and complicated, is naturally followed by inflammatory action." In the new work, inflammation is not recognized as an essential consequence of a gunshot wound. The following sentence does not appear in the new volume: "The amount of suppuration has been reduced by the greater attention which is now being generally given to hygienic arrangements and especially to cleanliness in the manipulating of wounds; but I fear the day is still far distant when suppuration will not be met with during the process of cure in a very large proportion of severe gunshot wounds."

In referring to the prevention of muscular contractions and stiffness of joints during the healing of wounds, the Continental practice of sending the patient to some of the thermal springs is favorably mentioned.

Lastly, in speaking of the 1:4 ratio of killed to wounded in battle, the following is inserted: "If we may judge from the experience gained down to the present time, such may be regarded as an approximate average of the proportion of killed to wounded likely to be met with in battles. It is generally surmised that the employment of small bore bullets will lead to the proportionate number of men killed in battle being lessened and that of the men wounded being increased, so far as regards rifle fire; but even if this surmise should prove to be correct, when the uncertainty which prevails regarding the probable effects of the new artillery fire is considered, it seems evident that the general ratio of killed to wounded among troops in wars of the future can not now be forecast with any approach to accuracy."

A German English Medical Thesaurus, OF TREASURE OF SINGLE AND COMPOUND MEDICAL WORDS AND TERMS; with Dialogues, Idiomatic Phrases and Proverbs, etc., and German and English Indexes for Physicians and Students. By REV. HENRY LOSCH, M.D. Pp. 323, cl. Philadelphia, 1895. Published by the Author. Price \$2.50.

This manual contains over twenty thousand words relating to medicine, and is distinguished by its conciseness in

definition and its simplicity in the arrangement of the vocabulary for rapid reference. The book is divided into three parts, of which the first is devoted to the systematization of simple and compound medical terms; the second, to hygienic, medical, surgical and domestic affairs; Part 3, consists of dialogues, idiomatic phrases and proverbs, a schedule of the termination of each declension, and a list of irregular verbs. Medical students will find much of value in this volume, and it should find a place upon the shelves of every reference library.

SOCIETY NEWS.

Southwestern Iowa Medical Association.—The semi-annual meeting of the Southwestern Iowa Medical Association was held in Red Oak, Iowa, August 15. Attendance sixty.—The physicians of Douglas County, Kansas, met at Lawrence, Kan., August 10, and formed a society. The following officers were elected: President, W. S. Bunn; Vice President, J. I. Douthart; Secretary, H. Ernest.

Mississippi Valley Medical Association.—The secretary of this Association desires to announce that the railroad rates for the Detroit meeting September 3, 4, 5 and 6 will be one and one-third regular fare, on the certificate plan. In purchasing ticket to Detroit full fare will be paid. On request, the local ticket agent will furnish purchaser with certificate which will be handed to the secretary at Detroit. This certificate when signed and vided by the agent of the Central Traffic Association will entitle holder to a return ticket at one-third regular fare.

FREDERICK C. WOODBURN,

Secretary.

American Academy of Railway Surgeons.—The second annual meeting will be held in the parlors of the Auditorium Hotel, Chicago, Ill., on Wednesday, Thursday and Friday, Sept. 25, 26 and 27, 1895. Motto: "The higher the order of Railway Surgery, the greater the protection to the Employee, the Passenger and the Company." Officers: President, C. K. Cole, Chief Surgeon, Mont. Cent. R'y, Helena, Mont.; First Vice-President, C. M. Daniels, Chief Surgeon, W. N. Y. & P. R'y, Buffalo, N. Y.; Second Vice-President, W. H. Elliott, Chief Surgeon, Cent. R'y of Georgia, Savannah, Ga.; Secretary, Webb J. Kelly, Surgeon, Erie & Big Four R'ys, Galion, Ohio; Treasurer, C. B. Kibler, Surgeon, Erie R'y, Corry, Pa.; Editor, R. Harvey Reed, Consulting Surgeon, B. & O. R'y, and Surgeon, C. S. & H. R. R., Columbus, Ohio; Chairman of Executive Board, John E. Owens, Chief Surgeon, C. & N. W. R'y Chicago, Ill.; Chairman of Committee on Transportation, W. J. Galbraith, Chief Surgeon, U. P. R'y, Omaha, Neb.; Chairman of Committee on Arrangements, A. D. Bevan, Chief Surgeon, Iowa Central R'y, Chicago, Ill.

FIRST SESSION—WEDNESDAY.

Subject unannounced, R. D. Mussey, Chief Surgeon, C. H. & D. R'y, Cincinnati, Ohio.

Some of the Benefits to be derived from the Higher Order of Railway Surgery, W. J. Galbraith, Chief Surgeon, U. P. R'y, Omaha, Neb.

Subject unannounced, A. D. Bevan, Chief Surgeon, Iowa Cent. R'y, Chicago, Ill.

Subject unannounced, M. Cavana, Surgeon, N. Y. P. & O. R'y, Oneida, N. Y.

Subject unannounced, W. H. Buechner, Surgeon, Erie R'y, Cleveland, Ohio.

SECOND SESSION—WEDNESDAY.

President's Address, C. K. Cole, Chief Surgeon, Mont. Cent. R'y, Helena, Mont.

Report of Secretary, Treasurer and Standing Committees. Registration of Fellows and payment of dues. Consideration and disposal of applications for fellowship. Miscellaneous business.

THIRD SESSION—THURSDAY.

Subject unannounced, J. W. Perkins, Surgeon, U. P. R'y, Kansas City, Mo.

Fractures of the Forearm Complicated with Dislocation, E. Griswold, Surgeon, Erie R'y, Sharon, Pa.

Subject unannounced, Wm. T. Dalby, Ass't Surgeon, U. P. R'y, Salt Lake City, Utah.

Subject unannounced, F. H. Peck, Surgeon, N. Y. P. & O. R'y, Utica, N. Y.

FOURTH SESSION—THURSDAY.

Address on Medico-Legal Surgery, Hon. Tracy C. Becker, Buffalo, N. Y.

A Practical Way of Testing Railway Employees for Color Blindness, D. C. Bryant, Oculist, U. P. R'y, Omaha, Neb.

Traumatic Neurosis, Henry W. Coe, Surgeon, East Side R'y, Portland, Ore.

Verdicts Obtained Through Perjury, C. B. Kibler, Surgeon, N. Y. P. & O. R'y, Corry, Pa.

What Should Disqualify Applicants for Railway Service, John E. Owens, Chief Surgeon, C. & N. W. R'y, Chicago, Ill.

Personal Experience in Spinal Injuries, J. M. Pritchard, District Surgeon, C. & N. W. R'y, Manitowoc, Wis.

Intra-Venous Injection of Neutral Salt Solution in the Treatment of Desperate Injuries. Exhibition of Apparatus, C. B. Parker, Surgeon, L. S. & M. S. R'y, Cleveland, Ohio.

A Word on the Modern Use of the Terms Infection and Contagion, R. Harvey Reed, Consulting Surgeon, B. & O. R'y, Columbus, Ohio.

FIFTH SESSION—FRIDAY.

Railway Sanitation, W. M. Bullard, Ass't Surgeon, Mont. Cent. R'y, Wickes, Mont.

Sanitary Regulations Governing Railways, L. E. Lemen, Division Surgeon, U. P. R'y, Denver, Colo.

The Use of Gold Foil in Fractures of the Cranium and Resulting Hernia Cerebri, W. L. Estes, Chief Surgeon, L. V. R'y, S. Bethlehem, Pa.

SIXTH SESSION—FRIDAY.

Transportation of Injured Employees, F. H. Caldwell, Chief Surgeon, S. F. & W. R'y, Sanford, Fla.

The Use of Cocain in Minor Amputations, C. M. Daniels, Chief Surgeon, W. N. Y. & P. R'y, Buffalo, N. Y.

Concussion of the Brain, W. H. Elliott, Chief Surgeon, Ga. Cent. R'y, Savannah, Ga.

Wounds that Open the Knee-Joint—Treatment, C. D. Evans, Surgeon, U. P. and B. & M. R'y, Columbus, Neb.

Treatment of Wounds of Face and Scalp, Charles B. Fry, Surgeon, Big Four R'y, Mattoon, Ill.

Injuries of the Hands and Fingers, John McLean, Chief Surgeon, P. P. C. Co., Pullman, Ill.

How to Differentiate Between the Use of Heat and Cold in Railway Injuries, Wm. Mackie, Surgeon, C. M. & St. Paul R'y, Milwaukee, Wis.

Best Method of Obtaining the best possible Aseptic Condition during Operation done at places other than Hospitals, J. F. Reger, Surgeon, B. & O. R'y, Littleton, West Va.

SEVENTH SESSION—FRIDAY.

Selection of next place of meeting. Miscellaneous business. Introduction of officers elect. Adjournment.

The managers of the various railroads that have already reported, have very cordially agreed to furnish the necessary transportation to enable the Fellows of the Academy to attend the coming meeting. Those who need transportation will apply for same at once through their proper officers.

Very respectfully submitted,

W. J. GALBRAITH, Chief Surgeon, U. P. R'y, Omaha, Neb.

Medical Society of Virginia.—The twenty-sixth annual session of the Medical Society of Virginia will be held in Wytheville, Va., beginning Sept. 3, 1895. After prayer, Address of Welcome by COL. R. E. WITHERS, M.D., Report of Committee on Applications for Fellowship, etc., the Address to the Public and Profession will be delivered by DR. LEWIS G. PEDIGO, Shawsville, Va.

Report of Committee on Prize Essays: Dr. Hunter McGuire's prize of \$100 for essay on "The Present Status of Serum-Therapy;" conjoint prize of Drs. Joseph Price and Herbert M. Nash of \$200, for "The History of Surgery and of Surgeons in Virginia."

Wednesday, September 4, Dr. Ro. J. Preston, of Marion, Va., will deliver the Annual Address of the President.

After the elections, etc., the call for papers and discussions will be continued as the order of business. The following Fellows have complied with the terms of their appointment by the President last fall:

Z. V. Sherrill, Bland Court House, Vesical Calculus in

Females; James N. Greer, St. Paul, Laparotomy, with Report of Cases; C. K. Kernan, Lebanon, Strychnia as a Heart Tonic; W. S. Sayers, Wytheville, Convulsions; George Ben. Johnston, Richmond, Treatment of Cholelithiasis; J. W. Long, Richmond, Pelvic Inflammations; T. W. Simmons, Martinsville, Uric Acid as a Gynecologic Factor; Wm. F. Drewry, Petersburg, State Provision for Epileptics; Hugh M. Taylor, Richmond, Obstruction of Bowels; Paulus A. Irving, Richmond, Puerperal Sepsis.

The following have promised papers: Honorary Fellow Dr. Hunter McGuire, Richmond, Seventeen Operative Cases of Chronic or Relapsing Appendicitis, with One Death—Remarks; B. C. Keister, South Boston, Varicocele; J. Allison Hodges, Richmond, The Galvanic Current in Treatment of Pelvic Pain; Honorary Fellow Dr. Joseph Price, Philadelphia, Pa.; R. M. Slaughter, Theological Seminary, Abscess of the Liver in Children; James L. Kent, Bertha, Long Survival of Injury of the Spinal Cord in the Cervical Region; Charles M. Blackford, Lynchburg, Pathology and Treatment of Gonorrhea; Honorable Fellow George Tucker Harrison, New York, The Symptomatology, Etiology and Treatment of Endometritis; M. J. Payne, Locust Grove, A Case of Cerebral Trauma, Indistinct and False History—Remarks on Diagnosis and Treatment; Jos. A. White, Richmond, Eye Troubles in their relation to Diseases of Other Organs.

The following have responded favorably: J. McFadden Gaston, Atlanta, Ga., Pyemia and Septicemia in their Surgical Aspects; D. Mayer, Charleston, W. Va., Rigid Os; Edwin Ricketts, Cincinnati, Ohio, Some Recent Work in Gall-Bladder Surgery.

LANDON B. EDWARDS, M.D.

Recording Secretary, etc. (for the Executive Committee).
Richmond, Va., Aug. 3, 1895.

PUBLIC HEALTH.

To Prevent Blindness.—Two laws precisely alike were passed by the last General Assembly at its regular session and signed by the Governor of Illinois, namely, House Bill No. 51 and Senate Bill No. 57. They provide that should any midwife or nurse having charge of an infant in this State notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse having charge of such infant to report such fact in writing, within six hours, to the health officer, or some legally qualified practitioner of medicine in the city, town or district in which the parents of the infant reside. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed \$100 or imprisonment not to exceed six months, or both.

Right Denied to Boards of Health.—A health ordinance providing that no cows shall be kept within two hundred feet of any dwelling without a special permit obtained from the board of health, the general term of the Supreme Court of New York holds, in the case of *Village of Flushing v. Carragher*, decided May 13, 1895, is not authorized by a statute which gives local boards of health power to make and publish all such orders and regulations as they may deem necessary and proper for the preservation of life and health and the execution and enforcement of the public health in the municipality, and to make, without publication thereof, orders and regulations for the suppression of nuisances and concerning all other matters in their judgment detrimental to the public health in special or individual cases. Under the statute, if the matter is such that a general ordinance can be passed upon the subject, the court says that then such ordinance should be enacted. If not susceptible of general regulation, then the board should proceed by special order in the particular case, when the person attacked may defend himself in the courts. The board of health, by the ordinance under review, did not forbid the keeping of cows within two hundred feet of a dwelling house, but so keeping cows without a special permit. In other words, the board took to itself the power of licensing cow stables. No such power was granted by the Legislature.

French Degeneracy from Alcoholism—Absinthe Condemned.

The Paris correspondent of the *Press and Circular*, for the issue of June 26, writes that Dr. Lannelongue, who is a member of the House of Deputies as well as professor at the Academy, has made a vigorous appeal against the lax laws of France concerning the manufacture and sale of alcohol. "Among other statements made by Dr. Lannelongue, he said that 'alcoholism, at the present day, was not only endangering the public health, but also threatening the very existence of the species; it filled the hospitals, the asylums, the prisons, and populated the penal settlements. Previous to 1850, alcoholism was almost unknown, or rather it had not the same character; the effects were temporary because the drink taken was pure and natural. But four years afterward, alcohol of vinous origin failed, and immediately it was replaced by that derived from molasses, beet-root, and potatoes, which poisoned the race. In 1830 the number of suicides from alcoholism were 5 per 100,000 persons; they were 21 in 1881, while 46 per cent. of homicides, 74 per cent. of grievous wounding, 54 per cent. of domestic quarrels, 77 per cent. of outrages against public decency were due to drink. Against the many afflictions which attack man, against the large number of contagious maladies, epidemic or other, the characteristic of the healthy individual is his organic resistance, which enables him to triumph over all the assaults from his most terrible enemies—microbes. The drunkard, on the other hand, has lost all resistance, and falls an easy prey to disease. At 40 he is already an old man; his tissues are degenerated, so that he makes the worst of patients. It is not the richer classes in France who saturate their bodies with alcohol, because they know better, but the lower classes, and especially the workmen, who are ill-fed, clothed, and lodged. In Brittany, however, women of good position give themselves up to alcohol. Out of 107 young married women who died from drink 8 were sterile, and of the 99 others there only remained as posterity 6 sickly children. On the other hand, these same women had 28 children before having taken to alcohol who are very healthy, showing what the others might have been if the mothers had led a sober life. What is still worse,' continued Dr. Lannelongue, 'is the fact that the passion of the parents is transmitted to the children. The drunkard engenders an offspring with the same tendency, be they girls or boys, and curious to say, they begin to drink at the same age that the father began to drink.'" Dr. Lannelongue, who spoke for nearly two hours, interrupted by frequent applause, concluded by appealing to the government to take under its own control the manufacture of alcohol, and to forbid entirely all those liquors made from essences, and more especially from absinthe.

Health Reports.—The following health reports of infectious diseases have been received by the Supervising Surgeon-General of the Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New York: Brooklyn, August 10 to 17, 1 case.

Texas: Eagle Pass (smallpox camp), to August 18, 143 cases, 35 deaths.

Tennessee: Memphis, July 1 to August 7, 10 cases; Shelby County, July 1 to 31, 17 cases.

Philadelphia: July 17 to August 16, 18 cases, 1 death.

SMALLPOX—FOREIGN.

Antwerp: July 20 to 27, 2 cases.

Buda-Pesth: July 22 to 29, 2 cases.

Calcutta: June 30 to July 6, 6 deaths.

Guayaquil: July 19 to 26, 3 deaths.

Madrid: July 22 to 29, 1 death.

Nogales: August 3 to 10, 5 cases, 1 death.

Odessa: July 20 to 27, 7 cases.

Rio de Janeiro: July 13 to 20, 40 deaths.

St. Petersburg: July 20 to 27, 1 case.

CHOLERA.

India: Bombay, July 2 to 9, 1 death; Calcutta, June 30 to July 6, 22 deaths.

Japan: Hiogo, July 13 to 20, 85 cases, 74 deaths; Nagasaki, July 5 to 12, 29 cases, 20 deaths.

Russia: Volhynia, June 9 to 22, 57 cases, 20 deaths.

Turkey: Mersine, June 18 to July 16, 410 cases, 235 deaths;

Tarsus, June 18 to July 16, 293 cases, 143 deaths; Adana, June 18 to July 16, 660 cases, 305 deaths; Sis, July 1 to 10, 4 cases, 2 deaths; Karszulcadrie, July 9, 10 cases, 2 deaths; Hatchin, July 1 to 8, 14 cases, 7 deaths; Karatasch, June 30, 23 cases, 27 deaths; Messis, June 29 to July 11, 17 cases, 8 deaths; Alan Sinar, June 30, 12 cases; Pajas, July 1 to 9, 26 cases, 24 deaths; Bulanik, July 1 to 13, 35 cases, 22 deaths; Jumurtalik, July 10 to 13, 7 cases, 5 deaths; Marasch, June 30 to July 14, 25 cases, 15 deaths; Padzardjik, July 8, 7 cases, 7 deaths; Hadji-Bil (Lazaretto) July 7, 3 cases, 3 deaths; Gok-Sun, July 8, 8 deaths; Karahissen, July 7 to 11, 11 cases, 7 deaths; Husu Mansur, July 8 to 10, 10 cases, 4 deaths.

YELLOW FEVER.

Cuba: Cienfuegos, August 4 to 11, 1 case; Sagua-la-Grande, August 3 to 10, 4 cases; Havana, August 1 to 8, 70 cases, 25 deaths.

Brazil: Rio de Janeiro, July 13 to 20, 14 deaths.

Mexico: Vera Cruz, August 1 to 8, 7 deaths.

NECROLOGY.

J. R. BRANDT, M.D., of Chicago, August 18, aged 57. He was born in New York and after graduation at Oberlin College taught school in Kentucky, becoming State Superintendent of Public Instruction in that State. In 1886 he came to Chicago and began the practice of medicine, and in 1890 was appointed a member of the county hospital staff. He was elected county commissioner in 1890. Only three weeks since, Dr. Brandt, in company with Dr. E. F. Wells and the editor of this JOURNAL, called on President Healy and urged the appointment of specialists to the control of the Cook County Hospital for the Insane at Dunning. That President Healy did not see fit to adopt the suggestion, was no fault of Dr. Brandt's. He then seemed in his usual health and spirits, and no one would have supposed him to be so near his end. His last public work was directly in the line of his profession and in the service of humanity.

JAMES GORDON, M.D., of Carlyle, Ill., August 11, aged 77 years. He was born in Huntsville, Ala., and began the practice of medicine in 1838. Thomas McKennan, M.D., of Washington, Pa., August 8, aged 70.—Rees Davies, M.D., of Wilkes Barre, Pa., August 10, aged 58.—D. L. Manchester, M.D., of Waupaca, Wis., August 11, aged 62.—William S. Battles, M.D., of Wooster, Ohio, August 9, aged 69.—Samuel C. Metcalf, M.D., of Fort Wayne, Ind., August 10, aged 51.

MISCELLANY.

Aid for Industrial Home for the Blind of Chicago.—The Illinois Legislature has appropriated for this institution for working capital to be permanently employed, \$10,000; for completion of third and fourth stories of dormitory, \$7,000; and for expenses, per annum, \$10,000.

Surgeon-General James B. Tryon, of the Navy, has been elected a member of the Red Cross Society of Venezuela. He has also been awarded the bronze medal of that Society in recognition of the services he rendered the wounded at La Guayra during the revolution of 1892, when Dr. Tryon was attached to the flagship *Chicago*.

Liability in Michigan of Married Woman to Pay Physician.—In Michigan a married woman who lives with her husband is liable for medical services and medicines furnished to her and to her daughter by a former marriage, the Supreme Court of that State holds, in the case of *Goodman v. Shipley*, decided May 21, 1895, when it was done at her request, the charge made against her, and she promised to pay therefor.

In the Interests of Science.—Among the appropriations made by the State for the University of Illinois in which the medical profession is more or less interested, are the following: for the increase of scientific cabinets and collections, \$1,000,

per annum; for improvement in the chemic laboratory, \$5,000; for a laboratory for vegetable physiology, \$2,000; for a small temporary building and equipment for work of the biologic experiment station on the Illinois River, \$2,500, and for half of the operating expenses of said station, \$1,500 per annum.

Illinois State Laboratory of Natural History.—Among its other appropriations, the Illinois Legislature has set apart \$1,000 for the improvement of the library of the State Laboratory of Natural History; \$1,500 per annum for the experimental investigation of the contagious diseases of insects, and \$1,500 per annum for one-half of the expense of the Illinois Biologic Station.

Provision for Insane of Illinois Soldiers' and Sailors' Home.—Members of the Illinois Soldiers' and Sailors' Home who are now insane, or who hereafter become insane, the Illinois Legislature has enacted, may be committed to any of the State hospitals for insane persons, except the hospital for the criminal insane, and, being wards of the State, they shall not be credited to any county, but to the State at large.

Provision for Rebuilding the Southern Hospital for the Insane at Anna.—For rebuilding in a thoroughly fireproof manner the south dormitories and wings, and the administration building of the Southern Hospital for the Insane at Anna, Ill., recently destroyed by fire, including the costs of the improvements, removing *débris* and repairing the damage done by fire and cost of repairing the same, the Illinois Legislature appropriated the sum of \$171,970, or so much thereof as may be necessary, payable to the trustees on their order, or their order approved by the Governor, in sums not exceeding \$35,000, as the work progresses.

A Physician Entrapped and Robbed.—Dr. George Drury, a Brooklyn physician, was the victim of the most audacious as well as well-planned robbery that has been experienced by any practitioner in many a day. He was decoyed to a vacant house, gagged and securely bound, and then stripped of his valuables and money while a knife was held at his throat. The robbers carried out their plot without a hitch, and had taken flight more than half an hour before Dr. Drury recovered consciousness and released himself from his bonds. The telephone was the instrumentality of the summons in this case. Dr. Drury remembered that he recently had a patient whose name resembled that which was used over the telephone, and made reply that he would give the case his immediate attention. Whether the robbers knew of Dr. Drury's attendance upon a patient bearing the same name as that which they employed, or whether they chanced upon the resemblance, it shows a possible danger that lurks in telephone calls. Look out for the unknown telephone caller, whether the name used has a genuine ring or not! It is very easy for a designing rogue to work in with a coachman or other physician's employe and worm out the name of some patient that will fit in with a scheme of robbery. It may safely be predicted that we have not heard the last of this branch of thievish enterprise. Other cities beside Brooklyn will be its field of experiment. The telephone is a great labor saver, but it may be the means of loss of life to some medical practitioner as well as being the tool of assault and robbery.

Illinois Vaccine Laboratory.—The sum of \$3,000 was appropriated by the Illinois Legislature at its last general session for the purpose of establishing, equipping and maintaining a laboratory in connection with the State University at Champaign, for the propagation of pure vaccine virus. The trustees of the University, it is provided, shall have the management of said institution, though the State Board of Health is to exercise supervision of the methods of propagation and shall certify to the purity of all products. All physicians and health officers within the State are to be furnished with the product of the laboratory at the cost of

propagation. A report of the management, together with a statement of the receipts and disbursements is to be made and included in the annual report.

Typography a Roman Art.—It is stated on the authority of the *Foia Diecessana*, the official paper of the Greek-Roman bishopric of Carausebes, in South Hungary, that unmistakable evidence of the art of typography has been discovered among the ruins of Bersovia, in Dacia, an old province established as a colony by the victorious Romans on territory then acquired by them. The discovery is attributed to the architect and archaeologist, Adrian Diaconu, who, it is said, found evidence of the use even of movable type by the Romans at this colony, and particularly by those of the fourth legion, Flavia Felix. Two members of the Bucharest Scientific Academy confirm Diaconu's opinion, having examined the evidence and declared the discovery to be of the utmost importance. If these facts be really true, the honor of inventing typography will no longer reside with the Germans nor with the Italians, who attributed the discovery to Panfilio Castaldi.—*Scientific American*.

The Upas Tree.—During his recent stay in Java, Professor Wiesner ascertained some interesting particulars with reference to the celebrated Upas tree, *Antiaris toxicaria*. Contrary to the general impression that this tree is not uncommon in Java and the Sunda Islands, an impression manifested by the statements in the leading text-books, Professor Wiesner learned that the original specimen described by Leschenault has been felled, and in the whole of Java there were but three individual trees belonging to the genus and closely allied to *A. toxicaria*. Of these three one was found by Dr. Greshoff to be innocuous, and was therefore *A. innoxia* Blume, a species supposed by many botanists to be only a variety of *A. toxicaria*. The second tree proved to be poisonous, one drop of the latex being sufficient to kill a dog; the third has not been examined. The tree has, however, been cultivated in the botanical garden, and there are in the plantation at Tjikomoh about seventy specimens. Neither in the botanical garden nor in the plantation could any ill effects be observed, even after a person having been for some time in the neighborhood of the trees; so the accounts of the poisonous nature of the exhalations from it are much exaggerated. Dr. Burek has shown that the plant gives off no injurious vapors, and that the latex is poisonous only when it passes through a wound into the blood.—*Scientific American*.

Cost of Caring for Some of the Illinois Unfortunates.—There was appropriated by the Illinois Legislature for the purpose of defraying the ordinary expenses of the following institutions, for the year beginning July 1, 1895, as follows: the Northern Hospital for the Insane, \$150,000; the Eastern Hospital for the Insane, \$308,000; the Central Hospital for the Insane, \$165,000; the Southern Hospital for the Insane, \$125,000; the Asylum for Insane Criminals, \$26,000; the Institution for the Deaf and Dumb, \$100,000; the Institution for the Blind, \$52,000; the Asylum for Feeble Minded Children, \$80,000; the Charitable Eye and Ear Infirmary, \$26,000; or a total of \$1,082,000. Beside this amount, there was appropriated, for these nine institutions, some \$241,300, to be expended in certain specified directions, but principally for repairs and improvements.

College of Physicians of Philadelphia.—The William F. Jenks memorial prize of \$500, under the deed of trust of Mrs. William F. Jenks, has been awarded to A. Brothers, M.D. of 162 Madison Street, New York, for the best essay on "Infant Mortality During Labor, and Its Prevention." The Prize Committee also reports as highly meritorious the essay on the same subject bearing the motto "Vade Mecum." The writers of the unsuccessful essays can have them returned

to any address they may name, by sending it, and the motto which distinguished the essay, to the Chairman of the Prize Committee, Horace Y. Evans, M.D., College of Physicians, Philadelphia.

JAMES V. INGHAM,

CHARLES S. WURTS,

I. MINIS HAYS,

Trustees of the Wm. F. Jenks Memorial Fund.

British Medical Association.—Our contemporary, the *British Medical Journal*, grows enthusiastic in speaking of the recent meeting of the Association of which it is the organ. It says that Sir Russell Reynolds has presided at the greatest assembly that our profession has ever known, and in saying this it does "not forget the great International Congresses either in our own country or abroad; in mere numbers, for aught we know, some of these meetings may have surpassed the Association meeting of this week. English medicine, has, however, this week shown itself in numbers vast enough to fire the most sluggish imagination; while on the other hand, the age, standing, and prosperity of our Association give a unity, a dignity, and an impressiveness to its chief assemblies which are wanting to the more or less motley and fortuitous gatherings which have not a national character." The parallelism between the 1895 meetings of the two great national Associations is matter for congratulation.

Women Doctors in Russia.—Women desirous of studying medicine in Russia were formerly obliged to gain their special knowledge in founding homes, lying-in hospitals and convents. Later on, they were granted access to the university courses and the schools for assistant surgeons. It was not until 1872 that more complete courses of four years were instituted in connection with the Academy of Medicine for the instruction of midwives. In 1876 a fifth year was added and the studies somewhat assimilated to those for men. In this field the women soon acquired a brilliant and well merited reputation. During the time of the war of 1877-78 the services they rendered were generally recognized and the Emperor decreed them the title of "women doctors." In 1877 the first class of women doctors was turned out; after this, the medical courses having passed from the control of the Academy of Medicine to that of the Saint Nicholas Hospital, many hundreds of women were enabled to pursue their studies and are now successfully practicing in country communities and in the urban hospitals. Notwithstanding their incontestable utility, these courses were suppressed by the military administration in 1886, and then the women begged support from the municipal province of St. Petersburg. The municipality answered that it saw no hindrance to assuming charge of these courses for women on condition that they relinquished the urban hospitals, that the outlay for the courses did not exceed 15,000 roubles annually, and that the Minister of War would grant a certain sum for their maintenance. These conditions were all complied with and a sum estimated at 700,000 roubles has accumulated, yet the courses for women are not yet re-opened. However, it is expected this will be done shortly.¹

Hospital Notes.

THE German Society in charge of the Protestant Deaconess Hospital, at Indianapolis, Ind., announces that the new hospital will soon be ready for occupancy.—Plans have been prepared for the construction of a new contagious hospital at Paterson, N. J.—An effort is being made in Buffalo, N. Y., to establish a German hospital in that city.

Philadelphia Notes.

SMALLPOX.—There are about twenty cases of smallpox in this city, all in the Municipal Hospital. The local Board of Health has directed that hereafter all patients suffering with variola in this city shall be removed to the hospital, where a special isolating pavilion has just been erected for the exclusive treatment of such cases.

FIRE IN A HOSPITAL.—Fire occurred August 14 in the out-buildings used as a storage house and laundry at the Phila-

¹ Jour. de Med. de Paris, 1895, No. 27.

delphia Hospital (Blockley) in the Female Department. By the prompt action of the attendants, the patients were removed from the adjacent wards to a remote wing of the building. Good service was rendered by the well-trained fire crew composed of resident physicians and attendants and owing to the care of the nurses no panic occurred and no patient was injured. The damage to the buildings and storehouse was about \$30,000; the hospital proper was not injured.

THE STATE HOSPITAL FOR THE INSANE for the Southeastern District at Norristown has purchased adjoining property of about eighty-five acres for a sewage farm, to protect the Schuylkill River from pollution by that source.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended August 10, is as follows: number of deaths (still-births not included): white, 66; colored, 74; total 140. The effects of the extremely warm weather are manifest in the increased death rate during last week. From 103 as reported by the Health Department week before last, the number of deaths increased to 140. This gives a death rate of 26.9 as against the annual normal of 23.05. Diseases of the brain (11), heart (10), and diarrheal complaints (32), compose mainly the increase. Nearly one-half of all the mortality was of children under 10 years of age, 58 of whom were 1 year old. From the dangerous contagious maladies there were two fatal cases of diphtheria, one of scarlet fever and one from whooping cough. Four deaths from typhoid fever occurred and two from heat stroke. In other respects the health of the city is favorable for this season of the year.

FINED FOR VIOLATING GARBAGE RULES.—A number of persons have been fined in the police courts for failing to provide the regulation "slop tub." The penalty is a fine of not less than \$5 nor more than \$50 or imprisonment in the work house for from five to thirty days.

FELL FROM THE WINDOW OF THE CHILDREN'S HOSPITAL.—The coroner was called upon to investigate the circumstances attending the death of the child who fell from the second story window of the Children's Hospital on the 12th instant.

A NEW WAY OF BEATING THE DOCTORS AND DRUGGISTS.—An enterprising gentleman has invented a new trick for securing money without working for it, and has victimized a number of physicians and druggists here. He calls on the doctor, has him prescribe, and in payment presents a check, the amount of which is larger than the fee. The doctor, anxious for the fee, accepts the check and pays the patient the balance. The gentlemen takes the prescription to the druggist, who fills it, and accepts a large check in payment, advancing the balance. The banks on presentation declare the checks worthless.

WASHINGTON NEEDS A MORGUE.—Possibly no city in the United States is less provided with a morgue than Washington. Particular attention was called to the fact last week, when the decomposing body of a young man, in a rude ice box, permeated the neighborhood with foul odors. The present morgue is a small room about 10 x 15 feet, poorly lighted and ventilated, adjoining the stables of the sixth precinct police station. It contains but one table and the above mentioned old-fashioned ice box. One spigot furnishes cold water. The room next, is far superior, but is used for the storage of the patrol wagon. It is well remembered that at the time of the Ford's Theater disaster, the dead were placed on the concrete floor, presenting a most disgraceful and shocking scene to those who called to identify the bodies of their friends or relatives.

ENFORCEMENT OF GARBAGE REGULATIONS.—The time allowed by the Commissioners to the housekeepers to comply with the garbage regulations has elapsed, and within a few days proceedings will be instigated in the police court against those who have failed to comply with them. These regulations have been neatly printed on a card and distributed throughout the city. A perusal of them at this time will be of benefit. Among other things, the householder must provide a suitable receptacle for garbage, pro-

vided with a tight cover, and keep the same in repair. It must be placed between 7 o'clock in the morning until 6 o'clock in the evening in a place convenient and easily accessible to the collector. Another important provision is that each householder having a street and alley entrance shall place at the alley entrance the street and number of the house. Failure to comply with these regulations makes the offender liable to a fine of not more than \$50, nor less than \$5, and in default of payment, imprisonment in the work house for not more than thirty days.

CLOSING THE WELLS.—Gradually the public wells of the city are being abandoned and filled. There has been no sweeping order, but each day or so, an order goes forth closing a well. There are comparatively few left, and it is believed before another summer comes, not one of the old original wells will be open. The Commissioners, however, believe in pure water, and a determined effort will be made at the next session of Congress to get an appropriation sufficient to sink a number of deep wells all over the city. The experiments recently tried upon these deep wells were so satisfactory that the Commissioners became convinced that deep wells were the only proper ones for Washington. There are two of these wells in the city at present, and more would have been sunk if there had been sufficient appropriation.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 10, 1895, to August 16, 1895.

The leave of absence granted Capt. JUNIUS L. POWELL, Assistant Surgeon U. S. Army, is extended one month.

The extension of leave of absence on account of sickness granted Major CLARENCE EWEN, Surgeon, is further extended two months on account of sickness.

The leave of absence for seven days granted to Captain R. J. GIBSON, Assistant Surgeon, is extended twenty-three days.

Capt. LOUIS S. TESSON, Assistant Surgeon, is relieved from duty as Attending Surgeon, at Headquarters Department of the Missouri, and Examiner of Recruits at Chicago, Ill., and ordered to Fort Ethan Allen, Vermont, for duty, relieving Capt. AARON H. APPEL, Assistant Surgeon. Capt. APPEL, on being thus relieved, will report for duty as Attending Surgeon and Examiner of Recruits, Chicago, Ill.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 17, 1895.

August 14, Assistant Surgeon M. S. GUEST to the "Minnesota."

Marine-Hospital Changes. Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended August 15, 1895.

P. A. Surgeon EUGENE WANDIN granted leave of absence for ten days, Aug. 1, 1895.

P. A. Surgeon L. L. WILLIAMS, to proceed to South Atlantic Quarantine Station on temporary duty on being relieved by Assistant Surgeon E. PROCHAZKA, Aug. 6, 1895.

P. A. Surgeon W. F. MCINTOSH, granted leave of absence for thirty days from Sept. 1, 1895, Aug. 5, 1895.

P. A. Surgeon G. M. MAGRUDER to assume command of smallpox camp, Eagle Pass, Texas, Aug. 10, 1895.

P. A. Surgeon H. D. GEDDINGS, granted leave of absence for thirty days on being relieved by P. A. Surgeon L. L. WILLIAMS.

P. A. Surgeon B. W. BROWN, to proceed to New London, Conn., as Inspector, Aug. 15, 1895.

P. A. Surgeon M. J. ROSENAT, to proceed to Eagle Pass, Texas, for temporary duty, Aug. 4, 1895.

Assistant Surgeon JAS. A. NYDEGGER, to assume charge of Detention Camp, Waynesville, Ga., in addition to other duties, Aug. 14, 1895.

Assistant Surgeon E. PROCHAZKA, to proceed to Charleston, S. C., for temporary duty, Aug. 6, 1895.

LETTERS RECEIVED.

Ashby, T. A., Baltimore, Md.; Alma Sanitarium Co., Alma, Mich.

Bassett, J. N. Jr., Canton, N. Y.

Cheesman, Nelson & Co., St. Louis, Mo.; Coll, H. E., Middle Branch, Ohio; Cone, Andrew, New York, N. Y.; Collings, S. P., (2) Hot Springs, Ark.

Davis, Chas. G., Chicago, Ill.

Eaton, F. B., Portland, Ore.

Field, A. G., Des Moines, Iowa.

Gibson, A. L., Washington, D. C.; Gaston, J. McFadden, Atlanta, Ga.

Hildreth, M. L., Lyons, Neb.; Hotzapple, G. E., Seven Valley, Pa.;

Hummel, A. L., (2) Philadelphia, Pa.; Hansen, Harold C., New York, N. Y.

Ingraham, C. W., Binghamton, N. Y.

Kelly, W. R., Watonga, Okla. Ter.; Kierulff, B. F., Marshalltown, Iowa;

Kansas City Adv. Co., Kansas City, Mo.

Lentz, Chas. & Sons, Philadelphia, Pa.

Milliken, Jno. F. & Co., St. Louis, Mo.; Michael, M., Chicago, Ill.;

Maltine Mfg Co., New York, N. Y.

Newman, H. P., Chicago, Ill.

Pepper, Wm., Philadelphia, Pa.; Parker, W. T., Groveland, Mass.;

Purnell, J. B., Snow Hill, Md.

Rossington, Smith & Dallas, Topeka, Kan.

Stearns, F. & Co., Detroit, Mich.; Spalding, W. C., New York, N. Y.;

Sheiffelin & Co., New York, N. Y.

Taylor, R. H., Griffin, Ga.

Vincent, D., LaPorte, Ind.; Valentine, F. C., New York, N. Y.

Woolsey, E. H., Oakland, Cal.; Walker, H. O., Detroit, Mich.;

Woodbridge, John E., Youngstown, Ohio.

Zeigler, S. L., Philadelphia, Pa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, AUGUST 31, 1895.

No. 9.

ADDRESS.

CHAIRMAN'S ADDRESS.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895

BY LISTON HOMER MONTGOMERY, M.D.
CHICAGO, ILL.

While in attendance at the forty-fifth annual meeting of the AMERICAN MEDICAL ASSOCIATION, which was held in that great metropolitan city located at the entrance of the Golden Gate where the commerce of all nations enters that wonderfully progressive and healthful State, the honor was conferred upon me in being elected chairman of this model Section for the year 1894-95. In accepting so much honor I am not unmindful of the responsibility that has devolved upon me. On the other hand, I am profoundly cognizant of my inability to discharge the duties as your chairman in as efficient a manner and to such an eminent degree of satisfaction as did my immediate predecessor, and others who have been chairmen of the Section prior to this time.

As your presiding officer, I desire most cordially and sincerely to return my heartfelt thanks to the members of the Section, and to earnestly request your kind and courteous indulgence in what may be my apparent or real shortcomings.

It is with pardonable pride that I am permitted to congratulate you on the presence of so large an attendance of ladies, delegates and members, and the unprecedented number of essays and papers announced to be read by the official program for this Section.

History records the fact that this is the third time the annual gathering of the ASSOCIATION has convened at Baltimore, but it is the first time that the Section on State Medicine has met in this city since its organization.

Not one of the great men are alive to-day who were officers of the ASSOCIATION at the time the first annual meeting was held in this city, and not to exceed two of the officers of the ASSOCIATION in 1866 are living. One of these was First Vice-President of the ASSOCIATION at that time, whom it affords me sincere pleasure to greet and welcome to-day. I refer to our venerable professional colleague and friend, ex-President James F. Hibberd of Indiana, of whom I can say, to know him is to love and esteem him.

(After a glowing tribute to Baltimore and all its belongings the speaker continued): During the past few years, much has been written upon public health, preventive medicine, State medicine, domestic sanitation and the science of public hygiene, almost synonymous terms, I believe, for us to discuss at this time. Not until recently, however, has this department, or branch of medicine become so

prominently recognized before the public. And each year it is being recognized to a greater degree in its broad field of usefulness. Its scope is widening to such an extent that State medicine not only embraces the subjects of general sanitary supervision of the country, including quarantine in all its details, domestic hygienic laws which embrace the pure-food question for the people; and should, in the main at least, include the topic, which well may be termed the physiological and medical uses of alcohol.

Isolation hospitals is another very important subject that will be discussed at this meeting of sanitarians. Bacterial life and microorganisms of various kinds will receive due consideration by the authors of the various essays and papers bearing upon those subjects and will be ably discussed by the learned gentlemen of the Section.

While there are a great many other subdivisions which you, as scientists, are familiar, with that very properly belong to and should be classified with this Section, your chairman will scarcely more than enumerate a portion of them, nor will he enlarge upon them in this address.

PHTHISIS PULMONALIS.

The field of study of the habitat and insidious ravages of microbes, micrococci, bacilli, etc., is a vast one, too marvelously comprehensive for me to do more than give the subject a passing review. Like the subject of electricity in all its intricate and various ramifications, the most marvelous discoveries of which may be looked for in the future, so, too, will the study of this form of life lead to hitherto unknown discoveries in the treatment of disease. That germs oftentimes do their work insidiously, slowly but surely, is evident, where, for instance, in some of the prisons and eleemosynary institutions of the country, subjects when they enter them in robust health sometimes within a few months become emaciated and physical wrecks. In this respect, phthisis pulmonalis takes the lead and fastens its tentacles upon this class of unfortunates, and as tuberculosis is the greatest scourge the human race has ever encountered, it is the most prevalent type of disease that criminals or the indigent class are subjected to in the institutions named. Notwithstanding, as in the past, scientific advancement in the future bacteriologic investigation of this intractable malady will, we believe, surely bring its ravages and destructive agents under a more certain degree of control. Sanitaria throughout various parts of the country are being established for the prevention, care and treatment of phthisis. Each of these sanatoria have a well equipped gymnasium, tennis courts, lawns, etc., and otherwise are provided with facilities necessary to combat this destroyer of human life.

The newest and latest therapeutic agents used in the rational treatment of phthisis are pilocarpin and

protonuclein. The former remedy was introduced by Dr. Louis Waldstein, of New York. At Berlin he has practiced the hypodermic method by successive injections of minute doses of it into the tissues of tuberculous subjects. As a result of this, there seems to be a gradual stimulation of the lymphatic system. In this connection I may add, that it is claimed also, that cases of lupus vulgans of many years' standing are relieved by using the remedy subcutaneously. Its activity, or pathology of action, as in tuberculosis, is the promoting, or increase of the secretions of the lymphatic glands.

Personally, I am not yet an enthusiast upon this so-called new discovery in the treatment of a disease that has baffled science for so many centuries, and to my mind their therapeutic value is overestimated, while pilocarpin may possibly do all that is claimed for it in the absolute cure of consumption, its action, if what is claimed for it is true, might be regarded more in the nature of a prophylactic, or preventive to a certain degree if used in the earliest stages, of phthisis, or even retarding the reinfection of a patient by fortifying his blood against subsequent inroads, or further invasions of the tuberculous difficulty, than as a curative agent of the disease after it has thoroughly manifested itself.

Toxalbumin, or antiphthisin of Klebs, is another of the so-called toxins used by that eminent German bacteriologist as a preventive as well as curative agent of tuberculosis when used in the early stages of the disease, and it is reported by Dr. Karl von Ruck, of Asheville, that he has practiced upward of twenty thousand inoculations of antiphthisin and has uniformly derived beneficial results. If this is true, it seems to me it should be more generally known.

While it is our duty to be ever on the alert to perform and suggest anything that will ameliorate the physical condition of our fellow-man, climatic conditions must be studied (everything else being equal) in the prevention and treatment of this class of our patients at any stage of the disease. That altitudes of moderate height, where the ozone of pineries in the mountain regions should be selected for at least a certain class of those afflicted in this manner is to my mind a *sine qua non*. That nature's ozone is a germicide and antiseptic is a well-known fact, which doubtless all of you have personally observed. Its prophylactic and hygienic properties will have the tendency to augment the oxyhemoglobin in the circulatory system, and I believe it is the opinion of conservative men also, that this potent remedy, in addition to its healthful tissue strengthening properties, through its action as above outlined, will sterilize the alimentary tract. In following these directions a goodly percentage of patients will result in complete recovery.

Other suggestions occur to us as to the prevention of phthisis, and especially where the disease is in its incipency, which belong more properly in the treatment of the disease. A movement is on foot by those who are philanthropically inclined to erect sanatoria for the gratuitous treatment of consumptives in some of the southwestern portions of our country, notably in Texas, New Mexico and Colorado. Homes, or sanatoria of this kind for the indigent worthy class are a step in advance in our Christian Republic, to rescue them, as it were, and thus prolong many valuable lives.

Especially will these institutions be erected for the outdoor treatment of the more desirable class. Doubtless you all have heard of this proposition from other sources, but to me the topic is of so great interest that you will pardon me for reiterating it, in the hope perhaps that great benefit will be the result, if even the life of but a single case is prolonged or saved. While pure milk, along with strict attention to a well regulated meat diet, including fats that are easily combustible, and the judicious use of carbohydrates are helpful. In addition to the foregoing suggestions, there is a special value to be attributed to systematic physical exercise in cases of those disposed to phthisis. Psychologic therapeutics, or psychical sanitation, if I may be permitted to use this word, may very properly, I think, be classified or considered an important factor in the prevention as well as treatment of a not inconsiderable number of this class of patients. In a word, tissue metamorphosis of the ascending or building character is a much sought for result in the treatment of this malady. The prognoses, of course, will depend mainly upon the fundamental disease and the inroads it has made in a particular case.

LEPROSY.

At the meeting of this Section in San Francisco in June, 1894, my friend, Dr. Henry S. Orme, of Los Angeles, read an elaborate paper upon leprosy. The author therein stated that he believed there were more cases of the disease in California and elsewhere in the United States than was known. Your chairman fully indorses those views. To his mind there no doubt are isolated cases of leprosy in various parts of the country, notably in the States of New York, Louisiana and California, and possibly, also in the central, northwestern and other southern portions of the country, that are not publicly known. And while the Mosaic laws directed that all lepers be driven out of their homes, and their effects burned, such a general mandatory law if enacted throughout our civilized land would seem at first glance to be cruel and inhuman. But when we recall Biblical lore and the awful dread of what leprosy was to Moses and his people, or is to the Hawaiians and the inhabitants of the Philippine Islands, and of the Chinese Empire to-day, and which conditions actually exist among our own people where leprosy prevails, it appears to me that a pronounced movement should have long ago been inaugurated to establish at some remote point in the United States one or more leper hospitals, or one or more colonies for the lepers of this country to dwell. Recently, the secular press as well as various medical journals published an account or report of the death of a leper in New York city, and that there were many more cases of leprosy in the State of New York. That judicious and humane laws should be enacted for the compulsory segregation of this class of human beings is no longer a mooted point in my opinion. A colony for this class of afflicted people where they could live by themselves, should be established and maintained by the United States government. Treatment should be afforded them, and their condition ameliorated by every means that sanitary science can devise.

Any person who is suffering from a well defined stage of leprosy should be required to live there. Call these places what you will, sanatoria, or leper hospitals, a suitable institution should be provided for them, that the balance of their lives may be as

enjoyably and as profitably spent as possible, exercising great care that the intermingling of the sexes be prohibited. In this connection I may state that more than one year ago a movement was inaugurated for the establishment of leper hospitals, penal or reformatory institutions, at New Orleans and San Francisco. I am a firm believer in the segregation of this class of patients under the provisions or an analogous one to that just outlined. By so doing, the carrying out and adopting this plan judiciously in a thorough and painstaking manner, State medicine will be the means within the next two generations of banishing leprosy from our land, in the meantime, preventing foreigners who have the disease from landing upon our shores.

In the matter of the United States government having control of this class of people, I quote the following extract from the pen of Dr. Albert S. Ashmead, of New York city, in our JOURNAL of April 13, 1895: "I take in such affairs a higher ground than that of reporting a certain case to the local board of health, and according to my opinion, such cases should be reported to a United States health officer, and that the State or city board of health should have nothing to do with them."

While I agree with the Doctor in the first part of his remarks, I should not be willing to go on record as accepting the latter portion of his theory in this class of cases—no more than such theory would apply to the ordinary contagious or infectious class of diseases.

With reference to the presence of bacilli in leprosy, Dr. R. H. L. Bibb last year reported having examined thirty cases of tuberculous and five cases of macular leprosy covering a period of ten years, and never failed to find them in the secretions of tubercles, in blood drawn directly therefrom, in discharges from leprosy ulcers, and occasionally in the sputum and the secretions from the nose. In the treatment, he and others have used Chaulmoogra oil, internally and externally. While this remedy is not regarded as a specific, if the treatment is begun early and persistently and unremittingly continued, associated with proper food and hygienic measures, many cases will recover, while many other cases, probably the majority, will receive no benefit.

Regarding Morvan's disease, scleroderma, Raynaud's disease, syringomyelia, etc., as being merely varieties of leprosy, these are hardly within the scope of this address to discuss, except to state that the preponderance of clinical and bacteriologic evidence goes to show that such is not the case, although these diseases in certain stages may have symptoms closely analogous to those of leprosy.

There is not one of us, I doubt, but entertains the view that variola, diphtheria, scarlatina, syphilis, leprosy, tuberculosis, cholera, actinomycosis homines, la grippe, anthrax, yellow fever and other specific diseases, whether they are zymotic in character or otherwise, as well as possibly pneumonia and carcinoma, whether they be sporadic in origin or not; that these are contagious, infective, endemic, or epidemic in form under certain conditions, particularly where climatic influences and sanitary environments are unhygienic in quality and kind. I should like to include tetanus, trichinosis, myxedema, etc., if time permitted. Whether, according to Dunglison, zymotic diseases are produced by "some morbid principle acting on the system," or, as is at present recognized, that

each of them are of germ origin. I do not wish to be understood, however, as differing from able scientists and teachers in the belief that inoculation and transplantation of cancer from man to a lower animal will produce the disease. On the other hand, I believe this procedure rarely, if indeed, is ever successful in producing it, while it is asserted by various writers for myxedema, that this variety of tumor is successfully combated or treated by the oral administration of thyroid tablets or extract of the thyroid gland in some form.

SMALLPOX.

This disgusting malady should never be permitted to become epidemic or very rarely, indeed, of an epidemic character in any of the larger inland municipalities where there is a well equipped board of health. That it should be permitted to take such a course is, in my opinion, due to a lack of thorough and early measures to stamp out the disease; allowing that cases are sometimes concealed for a time from the authorities by ill-advised and unwise friends, this can not long remain so, and when discovered, thoroughness and radical means should be promptly adopted, in all that this term may imply, to suppress any further outbreak of the disease and to prevent its diffusion. Vigilance, promptness and efficiency should be the watchwords to characterize the executive health officer in any community. From him the people have a right to expect proficiency and competency, and if this servant of the people is unmindful of his duty it is little less than criminal negligence on his part, in not taking most thorough and prompt measures to quell an outbreak of the disease and use radical measures to stamp out the contagion that may be lurking in the premises.

Dr. Thomas Stevenson, of London, in his "Treatise on Hygiene and Public Health," says upon this topic: "Formerly, protection against smallpox once acquired was looked on as permanent and absolute; cases of secondary smallpox, usually very mild, we called horsepock, swinepock, etc., just as in Jenner's time the variolous nature of post-vaccinal smallpox, also very mild, as a rule was denied. From whatever cause obtained, the amount of protection varies according to the thoroughness of the protective procedures."

"Severe smallpox gives more enduring protection than mild smallpox. Smallpox inoculation gives most protection when followed by eruption, and a complete and multiple vaccination gives more lasting protection than does vaccination resulting in a single small vesicle."

"In the present century a second attack of smallpox is less frequent than formerly because, as a result of the practice of vaccination a primary attack of smallpox usually comes later in life, so that the protection it affords does not wear off in time readily to allow of a second attack."

"Protection by smallpox inoculation or variolation was introduced into general notice in England in 1721. The practice under the name of *buying* the smallpox seems to have existed in Wales from time immemorial, following the introduction of the practice in 1721. The simplicity of the eastern operation was discarded for a severe operation with untoward results, which soon brought inoculation, as a whole, into disfavor. After 1740 it began to revive, and in the hands of the Suttons and of Dimsdale it became

a mild and fairly safe procedure, with only one death in perhaps three or four hundred cases, but it perhaps tended to spread the disease by atmospheric infection, and it is a moot question whether in this way it did not do as much harm as good."

Under the heading, vaccination and revaccination, the historical methods so well known are dealt with, as also the relationship of smallpox to cowpox. The whole tendency of the evidence is to show that vaccination is as Jenner had supposed it, variola of the cow, and that the virus of human smallpox is so attenuated in the bovine animal as to be deprived both of its quality and atmospheric connection and of its tendency to cause a generalized eruption, and that in this way the change in the calf from variola to vaccination has the effect of removing the objectionable and retaining only the valuable part of the original disease.

DIPHTHERIA.

The prophylaxis and latest method of treatment of this oftentimes malignant malady scarcely needs mention, for this is already fresh in the memory of us all, and includes all that is implied in the new serum-therapeutics. That the antitoxin treatment in diphtheria, whether it is the use of protonuclein, previously alluded to, or the serum derived from the blood of the horse, is in antagonism to bacterial poisoning appears, to say the very least, philosophical, and while the present methods may not be those of perfection, like the study of electricity, as previously stated, the wonders of which already have been achieved are not to be compared to what hoped-for results may bring about. So that, what to-day may appear to be crude as regards electricity may, on the same principle, be regarded as imperfect in the treatment of diphtheria in future, as advances are made in the use of antitoxin diphtheriticus. Even admitting all that is claimed for antitoxin, I would not advise the discontinuance of the older time-tried remedies, but combine the two when necessary in that class of cases, particularly, where the toxicity of the disease is profoundly marked by staphylococci and streptococci.

Another powerful remedial agent has recently been introduced, and remarkable results have been already attained by its use in the treatment not only of diphtheria, but in scarlet fever and some of the milder classes of eruptive fevers. I refer to nucleinic acid. This agent has the effect of neutralizing or combating the poison diffused by the staphylococci. Its use is also recommended as a tonic, as well as to cope with or prevent the contagiousness of these diseases extending to others who may have come in contact with those already ill.

SYPHILIS.

I quote from the London *Lancet* of June 2-16, 1894, the following extracts:

"The disease is widely spread in all parts of Russia, and in some districts is a veritable scourge. In the Government of Tomsk in Siberia, the immigrant population is said to be decimated by it. The medical department has therefore commissioned three medical experts, Drs. Stepanof, Flitner and Tchapin, to proceed to Tomsk and to take what measures may be necessary to prevent the further spread of the disorder there.

"The attention of the Indian Government has for some time past been called to the large and increasing

amount of inefficiency caused by venereal diseases in the European army in India. The question is a very grave one from whatever standpoint it is regarded. Nor are the evils, bad as they are in India, restricted to that country, for the health of our troops in this respect is seriously affected at camps and garrison towns at home and abroad. It must be always borne in mind that the effects of these diseases do not fall exclusively upon the individuals contracting them, but are often extended to other and innocent persons, and some of their remoter consequences are manifested in succeeding generations. So far as the contagious disease acts are concerned, there can not be a doubt that they exercised a deterrent and restraining influence in regard to a number of thoughtless girls exposed to the temptation of urban life, and have brought fallen women within the sphere of moral and remedial influences, to say nothing of the beneficial effects of the acts on the outward aspect and decency of our (their) streets."

ERYSIPELAS, PUERPERAL FEVER AND BRONCHOPNEUMONIA.

Briefly, I may include that Dr. Marmarek, a Parisian physician, has discovered a *new* serum which he has named "antistreptococcique," for the treatment of those maladies. As this is not quite in the line of prophylaxis, I will omit further discussion of this "toxin" agent except to add that it has been used at the Pasteur Institute in Paris.

CHOLERA.

The destructive agency of the comma bacillus and its media in cholera Asiatica—or cholera nostra, by thoroughly neutralizing its surroundings has been the means of asphyxiating or stamping out through the various countries of Europe this depopulating malady. Whether the disease will start anew in Russia, or the pestilence breed again as a result of the Chinese war, is a thought worth considering at this time. For, during the hot weather months in China it seems as if there is almost always some kind of epidemic prevailing. Should intelligence of this not improbable prophecy be realized and reach America, well may the authorities throughout Europe, as well as here, take thorough and prompt precautionary measures in adopting stringent laws to guard against the spreading of cholera in these countries.

LA GRIPPE.

We read of la grippe intoxication, and the antitoxic effect of certain drugs over this affection. Quinin is a true antitoxin in their treatment, as well as prevention when suitably administered, for in la grippe, or if you prefer to call it influenza, there is a bacillus, and their infective activity is no doubt the cause of this oftentimes distressing malady. As to the sequelæ, these are very numerous: bronchitis, pneumonitis, nephritis, diseases of the nervous system, digestive tracts, etc. I dare not mention more of them at this time, although by your permission I may be pardoned if I very briefly consider one or two of these so-called sequelæ.

My observation in bronchitis, following an attack of la grippe is hygroscopically, when the temperature is lower than it normally should be, or when this condition is combined with moisture, it is most favorable for the development of germs causing the disease. That they become most active, grow, and develop at such periods, I am well satisfied. Condi-

tions exist also to favor this malady so that it may become endemic or epidemic in character due to atmospheric suspension. That the germ may become infectious in its nature I have no reason to doubt, or that the disease may even occasionally be transmitted to, or contracted by one person being in too close contact with another.

PNEUMONITIS.

Regarding the pathology of pneumonitis and the microbe that has been proved to be the almost constant concomitant of this disease, I have but a word to add. The bacillus discovered by Friedlander was thought to be by many the pathogenic organism responsible for exciting it, but the real "pneumococcus" is that discovered by Fraenkel and Talamon and studied by Drs. Sternberg, Weichselbaum and others, later developments of which show that experimentation upon animals with pneumonococcal inoculation will induce inflammatory processes in various tissues and organs.

DEPARTMENT OF PUBLIC HEALTH.

Serumtherapy, including antitoxins, antituberculin, antihydrophoe, etc., are rapidly being introduced. That in their study and their use lies a great future there is no longer a doubt in my mind, when they can be obtained in a perfectly fresh state. When the governments of our municipalities and various commonwealths recognize the importance of bacteriologic research and of State medicine in general, and the establishment of laboratories in various cities of the country, this may be said to be a step in advance of what a few years ago was scarcely worth the thought for a moment's consideration. In a word, then; I believe that in serum-therapeutics and antitoxins, the use of which is almost in their infancy, we have added another boon to humanity and that greater developments await their coming. These discoveries are in line with the researches of Pasteur, Koch and other bacteriologic collaborators. In addition to what has just been said, it may be gleaned from the foregoing pages that they point directly to establishing another branch of our federal government, known as the Department of Public Health, with a medical secretary of the same. To my mind there is no longer room for doubt that this proposed additional portfolio should be created. The special committee of the Association first appointed in 1891, to petition Congress to create "a Department and a Secretary of Public Health," submitted the result of its deliberations at the Detroit meeting in 1892 in a most excellent and scholarly manner. At Milwaukee, in 1893, and last year at the San Francisco meeting carefully prepared reports upon this most vital question were submitted, and at all these meetings the report of the committee was unanimously adopted. Your chairman is a very humble member of this special committee, yet he has invoked the promise of several Illinois Representatives and one of its U.S. Senators to cooperate with us to favor the passage of the bill that has been so ably prepared by the committee, and which has been before Congress practically for two years. While the billion-dollar mark for appropriations of the last (LIII) Congress was passed, no small amount of which was for the improvement or deepening the channel of "Mud creek," "Swan lake," etc., nothing was done to promote the health of the American people in the matter of legislation or establishing this greatly desired branch of our government.

That sanitary work can be accomplished and exacted by national authority, of local and municipal boards of health, who do not, or will not at all times comply with that which best subserves the sanitary interests of a community, is a certainty which would require the latter to vouchsafe their stewardship to the people. That well-known maxim, "*Salus populi, suprema est lex*," should have received the thoughtful consideration of every member ere the demise of the last Congress is something which only the ozone of forgetfulness will remove. Permit me to suggest, that we advise and recommend to the Association in general session, ere its final adjournment, that the perpetuity of the committee, clothed with additional substantial authority be continued, and with the request also from this Section that sufficient financial aid from the treasury of the Association be appropriated to defray the necessary expenses of this committee, which should not be less than \$1,000 for the ensuing two years.

And now, gentlemen of the Section, you will excuse me, I know, for inviting your attention for a moment to another topic which is not exactly within the province of this address. It is a subject of considerable interest to every member of this Section, if indeed, not to every member of our profession in the United States. I refer to the proposed statue to Dr. Benjamin Rush, to be erected at the capital of the Nation. When we reflect that the beautiful city of Washington is embellished with statues of patriots and presidents, painters and sculptors, generals and jurists, philanthropists and theologians, and numbers of others, all of whom are affectionately commemorated, this much we owe to the memory of that great physician, sanitarian and teacher, a member of the Continental Congress and signer of the Declaration of Independence; when we recall the success that has been achieved by the American Surgical Association, with its hundred members, in raising a sufficient amount of funds for the completion of their monument to Gross, and the prospective erection of a most magnificent monument to Hahnemann in Washington by the homeopaths, it should be a matter of great pride as well as a pressing duty on our part for us to enthruse our members in the matter of the Association monument to Rush. Let it be promulgated from the Section on State Medicine, that we heartily approve this commendable object, and loyally and earnestly and in a substantial manner heartily support the committee having this sacred duty in charge, and with renewed hope going out from this Section of sanitarians, encourage and sustain the committee to invite every member of the Association and the profession throughout the United States to contribute toward this laudable undertaking. That a testimonial in the form of a shaft of marble or granite, surmounted with bronze, enduring as the ages, may be erected eighty-two years after the heroic death of Dr. Rush, to crown his immortal name and perpetuate the memory of one of the grandest and most illustrious members of our profession that America has ever produced, will, I believe, be another historic event of our honorable profession.

In conclusion, I wish to renew my thanks for your indulgence thus far, and say that I am not unmindful of my obligations to you in this respect, and to furthermore state that a very large part of the success the Section on State Medicine has attained this year, is due to the loyal support of the efficient Sec-

retary, Dr. Charles H. Shepard, and to all the members who kindly responded to our invitation to read papers, which you will note by referring to the titles and authors in the program, are of unusual scientific interest.

ORIGINAL ARTICLES.

NOTES ON TWO CASES OF PELVIC SURGERY.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. R. HOLMES, M.D.

PORTLAND, ORE.

These cases I report, as throwing some light on the philosophy of ventrofixation:

Case 1.—Mrs. K., age 46, married twenty years; 2-para; youngest child 18 years of age. Seen first in June, 1892. Complained of menorrhagia. Five curettements had been done without much, if any, benefit. Perineum had been attempted by Tait's method which had not given satisfaction. In fact, there was yet a pronounced flatus vaginalis. The first thing I did for the patient was to curette the uterus carefully and pack it with iodoform gauze, and at the same time do an Emmet operation to repair the pelvic floor. The latter was a happy success, in so far as it restored the function of the pelvic floor, but this statement may be questioned, when I admit that it did not raise the uterus as high as its normal place, nor change it from its position in the second degree of retroversion.

Within three months the menorrhagia was bad as ever, and following the menstrual periods there would be a mucoserous discharge so irritating in its character as to abrade the cutaneous surface of the labia and thighs and render the patient hyperesthetic.

Another time I used, I think quite thoroughly, the curette; very little if any improvement took place, and when three months had passed I again curetted somewhat vigorously, and yet no considerable change of the condition was effected. The bimanual examination showed the uterus to be of about normal size and the uterine sound added confidence to this belief.

For more than a year, patient was treated expectantly. In May, 1894, on examining the first time for six months, a tumor the size of a Tangerine orange was found at either side of the uterus, and patient was complaining of constant pain. Within a few days celiotomy was done, and the two cysts, ovarian, were removed, and ventrofixation of the uterus was done also. Convalescence was without remarkable event and my patient improved to an extent, as to say, she underwent a precipitate menopause and not suffering her accustomed waste of blood, began to improve in strength and general appearance.

But still there remained a doggedly persisting uterine discharge—mucoserous in character—which was so irritating to the woman, using her own language, as to render life a misery to her. The irritation, so to speak, was exquisite. It set up a nervous erythism which she felt at times was unbearable.

In November, 1894, I removed the uterus on account of this uterine discharge for which I had tried every other remedy that I could think might be of benefit. On account of the former celiotomy and ventrofixation, I decided to remove the uterus by the suprapubic method, and did a total extirpation. Just before operating, I made a digital examination *per vaginam*, and while the uterus was found to be in good position it was so movable that I supposed it was no longer in any way connected with the abdominal wall. On opening the abdomen, the uterus was found suspended from the abdominal wall by a ligamentous structure about an inch in length by an inch in width, bearing a close resemblance to the natural uterine supports, consisting of two layers between which were the sutures. Recovery, as in the former instance, was perfectly smooth and patient is very well.

Case 2.—Mrs. R., age 39, 2-para. Had secondary syphilis, cyst of broad ligament, lacerated cervix, endometritis, retroversion of uterus and ruptured perineum. As she was a county charge and the officials being highly esteemed for their "political economy," I felt that I should do all I could for her at one sitting, for it was quite certain that she would not again have the chance to enter the hospital for surgical

treatment at the county's expense. Accordingly, and as rapidly as possible, and yet it required about an hour and a half, I curetted the uterus, repaired the cervix and perineum, ligated the hemorrhoids after stretching the sphincter ani, opened the abdomen after carefully cleansing the hands, cared for the cyst of the broad ligament and did ventrofixation of the uterus also.

The convalescence was easy; the results were satisfactory.

In the early part of February of this year she visited me at the Portland Free Dispensary to say that she had not menstruated for three months. Examining her, I was convinced that she was pregnant between three and four months. I would like to remark just here that patient had been examined each month at the dispensary and the uterus had been found in good position and movable. I impressed upon her mind the importance of being seen frequently, and accordingly she has come to the clinic every week. About the first of March she had some pain at the point of ventrofixation. This troubled her but slightly for three weeks and ended. She seems to be passing along through her gestation naturally. I think she is pregnant about six and a half months, and have hopes that she may go on to full term smoothly. We are keeping her on 10-grain doses of potassium iodid three times daily.

In conclusion, I feel like stating that I have never been better pleased with the results of any of my gynecologic operations than those of ventrofixation. I believe that it is just as valuable for extreme anterior displacements as for the posterior variety; yet it might not be appropriate to do it more than once perhaps for the former while it is being done twenty times or more for the latter, for the reason that cases demanding it for anteversion or anteflexion are relatively so infrequent as compared to those demanding it for posterior displacements. In other words, cases of extreme anterior displacement are rare.

I now know of three prominent and highly qualified surgeons who have employed this means of suspending extremely anteverted and anteflexed uteri, during the past year, and they have reported satisfactory results.

Last year at San Francisco, I read a paper before this Section on ventrofixation for extreme anterior displacements of the uterus, reporting six cases so operated on with pleasing results. Since that time I have met with but one case of the kind sufficiently bad to require the operation, while during the year I have suspended the uterus perhaps a dozen times for retroversion. To be sure, retroversion is usually accompanied with some degree of decensus, which is the cause in part at least, of the attending symptoms, but I am not convinced that anterior displacements do not cause bladder and menstrual disturbances equally great in rare but occasional cases.

When I read my paper in San Francisco I was as well as now aware of the popular professional opinion regarding the clinical import of anteversion and anteflexion, and yet, results of the few operations that I reported were so satisfactory, as well as encouraging reports from others who have done the operation, that I am still under the persuasion that the procedure is one of value. While it is so absolutely safe, barring the possibility of accident or error, I presume its justifiability will hinge upon the question, Is there such a thing as pathologic ante-displacement of sufficient consequence to merit attention or treatment? If so, the operation which I have proposed deserves your consideration and trial; if not, I am laboring

under a mistake; a part of Dr. J. Marion Sims' valuable time was wasted, and Dr. Dudley, of Chicago, has perpetrated a joke upon himself.

If it be not asking too great a favor, I should be glad if those who believe in the existing importance of ante-displacements, would give this simple and safe operation a single trial.

While the immediate effect of the procedure suggests the term, ventrofixation, in view of that which takes place secondarily, I am willing to accept the name which Professor Kelly now is using as a better one, and certainly he has the right to christen his own child.

DISCUSSION.

DR. A. LATHORN SMITH, of Montreal—said he was very much indebted to Dr. Kelly for this operation, which he has now performed twenty-six times without any mortality rate and with very gratifying results. He referred to the importance of scarifying the peritoneum and anterior surface of the uterus for the purpose of favoring adhesion. He employs a permanent sterilized silk ligature in stitching the uterus to the abdominal wall. The organ is quite movable after the operation. He considers it preferable to Alexander's operation. He had done the Alexander operation twenty-six times before he began this method.

DR. REUBEN PETERSON, of Grand Rapids—said the first operation that he attempted for suspension of the uterus by the ovarian ligament was devised by Dr. Kelly. Dr. Kelly was fortunate in getting a large number of cases upon which the operation could be done, and we must depend upon the record and the results of a large number of cases in order to determine the special method we shall adopt. In seventeen cases he has suspended the uterus by means of the ovarian ligament. Recently he had the opportunity of examining ten of the patients personally, and had a report of five others. In ten of the cases the anatomic result was perfect, and a cure has been effected in fifteen out of the seventeen cases.

DR. RUFUS B. HALL, of Cincinnati—thanked Dr. Kelly for his excellent work in this direction, and said he had made the operation a number of times and was very much pleased with it. He mentioned the fact that in a number of cases in which one ovary was removed and the uterus fixed to the anterior abdominal wall, the patients had borne children without inconvenience. One patient complained of considerable pain in the line of incision about the fifth or sixth month, after which she went along and was delivered without trouble. He is more and more convinced that time will prove that retroversion will be treated in this manner as a routine mode of treatment.

DR. J. HENRY CARSTENS, of Detroit—said that ordinary cases of retroversion of the uterus without any adhesions did not require ventral fixation. He believes that such cases can be treated by mechanical means. Some of these women do not complain of any symptoms whatever, while in other cases more or less pain and distress are complained of. He finds also in these cases of retroversion of the uterus that a diseased tube is generally at the bottom of the whole trouble, and as a result we have on one side the tube, ovary, uterus, and rectum matted together. In such cases we have to perform abdominal section and remove both the diseased ovary and tube. When we do that and break up the adhesions between the uterus and rectum, we may as well stitch the stump in the lower angle of the wound and keep the uterus anchored *in situ*, while the other side being perfectly healthy will go on and functionate and the woman may become pregnant. He claimed that all cases requiring ventral fixation are due to a diseased tube and ovary, and they must be removed in order to do any good. He was perfectly astonished in the light of modern surgery to hear that Dr. Kelly still employed silk for ligatures in these cases, and thought it would be better to employ some absorbable material for that purpose.

DR. BEVERLY MACMONAGLE, of San Francisco—has performed the operation a number of times with excellent results. With regard to scarifying the tissues, he does not think this is necessary if the sutures are passed as recommended by Dr. Kelly. The whole intra-abdominal pressure is on the back of the uterus, and while the tissue allows it to sink down it does not permit the abdominal viscera to come between the uterus and abdominal wall. He has had quite a number of patients who have declined the operation. The operation of vaginal fixation is coming forward and

being practiced by a neighbor of his very generally, and he was anxious to hear the different opinions on this subject.

DR. M. B. WARD, of Topeka, Kan.—felt certain that there was no operation in surgery that is equal in its results to the one described by Dr. Kelly. He does not agree with Dr. Carstens as regards the benefit of mechanical treatment in these cases. A gynecologist might treat a uterus for six years by trying to replace it by mechanical methods, and yet eventually would be forced to do this operation in order to effect a cure, and if Dr. Carstens could replace a uterus in these cases by manipulation with tampons and pessaries, he was more skillful than the speaker. He had had excellent results in cases of ventrofixation.

DR. G. R. FEIL, of Cleveland, Ohio—referred to a case in which fatal secondary hemorrhage followed the performance of the operation. The patient was a woman, 33 years of age, upon whom a double ovariectomy had been performed. The uterus was retroflected, and the physician in charge performed the operation as recommended by Dr. Kelly.

DR. N. O. WERDER, of Pittsburg—was sorry that vaginal fixation was not more discussed than it had been. He saw Dr. Kelly do his operation of suspensio-uteri two years ago, and was well pleased with the method and had been using it until seven or eight months ago. He had operated twenty-five times by Dr. Kelly's method and his results had been very good until he encountered mural abscesses. Shortly after this he noticed that German operators were recommending vaginal fixation. He has resorted to this method in thirteen cases. One advantage of vaginal fixation over the abdominal method is the avoidance of the abdominal incision, and he knows from experience that with many patients this is an important matter. Many patients will submit to vaginal fixation in connection with a cervix operation, Emmet's perineal operation, or some plastic operation about the vagina when they will flatly refuse to have the abdomen opened for correcting a malposition of the uterus. Another advantage of vaginal fixation is that patients can leave bed in ten days. After the operation they do not complain of any pain, thirst, or any of the disagreeable symptoms that are frequently complained of after an abdominal section.

CONCERNING THE PRINCIPLES AND PRACTICE OF EPISIOTOMY.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY FRANK A. STAHL, M.D.

DEMONSTRATOR OF OBSTETRICS, RUSH MEDICAL COLLEGE; FELLOW OF THE CHICAGO GYNECOLOGICAL SOCIETY, ETC.

Nature teaches that she endeavors to establish a favorable relativity in size, axes and diameters between those of the mother and her parts, especially the pelvis, and those of the fetus and its parts. Where this is, there is the normal. When this favorable relativity is present and with long fetal part diameter to long pelvic diameter given the proper parturient power, there will be natural, unassisted or normal labor, without destruction or harmful adaptation of part to part; where otherwise, as long fetal part diameter to a shorter pelvic diameter there will be unnatural or abnormal labor, requiring corrective assistance either natural or artificial, be it at the superior strait, in the cavity or at the outlet; be it upon the mother's part or upon the fetus' parts, and as a result of such deviation, necessity has invented operations, such as the forceps, turning, Cæsarean section, embryotomy, and yielding for a moment to the symphyophile, symphysiotomy. At the outlet, nature teaches episiotomy. At the outlet, the longest diameter is the antero-posterior, and to it must be apposed, and through it must pass the longest diameter of the fetal part, and this is usually the case. Unfortunately the antero-posterior diameters of the osseous and soft pelvic outlets are not equal in length, that of the soft outlet being shorter, so that often a fetal part will readily clear the osseous outlet, but

not so the soft outlet, and then with difficulty and traumatism.

Nature endeavors to overcome this difficulty and disproportion between fetal part and soft outlet by dilatation of the soft parts to encourage increase of their diameters and circumference; but where dilatation does not affect this favorable relativity, nature does so by establishing the equality of diameters through separation of the parts of the soft outlet, thus overcoming the disproportion. In the great majority of all cases where this natural separation occurs, be the case normal or abnormal, it does so in the midline through the perineum, a natural episiotomy, as it were, and central in character, though in some few cases the separation deflects to one side or the other. In this phenomenon there is an expression of a law of nature. When and where she finds it necessary to overcome an obstacle, nature chooses that direction and that method in which there is the least resistance, the least injury inflicted, the least expenditure of energy, and in which the necessary therefore the most good is accomplished. Though this assisting corrective principle of nature at the soft outlet is an old one and must have been appreciated by many before him, to Fielding Ould (1742) is given the credit of being first to call attention to this subject. He seems to have adopted nature's plan, suggesting central episiotomy. The records are not clear whether or not he performed episiotomy. Michaelis (1799) is accredited with having been the first to have performed the operation, and he, like Ould, advocated episiotomy in the midline. In 1836 Ritgen suggested scarification of the outlet, but this theory is lacking in efficacy, as well as in principle. In 1850, Eichelberg, and in 1852, Scanzoni brought out and recommended lateral episiotomy, the method as generally practiced to-day, lateral incisions from 1 to 3 cm. in length. More recently Cohen suggested subcutaneous myotomy of the sphincter cunni, a suggestion failing again in efficacy and principle. It savors much of a congenial library and a fragrant Habana. Its to have been anticipated impracticability quickly proved itself when attempted at the bedside. Since Ould's time more or less interest has been shown in episiotomy, yet more interest than practice; its principle has always been regarded with favor, not so the method.

In America renewed interest seems to have been awakened in episiotomy, following the appearance in 1878 of Dr. Anna Bromall's most excellent and exhaustive article which was soon followed by those of Credé and Colpe, Manton, Wilcox, and many others in close succession, one of the last to appear being by Dickinson, well illustrating his conception of the principles and the technique to be followed in lateral episiotomy. They, like our text-books, favored the lateral method and the consensus of opinion to-day is to favor the lateral method. The success with the lateral method has been such that although the writers above referred to have all warmly recommended lateral episiotomy, the success or perhaps the lack of success which this lateral method has met with in the hands of the general, as well as special practitioner of obstetrics, has been and still is such that opinion at the present time is less enthusiastic toward the operation than formerly, many discarding it altogether as without virtue or value. This feeling is quite plainly reflected in the words of Professor Parvin who, in reference to this operation, concludes

as follows: "It may be stated that episiotomy will very seldom be plainly indicated, and in private practice will rarely be done." Very similar in tone writes Professor Lusk: "It (episiotomy) is essentially the operation of young practitioners, the occasions for its employment diminish in frequency with increase of experience," and further, Chailly-Honoré, the most enthusiastic advocate of lateral episiotomy (Bromall), refers to it "as the excellent practice of Professor Dubois, who taught that incisions should be made, extend in an oblique method, not to exceed 2 cm. He admitted, however, that perineal ruptures can not always be avoided, etc.," an expression very clearly showing his doubt in its efficacy and that nature often assists post operationem.

Though, comparatively speaking, yet a younger practitioner, I have enjoyed a preliminary training in obstetrics granted to but few, and since then my experience in the obstetrical field has been rich in material, and yet richer in instruction, since this preliminary training enables me to properly appreciate each and every case as it occurs.

Episiotomy, I believe, meets with so little kindness not because episiotomy *per se* is at fault, but rather it is the method in which opinion dictates it should be performed. Opinion has misled, and instructs to adopt the lateral method. On the other hand, nature remonstrates and requests to elongate in the midline. It is opinion that has endeavored to misdirect, but nature, like truth, will assert herself. Still, I can readily agree with these gentlemen in their adverse conclusions, but only in so far as their remarks apply to lateral episiotomy, because lateral episiotomy is wrong in principle and lacking in efficacy. This is not so with nature's method, central episiotomy, which in principle, I believe, is correct, and that is to elongate and increase the circumference in the direction of the essential diameter of the soft outlet, the antero-posterior, thus equalizing the diameters of the soft and osseous outlets and establishing the natural favorable relativity.

Lateral episiotomy does not accomplish this. At the outlet it is to and through this shorter a. p. soft outlet diameter that the longest diameter of the fetal part must pass, therefore if dilatation be not sufficient and inequality of diameter exists, correction in this diameter becomes a necessity and occurs; observation teaches this, so does nature, and central episiotomy thus becomes the natural method. In my humble opinion at the present time there is no subject before obstetrical thought which attaches greater importance to itself than does this matter of episiotomy.

Society, as the accoucheur finds it to-day, has a tendency to gather in the cities, crowding itself within very narrow lines, and where formerly the mode of life was such that there was room and plenty of it to live and move in, there is now, and this tendency is growing, scarcely space in many quarters to breathe in, not to say anything of properly exercising in. This overcrowding and confinement are gradually having their effect upon the body of the species. The physical under these unfavorable conditions is certainly not gaining, nor even in many instances holding its own. As a consequence there is a loss of power, of strength, to overcome the resistances nature requires the physical to overcome. Statistical research and scientific inquiry will prove this to be true, and in all branches of medicine, namely, medi-

cine, surgery and obstetrics. I feel quite sure that there is not an accoucheur of experience present but who indorses the point made by Duncan as to the disproportion between fetal part and soft pelvic outlet. Duncan writes as follows: "That in the Darwinian progress of the head of the species, the head of the fetus has increased in size more rapidly than the orifices and passages, through which it has come, have increased in size and dilatability." As man's tendency to gather in large bodies in small places continues, so will loss of the physical continue until better hygienic conditions obtain, and so will this disproportion between outlet and fetal part continue, and therefore will continue the necessity for some corrective assisting means to successfully overcome this unfavorable relativity of outlet and fetal part, or we must leave it to nature to correct. It is in consequence of this light, this experience, that I find I can not agree wholly in opinion with our masters of obstetrical thought, Professors Parvin and Lusk. Experience has taught me to adopt episiotomy, and then central, never lateral, where the disproportion between fetal part and soft outlet is plainly evident; this in an experienced sense.

In my hands, episiotomy is an instrument, *par excellence*, aiding as no other instrument can in the preservation of life and body, both in the fetal and maternal, and as I grow in obstetrics and since I find that the disproportion does not decrease, I am glad to know that there is so effectual and yet simple an instrument as central episiotomy at my command. It is in private practice especially where it has proved itself of such benefit, and has often assisted me in saving the life of the fetus and always in preserving the perineal body and other parts of the soft outlet.

In nearly all cases of accouchement forcé, as turnings, high and low forceps in the primiparæ and well-preserved pluriparæ, and in something like 20 per cent. of so-called normal deliveries this disproportion between fetal part and soft outlet exists. Especially in turnings in the primiparæ has episiotomy been of great value to me. Formerly in the after extractions, I found the greatest difficulty in dragging the fetus through the undilated vagina and outlet, greater difficulty indeed than in the intra-uterine turning itself. Even before the turning, in some cases, the power of the arm becomes neutralized because of the intense contraction of the undilated outlet and vagina about the forearm: and often because of this constriction, delivery was not accomplished until vagina and outlet were forcibly ripped apart from the disproportion between fetus and outlet and in the hurry to save life. Now with episiotomy, turning and extraction are far easier than formerly, with greater comfort and less danger to all three concerned—fetus, mother and accoucheur. The same in principle applies to high forceps and in a modified way to low forceps.

Of the four methods—lateral, central, scarification and subcutaneous myotomy, suggested to favor the establishing of the favorable relativity of longest fetal part diameter and longest pelvic outlet diameter and increase of outlet circumference, lateral and central episiotomy only are worthy of consideration. Lateral episiotomy is lacking in two cardinal points: 1, it is wrong in principle; and 2, the operation as recommended is sadly deficient in efficacy, and besides it is unnatural. To establish the favorable relativity, the essential diameter, the soft antero-

posterior must be equalized. Lateral episiotomy, as practiced, does not accomplish this; on the contrary, it elongates the transverse and oblique diameters and remains almost neutral toward the all-important diameter, the antero-posterior, therefore this ill success. My experience with lateral episiotomy has been, I believe, much that of others. In those cases where it seemed to have been of service, legitimate doubt subsequently arose as to whether or not the fetal part could not have passed without lateral incisions. But in those cases where the disproportion was plainly evident, as in nearly all cases of accouchement forcé, as in high forceps and turnings where though lateral incisions were made, observation decided that invariably nature assisted with central episiotomy. And why? As taught, lateral episiotomy is made with reference to length of incision from 1–3 cm. in a lateral direction. Scarcely any mention whatever is made of depth (a depth of a line or 5 m.m. is practically without effect). As stated, this will elongate the transverse and oblique diameters—diameters that need no corrective assistance. Unless lateral episiotomy be made with reference *primarily to depth of incision that the interval between the incisions may fall back as a tongue of perineal tissue, lateral episiotomy is absolutely without effect upon the essential antero-posterior diameter.* But such a practice compared to central episiotomy is excessive, requires greater efforts to perform and to restore, is more dangerous and requires a longer road to arrive at an inferior result.

One of the best physical explanations offered me in support of this lateral method is the so-called theory of the "parallelogram of pelvic outlet forces"; and is, so I understand it, as follows: The head, as it rides upon and over the perineum and through the parallelogram, as formed by the labiæ, does so in a manner like the segment of a sphere whose diameters are equal in all directions. As a segment of a sphere its greatest power would be exerted at its central axial point, diminishing in a radial manner from the central point. The parallelogram not being continuous, resistance is not met with or power expended at this central axial point, but in a circumferential and radial manner, thus receiving and expending the greatest resistance and power in a radial manner, therefore lateral or radial incisions.

This theory is weak in several respects:

1. The head does not descend upon the soft outlet, so that it acts as a segment of a sphere, nor are its diameters equal in all directions. It may appear so between the labiæ, but the head in its passage over and through the soft outlet acts upon it as a segment of an ovoid whose longest diameter is in the antero-posterior, and to be favorably related to the pelvic outlet must assume and clear that outlet in its longest diameter, its antero-posterior.

2. Radial incisions are wrong in principle, since they increase the circumference, but superficially, and then so as to increase the non-essential transverse and oblique diameters. To be of service, increase of circumference of soft outlet should not be superficial only and must be made so as to increase the antero-posterior diameter.

3. Radial incisions as implied above, regardless of *number and length* are without the essential corrective effect, unless made with regard *primarily to depth*. Such a practice compared to the single simple non-dangerous midline incision is seriously objectionable.

4. Nature herself disproves this theory since often, notwithstanding lateral incisions, she corrects even the artificer and separates in the midline, and not seldom exaggerates the lateral incisions both in length and depth; again in the fact that in the great majority of all spontaneous lacerations they are central in incipency and character; also in the fact that where rupture of the perineum solely occurs it is central, never lateral.

5. This theory is not applicable to other forms of labor than occipito-anterior, as in those of occipito-posterior, face and pelvic presentations, where the circumference of the advancing part is oval.

The floor of the pelvis is divided throughout nearly its whole extent by two outlets. In outline these outlets may be compared to a flattened unequally looped figure of eight. The anterior and greater loop ovoidal in outline corresponds to the parturient canal outlet; the posterior, smaller and more circular corresponds to the alimentary canal outlet and as connecting link between the two loops and encroaching upon the caliber of both canals is the triangular perineum. If the circumference of either loop be too small to permit a body to pass, and especially an ovoidal body through the ovoidal loop, the most simple and effectual way to increase that circumference is to overcome the uniting encroaching link, and this will be in a line with its central diameter. In the case of the ovoidal body passing through the ovoidal loop, the greatest resistance will be at the central point of the circumference of the invading link, diminishing in a radial manner from this point.

Separation of the soft perineal link in the midline increases the superficial and deep circumference of the parturient outlet and in a direction equalizing the essential osseous and soft pelvic outlet diameters, with less expenditure of energy to perform and to restore, with less danger to body and life, and is more practicable than in any other method.

So far as technique is concerned, I have nothing to add what is already so well known; all that is required is a pair of blunt-pointed scissors. In high forceps and turnings in the primiparae and the well-preserved pluriparae where the fetal parts have to be dragged through an undilated vagina and outlet, where disproportion between fetal part and outlet is always considerable, before applying the blades or attempting to turn, I stretch the undilated perineum between two fingers and sever in the midline through the whole perineal body, through vaginal, parenchymal and dermal parts, as far as necessary even to the sphincter ani, stop hemorrhage where any, then apply or turn. In low forceps or normal labor I sever, as recommended by B. Schultze, only then when "the commissure shows signs of yielding," following in both cases with immediate post-partum perineorrhaphy.

THE THERAPEUTIC ACTION OF CHLOROFORM IN PARTURITION.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY BEDFORD BROWN, M.D.

ALEXANDRIA, VA.

The results of chloroform anesthesia in parturition constitute one of the most remarkable and interesting features in the history of medicine. During the past thirty-five years there have doubtless been mil-

lions of cases of parturition in which the agency of chloroform as an anesthetic has been called into requisition in the civilized world with the rarest report of fatal consequences.

Then too, when we take into consideration the manner in which chloroform is given in labor, often recklessly, carelessly, and copiously, we are still further astonished at the almost universally favorable results. Often administered by ignorant nurses, husbands, bystanders, even by the patients themselves, and not infrequently, recklessly and injudiciously by the attending physicians, it is wonderful that evil results are so rare. Thus chloroform is used in a manner in parturition that no surgeon would dare to do in performing an operation.

The profession has come to regard the use of chloroform in parturition as almost utterly devoid of danger, and it is this opinion based upon substantial facts that has given rise to its universal and careless, even reckless administration in labor. Why chloroform acts differently in the parturient and pregnant female from the non-pregnant person, or why it is comparatively harmless in the pregnant and is attended with a certain degree of danger in the non-pregnant is a question not devoid of interest or importance. To be enabled to determine what there is in the physiology of pregnancy that protects the woman against the dangers of chloroform would be to ascertain and establish a fact in the therapeutics of chloroform that would shed an infinite amount of light on its therapeutic action not only in labor, but from a surgical point of view.

During the process of pregnancy there are two systems which undergo manifest changes of a developmental order. These are the vasomotor and circulatory systems.

The developmental changes in these two systems are of a phenomenal character. The muscular structure of the left ventricle takes on increased nutrition and growth, that it may have increased force and power to meet the new emergencies of circulation and nutrition. A new being is to be nourished, developed, formed, and shaped in all its parts, and to do this a new force is to be created. The heart of the pregnant female not only acquires additional force, but the great vasomotor and sympathetic systems, with their ganglia and nerves take on new energy, more vigorous action and power to maintain that complex circulation of both mother, the placenta and fetus. Just in proportion as the growth of the placenta and fetus increase, these developmental changes in the circulatory vasomotor systems advance. Otherwise the pregnant woman would utterly fail to sustain her own strength and health, and at the same time nourish the placenta and fetus. Hence her vasomotor system and circulation reach a state of development in point of vigor, energy and power rarely attained in any human constitution.

Under these circumstances, arterial tension and blood pressure more than redoubled are indicated in the strong, vigorous, bounding and frequent pulse of the pregnant woman, which is familiar to all practical obstetricians. Such a state of arterial tension and blood pressure would be regarded in the non-pregnant as indicating a dangerous degree of plethora and congestive tendency. But in the pregnant woman we know there is a safety valve, a diverticulum for this increased circulatory force and volume found in the placental and fetal circulations.

Among the most interesting developmental processes of pregnancy is leucocytosis, a purely regenerative and restorative process. This seems to be the foundation upon which is constructed all other developmental functions of the vasomotor and circulatory systems, to enable them to bear the new duties and superadded labors of the emergencies of pregnancy and parturition. To what extent the immunity of the parturient female from the toxic action of chloroform is due to the restorative and sustaining process of leucocytosis can not be determined at present.

The process of pregnancy, the evolution and growth of the fetus require that every energy of the maternal system shall be bent singly to the accomplishment of those objects.

That the therapeutic action of chloroform in the parturient female differs widely from that in the non-pregnant person, there is abundant evidence to prove. We know that in surgical practice, chloroform anesthesia is attended with a certain proportion of mortality that renders extreme caution necessary, while a death or even unpleasant result in labor is a very rare occurrence from that cause.

In the obstetrical practice of the civilized world, the most careful researches have only brought to light a very small number of cases of death in the millions of instances where chloroform is resorted to.

We may safely say that in the practice of the world there are twenty cases of parturition in which chloroform is resorted to, to one of surgery, and yet there is not the one-hundredth part of cases of mortality in the former as the latter. I do not think that this is an exaggerated statement. The most careful investigation has failed to find more than forty deaths from chloroform in labor, in the practice of the world, from the time that this anesthetic was brought into use to the present time. Some high authorities place the number at only three deaths. This is, I think, a wonderful exhibition, particularly when we take into consideration the careless, unscientific, reckless manner in which it is given during labor.

And not only this, but its often prolonged use during protracted labors. I have seen it given in protracted labors every half hour for twelve, and in certain cases for twenty-four hours, where there were not only no evil results, but labor terminated naturally and favorably. I have seen in cases of obstetrical operations the patient kept in a profound state of chloroform anesthesia for two and three hours without the least indication of collapse of the circulation or suspension of respiration.

In a long experience in the use of chloroform, extending over a period of nearly forty years, I have yet to see my first case of the least evil result to mother or child. Yet I am opposed to its reckless and careless use in parturition and for fear that there might be an evil result, believe that the same scientific principles and careful method of giving it should guide us as in general surgery.

According to these statements, and I am convinced that they are sustained by the experience of the majority of the profession, pregnancy, particularly during the stage of parturition, does in a large degree render the woman immune from the evil effects of chloroform. This having been established as a fact in its therapeutics, it remains to be determined what is there in the state of pregnancy or parturition that gives the parturient patient this immunity.

The extraordinary development of the vasomotor and circulatory systems in the pregnant woman has been alluded to, with its wonderful arterial tension and high blood pressure. The pulse even of the most delicate pregnant woman is often as hard, full and strong as the most robust man. In a paper read last November before the Southern Surgical and Gynecological Association, on the action of chloroform on the exposed human brain, I showed very conclusively that the anesthetic action of chloroform on that organ was invariably to produce anemia of its circulation, reduction of arterial tension and diminution of blood pressure, so that always under full anesthesia the brain becomes anemic to a degree that in extreme cases there is an enormous and dangerous reduction of circulation preceding general collapse. I am therefore constrained to believe that in this wonderful development of force, strength and power of the pregnant woman in her vasomotor system lies her immunity from the toxic action of chloroform. Every degree acquired of additional strength in the vasomotor system gives her increased immunity. It is this newly acquired force of the vasomotor system of the pregnant woman which enables her to resist the toxic action of chloroform to an extraordinary extent, which prevents extreme depression of arterial tension, and consequently excessive and dangerous anemia of the brain and spinal cord.

In the cases alluded to, of extensive injury of the cranium and the brain in which, while chloroform was being used, I had a perfect ocular demonstration of its action on the functions of the brain during its administration of three or four times in each case, reduction of arterial tension, blood pressure and vasomotor force in the arteries invariably preceded a state of anemia of the brain, and this extreme anemia of the brain, suspension of pulsation and hemorrhage always preceded tendency to general collapse.

These facts, I think, indicate to us very clearly that in chloroform anesthesia, anemia of the brain to an extreme degree always precedes dangerous chloroform narcosis and collapse, and, at the same time, that so long as the vasomotor force remains intact in sufficient force to sustain the circulation in the brain and medulla, life will be sustained.

In my experiments with chloroform in the cases cited of injury of the brain, there were two occasions in one, and one occasion in the other, on which there was alarming collapse, with almost entire suspension of respiration and cardiac action. Preceding these symptoms in every instance there was marked reduction of vasomotor force, arterial tension and blood pressure, and diminution of cardiac power. In all my experience in the use of chloroform in parturition, I have never witnessed this extreme reduction of cardiac and vasomotor force, no matter to what extent the agent was pushed, that I have in general surgery.

The primary action of chloroform is on the cortex of the brain, the seat of consciousness and sensation. For the relief of the pains of parturition, all we have to do is to bring the cortex under a state of anesthesia, without extending its influence so far as to involve the reflex functions of the cord. This is equally true of anesthesia of general surgery. By watching the action of the remedy we are enabled to confine its influence to the cortex without infringing on the functions of the cord or vasomotor system. This is all that is desired to relieve pain and to render the

act of labor more comfortable and easy for our patient. On the contrary, if we desire to relax excessive rigidity of the soft parts, or in case of convulsive action, to control that, we must extend our anesthetic influence further, and bring under its power the reflex functions of the cord itself. So long as we confine our anesthetic to the cortex alone we can not accomplish these objects. But immediately the cord is brought under its influence, complete muscular relaxation follows.

We will now consider the question of anesthesia in its practical bearing and influence on the process of parturition.

Is the use of chloroform in parturition justifiable for the relief of pain alone?

This is the first question that presents itself for our consideration. I believe that it is, but not in every case. For instance, there are cases where the pains are slight, the conditions all favorable, the passages spacious, the labor rapid, in which it is unnecessary. But in every case where the labor is at all slow, painful, and not easy, I believe that it is not only justifiable, but that it would be inhuman to withhold it. This statement is based upon the fact that the mortality from chloroform anesthesia in labor is so very small, not probably amounting to one in millions, we certainly can risk so little for so much good.

I know that there are those who oppose its use in parturition *in toto*, but I believe without good and just reasons.

Pain is the great terror of parturition and if it could be robbed of this feature alone it would be converted into a very simple and easy process. For some years before I adopted anesthesia in my obstetrical practice, I have time and again sat by the bedside of women in the throes of parturition and listened often with anguish to myself, to their cries for relief from pain, heard their moanings from almost insufferable agony, for hours of such scenes that impressed themselves upon my memory in a manner never to be forgotten. With chloroform at hand, and with my familiarity with its action, I never have to pass through such painful scenes now. I have tried in past years many substitutes for chloroform to relieve the pain of parturition, but have never found one yet. I am convinced that it is the *anesthetic* of all others peculiarly appropriate to the parturient state. It is clean in its action, does not cause congestion of either the brain, the lungs or kidneys, but markedly diminishes the tendency to congestion of the brain.

Does the action of chloroform facilitate the process of parturition?

I believe that, as a rule, it does. I am convinced that in a great majority of cases it does shorten the duration of parturition. I know that it is the opinion of some that its action is to reduce the strength of uterine contraction and in this way retard the process of parturition. It has been my experience that while it relieves pain, its use may be so graduated as to not impair uterine contraction. Acting on the cortex of the brain alone and on the reflex functions of the cord are two different things. Thus we can abolish sensation without affecting reflex action. I believe that with care and judgment we can confine the action of chloroform to the cortex alone, the seat of sensation, and leave intact the reflex functions and the contractive force of the uterus.

I have no statistics to guide me in this matter, but my personal experience in the administration of

chloroform in parturition leads me to believe that it not only makes labor easier, but that in the average it shortens the duration of that process. If then, it is capable of rendering labor easier, more bearable to the patient, and can shorten its duration one hour, or even thirty minutes, its application is justifiable when we consider the very small risk incurred in giving it. In certain conditions I know that it can shorten the duration of labor. These conditions are rigidity of the soft parts, and irregular contraction of the uterine muscular fibers or spasmodic contraction of certain sets of fibers and relaxation of other sets; a condition that may protract labor indefinitely. The spasmodic contraction of certain muscular fibers of the uterus and relaxation of others is not an unfrequent state during protracted labor, and is a similar condition to that which produces the hour-glass contraction after labor. Chloroform is capable of equalizing uterine contraction and of preventing irregular spasmodic contraction, and in this way facilitating parturition.

Its well-known power to overcome and relax muscular rigidity no one can doubt. In illustration of this fact, I have repeatedly in my experience seen cases attended with rigidity of the soft parts where the process of labor was stationary, it might be for an hour or more, or even hours, but when chloroform was given in such quantities as to produce muscular relaxation, the labor would progress rapidly toward a termination.

At what stages of parturition is chloroform applicable?

To relieve excessive pain it is applicable at any stage. But to induce relaxation of muscular rigidity it is applicable in unusual rigidity of the os uteri, and in extreme rigidity of the perineum when the fetal head begins to press on that body. When the object of giving chloroform is to relieve pain only, it should be given in small quantities at the beginning of each pain and left off when the pain ceases. But when we desire to overcome muscular rigidity the patient must be subjected fully to its influence. In the case of extreme contraction of the os uteri, or great rigidity of the tissues of the pelvic floor, no half way procedure will accomplish anything. The patient then must be brought sufficiently under its influence to at least partially suspend reflex action when complete muscular relaxation follows, just as we would do in reducing a dislocation.

When there is perfect accommodation between uterine force and muscular relaxation in a normal pelvis, labor proceeds rapidly, easily and successfully. On the contrary, when this accommodation is disturbed, when, for instance, uterine contractile force is feeble, and perineal muscular tension is excessive, labor proceeds slowly and painfully. The action of chloroform in this class of cases is to bring this accommodation between uterine force and pelvic resistance to a more normal standard by reducing muscular tension. Leaving out of question congenital defects, or those caused by disease in the pelvic bones, the vast majority of tedious and difficult labor will be found to be due to rigidity of the muscular structures of the pelvis, or inefficiency of uterine contraction. We often see these conditions existing together. Nineteen out of twenty cases of instrumental delivery, in my personal experience, have been due to excessive muscular rigidity of perineum. In these particular cases the action of chloroform has

been to cause perineal relaxation, to reduce muscular resistance, to bring about accommodation between force and resistance without materially impairing that force on the part of the uterus.

Does chloroform tend to suspend uterine contraction?

There can be no doubt that chloroform may be given in labor in a manner either to relieve pain and to leave uterine contractile force intact, or to both suppress pain and uterine rhythmic contraction so as to suspend parturition for a time.

Rhythmic uterine contraction is an essentially reflex function and we know that the different nervous functions come under the influence of chloroform in consecutive order—sensation first, then reflex action and finally vasomotor action. Because of this fact we can, as a rule, relieve the pains of labor without impairing the force of uterine contraction. All practical obstetricians have observed in patients in labor when under chloroform, entire relief from pain while, at the same time, the rhythmic contractions of the uterus, and all the symptoms of active tenesmus were in full operation. I believe that this is the ideal state of chloroform anesthesia, in labor, and I am convinced that it may be so administered always as to relieve pain and leave the reflex functions unimpaired. Again, I believe that the reflex functions of the parturient patient are far more resistant to the toxic action of chloroform than in ordinary cases, and that it is more difficult to suspend them. This fact gives us a decided advantage in giving chloroform in labor, simply to relieve pain without interrupting the progress of parturition.

In my experience it has been seen that when the uterine contractions have been for the time suspended by the too free use of chloroform, when this influence subsided, uterine contractile force returned with renewed and additional vigor to perform the work to be accomplished. Also there have been occasions in tedious cases of labor, when the pains were irregular and insufficient in character, causing much needless suffering to the patient, that when the patient was placed under full chloroform narcosis for a time and was made to enjoy a prolonged sleep, the pains were renewed with vigor and force sufficient to terminate the labor.

Does the action of chloroform tend to promote or prevent post-partum hemorrhage?

This constitutes one of the most important questions connected with the therapeutic action of chloroform in parturition. If it tends to promote hemorrhage then this fact increases the dangers of its use in this condition. From my personal experience I can say this much relative to this question. Many times after its administration in parturition, when pushed to the extent of causing entire unconsciousness at the time of birth, in not a single case have I observed a greater tendency to hemorrhage or any greater difficulty in producing firm uterine contraction than when it was not used.

So far as this question is concerned, I can speak alone from personal experience, and any personal experience in a large number of cases extending over a long term of years, is of some value in settling important questions. High authority on the action of chloroform on the circulation is that it is a vasomotor contractor. In my surgical practice its action on the vessels rather tended to establish this view. Profound chloroform anesthesia certainly does dim-

inish surgical hemorrhage. In my cases of injury of the skull and brain, under chloroform anesthesia there was a marked diminution of cerebral hemorrhage in every instance. Then if it be true that chloroform is a vasomotor contractor, this, it appears to me, would decide this important question.

Does the action of chloroform in parturition tend to prevent or promote laceration of the os uteri or perineum?

Are lacerations more common under the present method of delivery under anesthesia, or under the old system of delivery without anesthetics? I have no reliable statistical data bearing on this subject to guide me, but I will state here that I have practiced under both the old system and the new, and am enabled to state positively that all of the bad cases of laceration of os uteri and perineum have occurred in cases where chloroform was not given. Many of the worst cases of laceration of these organs occurred in cases of rapid birth before my arrival. I am decidedly of opinion that thorough relaxation of the structures of the pelvic floor constitutes the best security against injuries of this kind, and I know of no agent that is as capable of producing that extreme relaxation of muscular tissue as chloroform, and therefore placing the patient in a condition most favorable for the prevention of lacerations.

I will briefly cite the case of Mrs. T., a young married woman who had an accidental abortion at five month of pregnancy. I was called to her about eight hours after and found her with a retained placenta. The perineum was intensely rigid and the ostium vaginae closely contracted. The vagina was narrow and the os uteri was rigidly contracted on a protruding umbilical cord. I determined to place the patient thoroughly under the influence of chloroform, with the hope that it would produce sufficient relaxation of the soft parts to enable me to insert the fingers into the uterus and remove the retained placenta. While the patient was under the influence, to my surprise I found complete relaxation of the perineum, vagina and os uteri. These tissues were in such an extremely flaccid condition that I was enabled with perfect ease to pass my hand, not only into the vagina, but into the uterus, which was equally as flaccid, grasp the placenta, detach it from its adhesions and remove it safely. Without the influence of chloroform this operation could not have been performed. During my past professional life I have had occasion to test all the various methods proposed by different authorities for the prevention of laceration of the perineum. I have found them more or less defective, some entirely unworthy. For some years past the method which I have adopted with the most satisfaction was to retract the perineum, with the fingers hooked into the vagina, back toward the rectum forcibly at each pain, so as to maintain a continuous relaxing influence of the perineum until the fetal head presses on that body. When it reaches that stage then the perineum will have been very generally relaxed. At this point the patient is kept under the influence of the anesthetic until the head begins to protrude from the vulva, when it is suspended. In my hands this mechanical dilatation of the perineum, combined with the relaxing influence of the anesthetic has been the means of preventing more lacerations than any other method that I have tried up to this time.

In conclusion, I can truly say that after a long and

favorable experience in the use of chloroform in parturition, that I have found it not only a blessing to the patient but to the physician also. Without the means of relieving human suffering what a dreary, unsatisfactory and repulsive life that of the physician would be. Yet for ages and ages the lot of the woman in the throes of parturition was to suffer, to bear, and submit to its terrible tortures, hopeless of relief until the end came.

For the past half century the achievements of medical science in the discovery and perfection of remedies to relieve human suffering, to improve human health, and prolong human life, have astounded the civilized world and are a source of pride to our profession. And one of the greatest of all of these achievements is the discovery of chloroform.

DISCUSSION.

DR. A. LAPHORN SMITH, of Montreal, said, that in order to lessen the cries of pain, when a woman is approaching the last stage of labor, he does not refuse to give her an anesthetic, and it is his practice to administer the A.C.E. mixture and allow the woman to give it to herself until within the last half hour; then the assistant administers the anesthetic.

DR. H. W. LONGYEAR, of Detroit, also favored the administration of chloroform in cases of labor, notwithstanding the fact that it is said to predispose to post-partum hemorrhage by inducing inertia of the uterus.

DR. BROWN, in closing, says he has had more than three thousand obstetrical cases, and about fifteen hundred of them were subject to chloroform in more or less degree, and he has not had a serious result.

SOME ORIGINAL STUDIES ON THE OBSTETRICAL FORCEPS, WITH MECHANICAL DEMONSTRATIONS.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. J. E. MAHER, M.D.
NEW YORK.

The obstetrical forceps is essentially a conservative agent, and by saving two lives at once, becomes the most useful instrument in surgery. It therefore well deserves the immense amount of ingenuity that has been expended in attempts to eliminate the defects discovered in the common or ordinary forceps. I shall proceed in the simplest possible manner, and leave all abstruse calculations and "*Reine Mechanik*," to be read rather than listened to.

For a workman to understand the character of the tool he requires, it is absolutely necessary for him to be able to appreciate the character of the work to be done. He must learn the conditions and the exigencies of them, before he can calculate the amount of force to be expended and the manner of its application to accomplish the work in hand. By work, I mean the application of force to overcome resistance. To understand this resistance to the descent of the child's head, we must be ready to appreciate certain conditions which obtain in the head of the child, and the obstetrical canal.

In considering the obstetrical canal, we will take two points, the axis of the canal and the character of the resistance offered by the walls. Hodge says: "The axis of the canal has been variously delineated by authors, but by no one with sufficient accuracy."

The circle of Carus, A, (Fig. 1) consisted of a two and one-fourth inch radius, having its center at the middle of the posterior surface of the symphysis pubis, and extended not more than one inch and three-eighths directly below the subpubic ligament, in the direction b. g.

Hodge took the middle of the subpubic ligament as the center of a circle, B, with a radius extending to the axis of the superior strait. This circle might get rid of the difficulty at the outlet, but at the superior strait it was very faulty. Hodge did not believe a single circle could be described satisfactorily; for he, like Naegele, Velpeau, Pierre Dubois and Caseaux, believed, what is apparently true, that the head descended practically in a straight line in the axis of the superior strait.

The circle of the planes C is also faulty in approaching too closely to the pubis.

Dr. W. S. Gardiner¹, of this city (Baltimore) deviated from the ordinary manner of describing a circle on the intersection of the planes of the superior and inferior straits produced beyond the pubis. He very properly showed that the tip of the coccyx did not make any part of the inferior strait. For him, and correctly, too, the end of the sacrum and a point half an inch below the subpubic ligament constitute the proper extremities of the inferior strait. While I would admit this as perfectly correct, I can not accept a circle D with a radius of seven inches, and which is four and one eighth inches below the subpubic ligament, as representing the axis of the outlet.

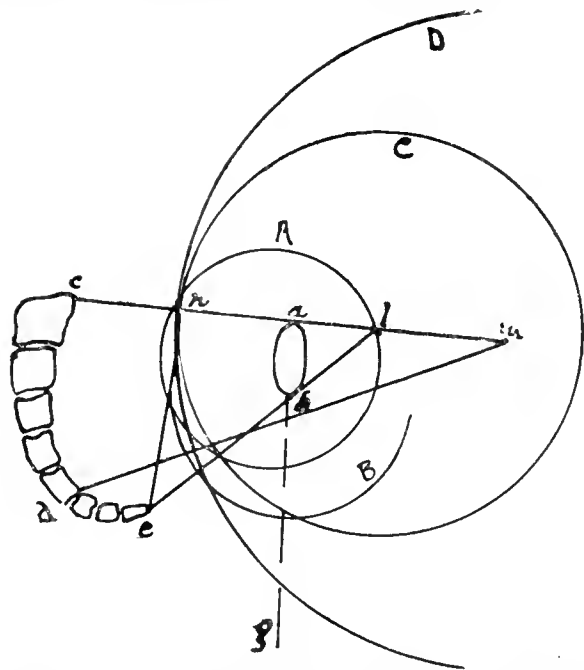


Fig. 1.—a, b, c, d, e, represent an antero-posterior section of pelvis; c, a, the plane of superior, and e, b, that of so-called inferior strait; cl, el, the intersecting planes of these straits; dm, the produced plane of inferior strait, after Gardiner; b, g, vertical line measuring the various axes offered, at outlet; N, E, the axis of superior strait; A, circle of Carus; B, circle of Hodge; C, the generally accepted axis, or the circle of the planes; D, Gardiner's circle of the planes.

It is easy enough to obtain a single circle, a segment of which shall delineate the axis of the obstetrical canal in a very practical way, if we go about it right. The anterior and posterior walls must be observed separately. Taking the anterior wall, we find it offers a uniform unyielding resistance, and that it extends from the top of the symphysis pubis to about half an inch below the subpubic ligament, as demonstrated by Dr. Gardiner. Now, we can easily conceive this anterior wall of the obstetrical canal to form a segment of some circle of which we should find the center. Let us take this point half an inch below the subpubic ligament, and any two other

¹ American Journal of Obstetrics, p. 60, July, 1892.

points on the posterior surface of the symphysis, as any three points in a given segment of a circle, to find the center. By uniting these three points by two chords, then drawing two radii from the center of, and at right angles to, the two chords, and then describe a circle from the point of intersection of the two radii, as the center, passing through the three points on the anterior wall, we have consequently the true anterior wall and the circle *a, b*, (Fig. 2) of which it forms a segment. The posterior wall differs materially from the anterior. Instead of two inches, it is more like ten or twelve inches long. The intrapelvic portion of it, about four inches long, limited by the planes of the superior and inferior bony straits, offers like the anterior wall an unyielding resistance; this with the tip of the coccyx pushed back to its extreme limit, is all that need concern us in the study of the posterior wall; because this wall in the extrapelvic canal is so yielding that it offers no *point d'appui* on which to calculate.

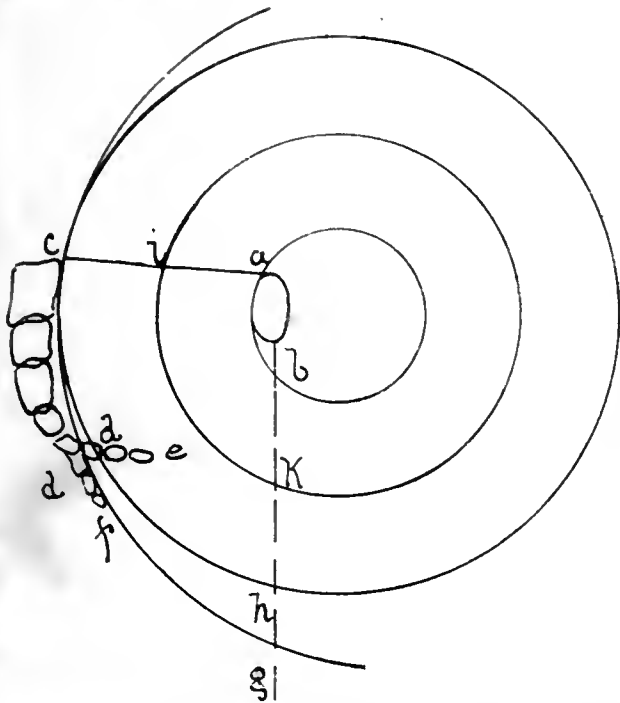


Fig. 2.—Same section of pelvis as Fig. 1, but *d, f*, shows coccyx pushed back; *a, b*, segment of the circle, *a, b*, represents the anterior wall of the pelvis; *c, d, f*, the eccentric circle of the posterior wall; *c, d, h*, the concentric circle describing the same segment; *i, k*, the circle delineating the axis of the obstetrical canal, almost mathematically correct.

Now, if we take the promontory of the sacrum, the end of the sacrum, and the tip of the extended coccyx, as the three points necessary to find the circle of which the posterior walls form a segment, we shall have a circle passing through each of these points, *c, d, f*. This circle might be objected to on account of the eccentricity formed by the hollow of the sacrum that is not involved. The hollow of the sacrum conduces to the amplitude of the pelvis, is an advantage, and is therefore not to be taken into account when considering the disadvantages or the narrowness of the unyielding straits in a forceps operation. But when we come to consider this circle in its distance below the subpubic ligament, we find it unsatisfactory. This fact led me to concentrate the circles, which might readily be done by slightly increasing the sacral eccentricity, which really does not exceed one-fourth of an inch at the lower end of the sacrum,

and in the upper half means nothing. This deviation from the purely scientific procedure gives a more satisfactory result. We then have the circle *c, d', h*, representing the posterior wall. To find the circle of which a segment shall represent the axis between the two walls just described, we have only to take half the sum of the radii of the circles of the anterior and posterior walls, as the radius of the third circle *i, k*, which shall be the most equidistant between both walls of the pelvis, of all the axes I have ever studied.

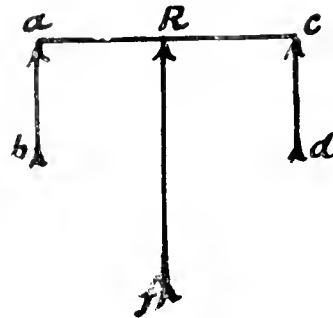


Fig. 3.—*a, c*, body to which the forces *ba, dc*, are applied, and which is equally as well opposed to the central balancing or resulting force, *f, k*.

Having determined the most practical axis of any obstetrical canal, we should now consider the fact that, at the inlet, the resistances offered by the pubis and sacrum are uniform and equal; neither will yield; they are absolutely unyielding. Now, if these resistances are equal, they combine so as to be represented by a resultant or single resistance, whose direction is that of the axis of the superior strait.

It is well known that if the two equal and vertical forces *ba, dc* (Fig. 3) are opposed to the two extremities of the body *ac*, they can be replaced by a single vertical force *fR*, equal to their sum and passing through the center *R*, of the body *ac*.

The resistance *io eo*, (Fig. 4) opposed by the walls *ab, cd* of the pelvis are, in reality, obliquely directed upward and inward; but these oblique resistances decompose into the inward or horizontal *if, ef*, and into the upward or vertical *im, en*.

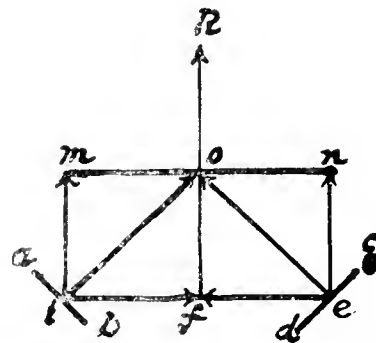


Fig. 4.—*ab, cd*, the antero-posterior walls of pelvic inlet; *io, eo*, the resistances or forces presented by (and at angles to) these walls to the body; *i, n, m, e, n*, and *if, ef*, the resistances into which *io, eo*, are decomposed; *f*, the resultant resistances replacing *i, n, e, u*.

These two latter, as we have already seen, have a common resultant *fR*, equal to their sum and vertical like them, passing through the center *o* of the body *mn*. The horizontal or inward resistance *if ef*, tend to effect the reduction of the cranium, while the vertical or upward resistances *im en*, represented by *fR*, oppose its descent.

If two oblique forces could be opposed directly to the two oblique resistances offered, say, by the pubis

and the promontory of the sacrum, *io, eo*, what would be the effect? The directions of the forces would be opposite to those of the resistances, that is, downward and outward; the downward force being directly opposed to the axial resistance *fR*, would be entirely useful in overcoming it, but while the inward resistances *if, cf*, are useful in producing reduction of the cranium, the outward forces *fi, fe*, opposed to them must produce the contrary effect, expand the cranium, and hence increase the resistance.

The oblique forces therefore would expand the cranium, increase the resistance, and thus tend to damage the soft parts of the mother. Supposing the oblique force hypothetically opposed to the oblique resistance *io* were omitted and the force opposed to the oblique direction *oc*, then there would be left the inward resistance *if* and the outward force *fe*, acting conjointly in the same direction, *i.e.*, toward the pubis, thus increasing the resistance at that point, and producing pressure injurious to the mother in direct proportion to the force applied. Hence the application of a force in the oblique direction downward and forward at the superior strait, tends to drive the head against the pubis, make the head rotate about this point, increase the antero-posterior diameter of the presenting part, thus increase the resistance to be overcome, and cause unnecessary pressure to the soft parts of the pubic structure of the mother and a positive loss of a certain percentage of force applied.

This is precisely the effect of the ordinary forceps applied at the superior strait in a difficult case. Any forceps, ordinary or not, in the use of which, force is expressed in an oblique direction, shows the same effect more or less. Hence it can be readily observed without further detail, that to overcome the resistance met with at the superior strait, with the least damage to the tissues of the mother, the force should be directly opposed to the resultant resistance and consequently traction must be made directly in the axis of the superior strait.²

If the obstetrical canal were a straight one, this would be a very simple thing to accomplish, but since it is curved forward in such a manner as to have the axis of the inferior strait produce, with that of the superior strait, an angle of about 130 degrees (Hubert), it becomes necessary to have an instrument whose curve will approximate as conveniently as possible to that of the canal. As direct force can only be expressed in straight lines, the application of direct force to such a curved instrument as the forceps, as Simpson's, of which the axes of the blades and shanks form an angle of about 160 degrees, when adjusted at the brim, not only produces a certain amount of injury to the mother, but increases the amount of resistance to be overcome; because the direction of the force thus expressed would be along an oblique line from the middle of the blades *f* (Fig. 5), to the point of the instrument grasped by the operator, say near the lock *p*.

This direction of the force is by no means directly opposed to that of the resistance *KR*, met with in the axis of the superior strait as necessary to overcome it, but is oblique, downward and forward. It is thus a composite force, that can be decomposed into a vertical or downward *fs*, and a horizontal or forward force *ft*. The downward force being directly opposed to the resistance, will be entirely useful in overcoming

ing it, but the forward force, by crowding the head against and even above the pubis, can only increase the resistance and injure the soft parts of the mother by compression. This compressive effect of the ordinary forceps, bears a direct ratio to the size of the angle *sfp* produced by the oblique direction of the force and that of the axis of the superior strait. The larger this angle, the greater the compressive effect. With Simpson's forceps, this angle is about 30 degrees, and consequently over 55 per cent. of the force applied, is exerted against the pubis.

I might here state that, in the paper already referred to, I termed the above angle, the *angle of compression* and the angle *pft* formed by the forward direction and the oblique direction, the *angle of extraction*. But, to render the subject easier of comprehension, I made the axis of the blades (or rather the longest chord drawn on the axis) coincide with the axis of the superior strait, thus rendering the

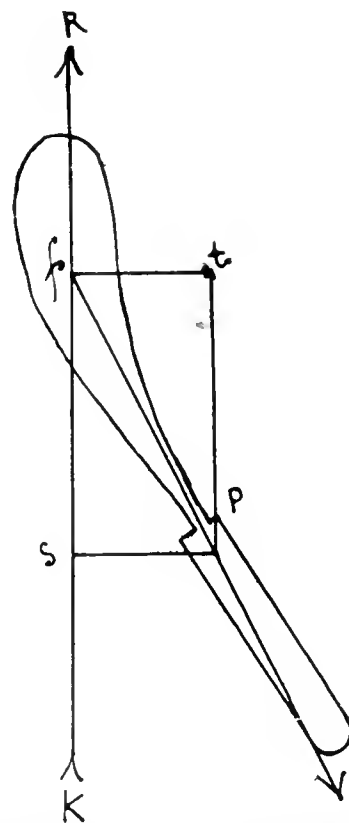


Fig. 5 represents the blade, shank and handle of an ordinary forceps; K, R, the axis of the superior strait or the direction of the resistance; f, p, the direction of the force applied to the center of head, f, from the handle near the lock; P, ft, fs, the two directions in which the oblique force fp is actually expressed.

angle of compression only about 15 degrees, which can rarely happen in practice, with a perfect perineum, and consequently the angle of compression is, in reality, twice as great as that given in the paper mentioned.

To eliminate the compressive effect in the ordinary forceps, much ingenuity has been spent in devising methods of using it. But these methods, such as that of Oseander and others, are effective to an uncertain extent and the success achieved is of an uncertain quantity; for such methods require, for any degree of success, a hand educated to their use—a hand that has become adroit and skillful by prolonged experience in the manipulation of three forces acting in

² For further details see article in Medical Record, June 10, 1893

center or axis of the canal, and overcome completely by a force exerted along that axis, as illustrated at the superior strait; but when the resistances are unequal and the force is applied in the axis of the canal, the body is arrested at the point of greatest resistance, and the force continuing, it is propelled in the direction of the lesser resistance, as well as in that of the axis of the canal. In fact, it rotates around that point of greater resistance, as around a pivot, thus producing extension of the head, and increasing the antero-posterior diameter of the presenting part.

If the two unequal and vertical resistant forces *b a d c*, (Fig. 7) be applied to the body, *a c*, they can be replaced by a single vertical force, not passing through the center *o* of the body *a c*, but through a point corresponding to its percussion point, approaching the greater resistance, *d c*, in proportion to the greater weakness of the resistance, *b a*. If, for example, the resistances were in the proportion of 1 to 3, these resistances would be equally overcome if the force were applied three times nearer the point of greater resistance. But, since this is impracticable, and an axial force, *o f*, tends to propel the body, *a c*, backward toward *a* and downward toward *f*, or along their any resultant *o, c*, in an oblique direction downward and backward; to relieve the strain on the

curity and uncertainty, for the muscular sense of the operator is always called into play the same as with the common forceps.

The perineum may be pushed back by the shanks of the instrument, without seriously altering the position of the blades, just as in the use of the common forceps. This, in some cases, is an absolute necessity, depending upon the situation of the posterior commissure of the vulva. This adaptability

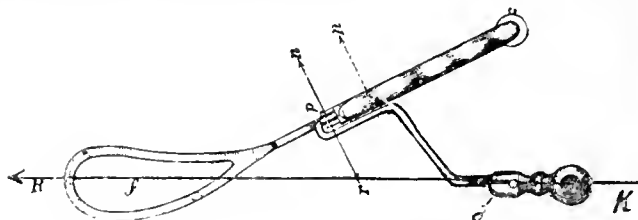


Fig. 9.—Side view of forceps, with its mechanical effect; KR, direction of resistance as met with at the superior strait; f, center of blade; D, ball and socket joint. Notice that the socket piece and the ball end of the rod are in the same straight line. P, decussation of shanks showing the socket receiving the hook end of the traction rod; pn, pe, the actual expression of the force evolved from the lever effect of the traction-rod; cn, the direct leverage force translated to pn.

of the instrument to the canal is possessed by no other non-rigid forceps. There is, in fact, no other instrument that will permit of rotation during the traction, and allow of axis-traction in every case.

Bearing in mind the correction of the conventional error hereinbefore mentioned, a very adequate description of the forceps will be found in the *Medical Record* of June 10, 1893.

This instrument is manufactured by Richard Kny & Co., of New York city.

THE VAGINAL ROUTE FOR OPERATIONS ON THE PELVIC VISCERA.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY D. TOD GILLIAM, M.D.

COLUMBUS, OHIO.

Everything indicates that we are about to have an epidemic of transvaginal surgery. Salpingectomy, cholecystotomy, nephrectomy and operations for appendicitis have ceased to be novelties and have therefore to an extent lost their charm. Men are merely boys grown up and, like boys, are fond of exploit and adventure. This in the main results in good by advancing knowledge, developing manual dexterity and evolving new methods. The pity is that in the name and guise of science and the legitimate pursuit of this noblest art so much is done for self, to the detriment of the patient. The surgeon should never aspire to a record; the best interests of his patient, the advancement of his art and the greatest ultimate good to his race should be the aim and object of his life. To such an one, fame, honor and confidence of the profession and people will come in due time, and will come to stay. From this standpoint let us look into the merits and demerits of this new fad; endeavor to prescribe its scope and limits, and by comparison with older and better known methods strive to affix its proper status in gynecologic surgery.

That many operations on the pelvic viscera through the vagina are practicable is well known to every one at all conversant with gynecologic history, and there are few gynecologists of long or extensive practice who have not essayed most of them. Some years

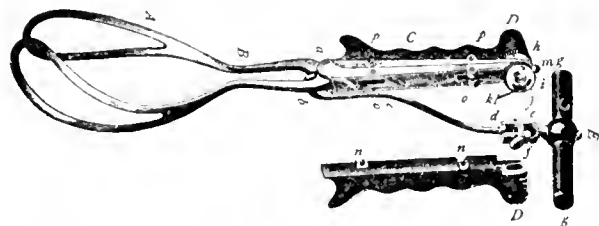


Fig. 8.—A, blade; B, shanks; C, handle; DD, detachable rubber side pieces; E, the axis traction attachment; a, socket between shanks for hook b, of traction rod; d, ball end of rod; e, clamp socket for d; f, thumb-screw for screwing the ball and socket joint; gg, the rubber cross-bar; h, the ordinary Elliott wheel and threaded bar; i, an additional wheel with a half-threaded slot on opposite side, which both form the lock; Kl, a quarter-circle slot and piece limiting the motion of lock-wheel or small knob on lock-wheel; n, n, metallic lugs which hold side pieces in place; oo, grooves in the metal for the reception of the lugs; pp, screws passing antero-posteriorly through the metal and flat where they pass through the grooves; a quarter turn of these screws, locks or unlocks the side pieces securely to the metallic portion.

weaker structure, the perineum, we have only to divert the oblique direction of the force *o e* into the opposite oblique direction, *o d*. Thus it will be observed that this anterior oblique direction of the force, *o d*, corresponds with the oblique direction of the force *f p* (Fig. 5) in the ordinary curved forceps, as demonstrated above.

Hence, the proper or perfect obstetric forceps is one in which the force can be expressed in the axis of the superior strait, and in the anterior oblique direction at the outlet.

The forceps which I have the pleasure of exhibiting to you, (Fig. 8) consist of the old familiar Simpson blades and shanks, the Elliott handles, and this simple traction rod, and an exceedingly practical lock, and permits admirably of just such expression of the force (Fig. 9). At the superior strait it is an excellent axis-traction forceps; at the outlet it is the most desirable model of the ordinary forceps. Though the fetal head is free to rotate, the instrument can not slip. It is not a Tarnier model, and possesses none of the defects of such; nor does it require an expert to use it. Whoever can use an ordinary forceps can use this as readily and as successfully as any expert. It does not produce that feeling of inse-

ago, indeed, it was the favorite and almost only method practiced, and there are doubtless elderly men in this assembly to-day who could give us pointers in vaginal surgery. We can all remember the time when abscesses and other fluid collections in the pelvis were attacked through the vaginal vault and when submucous and interstitial uterine fibroids, even of large size, were removed per vaginam. At a later period the uterine appendages and even ectopic gestation, ovarian cysts and the uterus itself were removed by this route. It remained for Péan and his collaborators to cap the climax by removing the fixed uterus by morcellation through the same channel. It is the latter, with its extensions to other conditions, that has given the wonderful impulse to transvaginal surgery that we witness to-day.

Let us briefly inquire into the advantages and disadvantages of the vaginal route, as compared with that by abdominal section, as it is between these that the issue lies. In the former we obviate section of the abdominal wall with its resultant scar. This scar is not only disfiguring and repulsive to the sensitive nature of the most sensitive of beings, but entails a feeling of weakness and insecurity, is at times painful and not infrequently the site of hernia. Furthermore, the omentum or bowel invariably becomes adherent to it and is liable to give rise to distressing, if not dangerous sequelæ. It is now generally conceded that the shock of the vaginal operation as compared with that of abdominal section is trivial, because the intestines, the most sensitive of the abdominal viscera, are not exposed or handled. This is far-reaching, for not only may the shock itself be dangerous to life, but by diminishing vital resistance it predisposes to sepsis and cripples the functions of important organs. Intestinal paralysis does not occur.

Sepsis, the bane of abdominal surgery, is less frequent in the transvaginal surgery: 1, because the pelvic peritoneum is better able to cope with germs; 2, because the route of invasion is less direct and against the tide of outflowing serum; and 3, because the germicidal powers of the splanchnic viscera are unabated. From a well-known fact that the vagina is the natural habitat of pathogenic germs of many varieties, that it is sometimes exceedingly foul, and from the supposed impossibility of rendering it surgically clean, I, with many others, had a dread of entering the peritoneal cavity by that route and always, when possible, refrained from doing so. I now have no more hesitation on that score. I believe with douches and a thorough scrubbing with creoline mollin we can render the vagina as aseptic as the skin. Again, in removing septic matters through the abdominal incision there is always a chance of peritoneal contamination and in many instances, as enucleating pus tubes, inundation of the cavity is unavoidable. This is always avoidable in the operation from below. Drainage through the vagina is incomparably more efficient than through the abdomen. The vaginal drainage is natural, perfect and with gravity. Abdominal drainage is against gravity. Not only so, but the animal fluids coating the tube or filling the meshes of the gauze afford an excellent culture medium for stray germs, which naturally make their way downward or inward. On the other hand, the outflow of fluids toward and into the vagina, not only prevents the accumulation of septic matter in the pelvis, but washes away any that may

be seeking entrance from below. So far the advantages are decidedly with the vaginal route, but it has its disadvantages. It is optional with the abdominal surgeon how much room he may make for himself. He can always keep the objective point under the eye or finger. He has ample facilities for seeing and knowing the position and surroundings, for avoiding important structures, ligating vessels and guarding against mischance. The ability to control circumstances and to advance with open eyes constitutes good surgery. Moreover his field is not abridged or limited. He can pursue the malady to the uttermost limits and he can preserve the healthy while eliminating the diseased. Should there be a mistaken diagnosis he can tack about and still be master of the situation. With the vaginal surgeon it is different. His field is limited; his operative space not amenable to optional extension. His facilities for meeting emergencies are meager. He is working in cramped quarters and oftentimes at a great disadvantage. It follows, then, that vaginal surgery has a sphere of its own. It can not aspire to supplant abdominal surgery nor yet in any large measure trench upon it. The possibilities of vaginal surgery will depend largely upon fortuitous circumstances. With a large, lax and shallow vagina many operative procedures may be feasible, but with a narrow, deep and unyielding one, even the more common of the operations may be rendered difficult or impossible. I speak knowingly on this subject, for I have had experiences in both directions. I have removed submucous fibroids, pelvic cysts and the malignant uterus as large as the fetal head, sometimes with comparative ease. I have signally failed to remove the fixed uterus on two occasions, on account of the narrowness, depth of the canal and unyielding structures about its outlet. In the first instance, incising the perineum failed to relieve the situation on account of the great depth of the canal. In the last, I was provided with Péan's retractors and all the appurtenances used by him. It was with the utmost difficulty that the retractors were introduced, and then, after prolonged effort it was found impossible to dilate the passage. As it is a cardinal rule never to go with the scissors or forceps where the eye or finger can not follow, I found it impracticable to complete the operation. Whether Péan or Jacobs could have done so, I know not, but I do know that the average surgeon would have failed as I did or done worse at a blind attempt at the impracticable. To my mind the field of transvaginal surgery includes hysterectomy of the normal or slightly enlarged uterus, the removal of the appendages when accessible, the drainage of the pelvic abscess, the morcellation of intra-uterine fibroids of moderate size and, possibly also, the extirpation of free cysts, low down in the pelvis.

It is unnecessary for me to say anything with reference to the technique, as this has been worked out so thoroughly as to leave little to be desired or expected. There are one or two points, however, to which I would like to call attention, and which I have found in my own practice to have been of material advantage. A modified Trendelenburg position contributed greatly to the facilities for operating, by giving a much better light and by preventing the prolapse of intestines, which at times are annoying. Should there be purulent or septic collections in or about the field of operation this position would

never be dispensed with. In many cases the short posterior retractor is vastly more efficient than the long ones used in Europe. It enables you to bring the vaginal vault within easy reach, and to follow the steps of the operation with much more ease and precision than when one has to work in the depths of a deep hole. Even in cases of fixation I have been able at times to use the short retractor to greater advantage than the long one, and I am so imbued with its value that I would be loth to attempt any of the more serious operations through the vaginal vault without having one at hand. Feeling the want of a self-retaining retractor, that was simple and efficient, I devised the instrument which I now show you. You will observe that it consists of two pieces. The holder which passes under the sacrum and is held firm by the weight of the body and at the extremity of which is a steel pin for holding, and a screw for adjusting, the blade of the retractor at any angle. The retractor has a short handle with notches on the inner aspect and a ring at the end. In adjusting the speculum it is introduced as any other, then the index finger of the left hand is placed on the blade where it curves inward, while the thumb is placed under the free end or screw of the holder. Now, with the finger of the right hand in the ring of the handle, the retractor is guided into position through the slot on the side, while the blade and holder are approximated by pressure between the thumb and finger. Once in position it is easy to secure the desired degree of perineal retraction by increasing the pressure when it locks itself automatically. Now by turning the thumb screw the inclination of the blade may be changed at will. The mechanism is very simple, the movements are easy, the result all that could be desired. Besides the instrument, as a whole, takes up very little space and can be carried almost as easily as a bivalve speculum.

REMOTE RESULTS OF REMOVAL OF UTERINE APPENDAGES.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. E. MONTGOMERY, M.D.

PHILADELPHIA, PA.

The introduction of the operation for removal of the tubes and ovaries as advocated almost simultaneously by Battey, Tait and Hegar, though upon distinctly different lines, opened up an extensive field for the practice of abdominal surgery. The enthusiasm of their followers necessarily resulted in the practice of the procedure in many cases when it was of doubtful utility. Battey advocated the operation for intolerable dysmenorrhea; Tait for distinctly recognizable pathologic lesions in tubes and ovaries, principally of an inflammatory character; Hegar to produce an artificial menopause in cases of uterine hemorrhage otherwise uncontrollable.

These distinctly defined indications soon became extended, so that pelvic pain of slight degree, whether associated with menstruation or not, has been considered an excuse for the removal of the organs. Ovaries and tubes have been removed in which careful macroscopic investigation has failed to disclose much, if any, evidence of disease.

The experience of over twenty years has afforded opportunity to study the immediate and remote effects of operations which, at least, must have a profound

effect upon the mental and physical nature of the individual in the interference with the procreative function.

It is a well recognized law of nature that unused faculties atrophy, so that it is not surprising to find that after castration of the unmarried female, the genital organs become smaller, the vaginal rugæ disappear and the mucous membrane is thinner and paler. In the married or those who subsequently marry, sexual desire becomes quiescent or even disappears, and to some the marital relation is painful and repugnant. Instead of being a willing and sympathetic partner in the act, she passes through the stages of indifference and passive suffering to disgust and distress.

If the condition just mentioned were the only unpleasant symptom, it would be a matter of but little moment. The most marked influence is upon the nervous system. It is generally recognized that the climacteric is a critical period in the life of every woman, one to which she looks forward with anxiety, realizing that hereditary traits and unpleasant phenomena are likely then to manifest themselves. If this be true when the woman matures and reaches the period undisturbed, how much more likely is she to suffer when the climacteric is abruptly and artificially induced, without nature having had an opportunity to prepare her forces for the changed relation.

Every operator is familiar with the flushing, vasomotor disturbances not unfrequently affecting the action of every organ of the body. These do not always disappear in a short period as in the natural menopause, but may continue for years, being a constant source of annoyance and discomfort. While it is true that many patients recover an appearance of good health who were previously great sufferers, in many this improvement will be found to be but temporary. Frequent attacks of neuralgia or neurasthenic pain in both ovarian regions as intense as prior to operation, in the uterus, in the intestines, the bladder, or the rectum; insomnia, restlessness and irritability of temper are not uncommon. Even if the individual may have had no desire for offspring, the assurance that motherhood is denied her frequently leads to intense longing for a child. When, however, she has been desirous for children and the possibility is precluded by an operation, the declining sexual appetite not unfrequently leads to a profound melancholy in which she feels life without solace or comfort.

Changes in pigmentation have been observed and it has been asserted that through menstruation certain material is eliminated which in its cessation is retained, producing splotches and discolorations of the skin, or the profound nervous manifestations.

The mental and nervous phenomena may be actuated or aggravated by the sequelæ of the surgical procedures, such as fistulæ, ventral herniæ, painful cicatrices, adhesions of intestines to the uterus, to the stumps, and to the bladder; cellular exudation, infection of ligatures, and the formation of abscess, immediately following the operation or years later.

A case recently came under my observation where, over four years after castration for bleeding fibroid, an abscess formed, which opened in the upper part of the cicatrix. An incision disclosed a large loop of silk in the abscess cavity.

Leucorrhœa and irregular profuse uterine hemor-

rhage not unfrequently follow the removal of both ovaries. Such an array of unpleasant phenomena, associated with the necessary mortality of the procedure when carefully and conscientiously done, should cause the surgeon to hesitate and weigh the condition of each case carefully before resorting to surgical procedure.

I would by no means wish to be understood as denying the necessity and wisdom of operative procedure in necessary cases, but would demand that careful study of the case should determine that the determined procedure was the necessary course for relief.

A careful survey of the immediate and remote influences of pelvic surgery justifies the following conclusions:

1. No mutilation or sacrificial operation should be done, where there is a reasonable probability of relieving the inflammatory condition through vaginal incision and drainage.

2. Efforts should be made to preserve portions of an ovary and a tube through resection, where partially diseased.

3. Where the ovaries and tubes are diseased, to such a degree as to require their complete removal, the patient is less likely to suffer from profound nervous phenomena if the operation be associated with hysterectomy.

4. Castration should be done for neuroses, only after it has been demonstrated by the experience of capable neurologists that the operation is the *dernier ressort*.

DISCUSSION.

DR. HENRY P. NEWMAN, of Chicago—said the subject under discussion was one of vital interest not only to the operator, but decidedly so to the patient. He had never seen a case in which removal of the uterine appendages produced insanity or an outward physical change in the patient, nor had he seen it result in any sexual deterioration to any great extent. In some instances, possibly that had been complained of. He expressed the opinion that before the operation is performed, its possible ill results should be carefully placed before the patient. Furthermore, it should only be performed for actual structural changes in the appendages, and not for mere pain.

DR. M. B. WARD, of Topeka, Kan.—said that where healthy ovaries are removed in young women, very marked nervous symptoms are produced—indeed, so marked that we ought never to do the operation if we can avoid it. He has never seen insanity result from it, however, nor a loss of the sexual appetite. The operation is sometimes followed by a very troublesome leucorrhea. In all cases it is well to postpone the operation as long as possible. Nervous and hysterical patients have greatly improved after the operation.

DR. RUFUS B. HALL, of Cincinnati—had frequently seen patients suffer mental depression following operations for removal of diseased appendages. With one exception he had never seen insanity follow the operation. This exception was a woman, two of whose sisters had previously died in an insane hospital, and who showed a strong history of hereditary insanity. She died some time after the operation had been performed. There was a large suppurating ovary, and the woman had had gonorrhea. He does not operate for reflex symptoms. Accumulation of fat usually occurs after the operation, this disappearing, however, at the menopause. He has never seen a growth of hair following celiotomy. So far as blunting of the sexual appetite is concerned, he had seen a few instances where this feeling was blunted. In no instance had it entirely disappeared.

DR. G. BETTON MASSEY, of Philadelphia—remarked that his experience on this subject was possibly somewhat peculiar, in view of the fact that the cases he had seen had been operated upon by other men, and his experience fully corroborates the large number of instances mentioned by Dr. Montgomery, of physical and nervous disorders that follow the removal of the ovaries. In one case a form of melancholia undoubtedly resulted from the operation. In many cases, after the removal of the ovaries in young girls,

their moral nature is greatly changed; the sexual feeling is not extinguished, but is largely limited by the operation. He has never seen an extra growth of hair on the face or elsewhere result from the operation.

DR. HOWARD A. KELLY, of Baltimore—had encountered six or eight cases of insanity after operation, one case after an abdominal operation, and one after curettement. All of the abdominal cases got well. When a woman asks him what bodily changes will follow the operation he tells her that she will get stouter and recover her health. The possible loss of sexual power does not militate against the performance of the operation, because these patients are usually in such a condition that they have not enjoyed sexual intercourse for years. On the contrary, the operation often restores family relations which have been impossible for years.

TREATMENT OF CONTRACTIONS OR STENOSIS OF THE UTERINE CANAL.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WILLIAM A. B. SELLMAN, M.D.

PROFESSOR OF OBSTETRICS AND DISEASES OF WOMEN, BALTIMORE UNIVERSITY, BALTIMORE, MD.

Contracted condition of the uterine canal has been treated by various methods. The slitting up of the cervix is a very unsatisfactory operation, as well as a dangerous one. The enlargement of the canal by means of the sharp curette is uncertain in its results, as the instrument merely scrapes furrows in the tissues and the part soon returns to its previous small caliber. I have attempted to obviate this by imparting a circular motion to the instrument during the operation and, by this means, reaming out the dense tissue at the point of contraction.

Hundreds, yes, thousands of women suffer from dysmenorrhea on account of the uterine canal being contracted at some point. The condition may be acquired or congenital. After amputation of the neck of the uterus, the external os frequently contracts to such an extent that we fail to pass our smallest probe. I intend in this paper to speak more definitely as to the stenosed condition that we find existing at the internal os. These contractions are generally formed of tissue of a denser nature than normal mucous membrane and many times it is of a decidedly cicatricial character. This density of the tissue and this cicatricial character is frequently the cause of the displacement of the organ that we find existing in many of these cases. The fundus of the uterus is pulled over one way or the other, and after the caliber of the canal has been increased we find that the displacement has also been corrected.

I desire at this time to call your attention to a new instrument to remove this condition of stenosis. I call it my reamer.

This reamer is intended to be used to take the place of the slitting up operation and also to supersede the use of the curette. Dysmenorrhea persisting on account of a narrow and, at times, an almost impervious condition of the uterine canal, or due perhaps to the existence of a ring of dense cicatricial tissue at the internal os, which dams back the flow of blood or secretions—these call for the use of the reamer. Rapid dilatation in many cases gives but temporary relief, as the parts return to their previous condition soon after the stretching operation has been performed. The dilator does not remove the dense tissue; it only lacerates it. The curette merely scrapes furrows in the tissue and the contraction remains.

With the use of the reamer, this tissue is reamed out or cut away by the knives placed upon the sides of the instrument. They are made in three sizes; begin with the smallest and gradually enlarge, and when you have accomplished all that you can do with this size, withdraw it and introduce a larger size.



The blunt probe-pointed end is introduced first and pushed in the constricted canal, a circular motion is imparted to the handle, and a moderate amount of pressure is exerted to cause the knives to engage upon the tissue, which at times is so hard that even the keenest knife has difficulty in making an impression upon it. The instrument works very much like a pencil sharpener paring away the tissue in slices. At times the constriction is so great that a small dilator has to be made use of, before the expanded portion of the instrument can be made to enter the narrowed uterine canal. As a rule, if the operation is properly carried out, a second operation will not be required. The patient should be under the influence of an anesthetic, if there be much tissue to be removed, or if she be of a nervous temperament.

The operation is frequently performed at the surgeon's office and the patient allowed to go about her accustomed duties; this is in cases of slight stenosis. When a large amount of tissue has been removed, it is prudent to place your patient in bed from four to seven days. After removing the tissue, swab the part operated upon with pure carbolic acid, and introduce a strip of iodoform gauze to the fundus uteri, allowing

the free end to extend down into the vagina to the lips of the vulva. This insures thorough drainage and prevents the raw surfaces from uniting

by first intention. Allow this drainage tape to remain until the evening of the second day, then the nurse or patient removes it and a carbolyzed douche is given. The surgeon introduces another drainage tape at noon of the following day. Continue this treatment for ten days. These reamers will not remove fungous growths from the walls of the uterus, neither are they intended to remove retained membranes from the uterine canal.

Donations to New York Charities.—Under the will of Mrs. Bertha May, late of New York City, a property valued at \$23,000, has been donated to four charitable institutions in that city and Brooklyn. She leaves her property to the Mount Sinai Hospital, the Home for Aged and Infirm Hebrews, the Hebrew Orphan Asylum in Brooklyn, and the Home of the Little Sisters of the Poor.

A NEW SELF-RETAINING PERINEAL RETRACTOR.

Read in the Section on Obstetrics and Diseases of Women at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. E. ROCKEY, A.M., M.D.

PORTLAND, ORE.

The first requirement in operations on the uterus is that the organ should be exposed and held in such position that it may be accessible. The perineal retractor of Sims was a great step forward, but its narrowness and length of blade and the inconvenience of the prone position have at the present time consigned it to a rather minor place as an instrument for examination.

The retractor of Simon or some of its numerous modifications, with their shorter and broader blades, have almost universally superseded Sims' instrument in operations on the uterus. My own preference has been for that of A. Martin. It has essentially the Simon blade, with a broad outer flange, and a long, heavy handle. The perfect command of the field of observation given by this instrument, when held by skilled assistants, leaves but little to be desired.

The marked advantage of a short intravaginal portion is that it offers no obstruction to the ready descent of the uterus when drawn by the tenaculum forceps.

For vaginal hysterectomy, high amputation of the cervix, ligation of the uterine arteries, or any operation requiring full command of the vaginal vault, no self-retaining or purely mechanical device can ever take the place of trained assistants. In this way only, can that ready change of tension or position be obtained by word or sign, that facilitates so much the work of the operator.

Numerically speaking, however, operations of this class form but a small part of the work of the practitioner. It is a matter of common observation in practice that conditions requiring dilatation and curettement or simple trachelorrhaphy outnumber those mentioned five to one. Indeed, in general practice they outnumber all other operations on the female organs.

Hospital experience can not be taken as perfectly representing private practice in this respect, and yet the most extensive reports substantiate the truth of this statement.

The second Report in Gynecology from Johns Hopkins Hospital, covering a period of nearly three years, contains a table of 815 general gynecologic operations not involving celiotomy.

On examination of the table we find that 416 operations involved the cervix or cavity of the uterus. They may be divided into three classes, as follows:

1. Dilatation and curettement for stenosis, endometritis fungosa, pyo-phymetra and retained products of conception—265 operations.
2. Trachelorrhaphy for lacerated cervix—103 operations.
3. Curettement of cancerous cervix and removal of polyp of cervical canal—48 operations.

The considerable preponderance of these minor operations and the difficulty or inconvenience of always obtaining suitable assistants, and, sometimes the embarrassment of their presence in private families, has made it desirable to have some purely mechanical device for exposing the uterus.

The limited field of operation has also made it possible to accomplish this with a greater or less degree of success. For these reasons a considerable number of such instruments have been devised.

Prominent among them is Emmet's self-retaining perineal retractor. The perineal portion is shorter and wider than Sims' and the point of resistance is an oval frame to rest over the dorsum of the sacrum. It was designed for use in the semi-prone position. By reason of the extremely various contour of this part, the frame does not always fit well and is liable to slip. To obviate this difficulty, the modifications of Cleveland, Hunter and Erich have shoulder straps or bands to hold them in place. These contrivances have proven awkward and cumbersome and are, consequently, but little used.

The Edebohl retractor, which is held in place by a bucket of shot or other weight, would be efficient when the conditions of its use are well complied with, but it must be inconvenient in private practice.

The most recent instrument of this class, and, I think, the best yet presented to the profession, was devised by Dr. Samuel C. Beach, and was exhibited at the June meeting of the Chicago Gynecological Society.

The retractor is an ordinary perineal retractor, but has the handle forked and turned at right angles to the plane of the blade. The retaining mechanism consists of a flat band of metal, hinged at its center for convenience in carrying. In use, this band is slipped under the body of the patient, lying in the dorsal position, with the thighs flexed, thus making a fixed point of attachment for the retractor, which slips into the inlet ring in the retaining bar and is held by a thumb-screw. The legs are held by a McBride-Packard yoke.

With the same object in view, I have devised an instrument which, unlike any other of its kind, utilizes the under surface of the pubic arch as a more convenient and uniform point for the support of the retractor. This instrument consists of two pieces—a perineal retractor and a sub-pubic rest.

The perineal retractor has a blade like Martin's, and also a long, heavy handle, but with the hook placed posteriorly at the lower part of the swell, thus affording a very firm grasp and at the same time a rest to the hand of the assistant. By examining Martin's retractor it will be seen that the hook is placed at the end of the spindle-shaped part of the handle, and is always about two inches below the firm grasp given by the large part of the handle.

To a considerable extent I am indebted to a remark by one of Martin's assistants for this improvement. It was after a long clinic, where two vaginal hysterectomies and several minor operations had been performed, that I tarried to speak with the assistant, who referred to that feature of the otherwise perfect instrument as, "*Nicht bequem für ein assistent.*"

The perineal part may be used alone to be held by an assistant in major operations on the uterus, and possesses all the merits of Martin's with the addition of a better grip on the handle. It is also an admirable retractor for use in abdominal work.

The heavy handle has been objected to by some who have examined, but not tried, the instrument. This is one of the decided advantages. It gives the assistant an easier command of the perineum,

not only for its retraction, but with the instrument I have devised for its shortening by upward pressure as well, when occasion requires it.

The distinctive feature of my instrument is the sub-pubic rest from which retraction is maintained. The blade is short, well curved on the top to fit the under side of the pubic arch, and corrugated near the tip to prevent slipping. It is attached to the perineal portion by a notched bar, sliding in hooks on the side of the blade; the compression of the parts locking it firmly in position without intervention of screws. It is easily adjustable, and may be placed or detached without removing the perineal portion. This piece has been cast from phosphor bronze to give it greater strength.

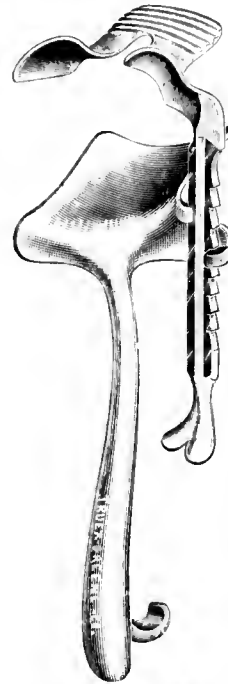


Fig. 1.—The author's self-retaining perineal retractor.

In use, the perineal portion should be first inserted and well retracted, and then the subpubic rest introduced and pushed to place. If the directions of this sentence are carefully followed there can be no difficulty in its use. The perineum should be retracted by a strong pull on the handle and but little upward pressure will be required on the subpubic rest. In fat women the thickness of the external parts make it necessary to push the upper part of the instrument well in between the labia in order that the curve of the short blade may rest upon the pubic bone. By the observance of these precautions there will be no slipping, and the command of the field of operation is almost as great as that obtained by manual retraction by good assistants and surely superior to timid makeshifts that must sometimes be resorted to in emergency. The blades being short, the cervix is not always exposed at once. The vaginal fold should then be pushed aside with the finger and the cervix seized with the tenaculum forceps and drawn down.

In connection with operations of this kind, I desire to refer to two adjuncts, viz., leg holders and tenaculum forceps. A most convenient and efficient leg holder may be made from a strip of muslin half a yard wide and two yards long, with slits through the center through which the arms and shoulders

are passed. The thighs are then fixed and the bandage placed around well under the knee and fastened with a large safety pin.

The heavy American bullet forceps, with lock, has proved not only the best instrument for holding

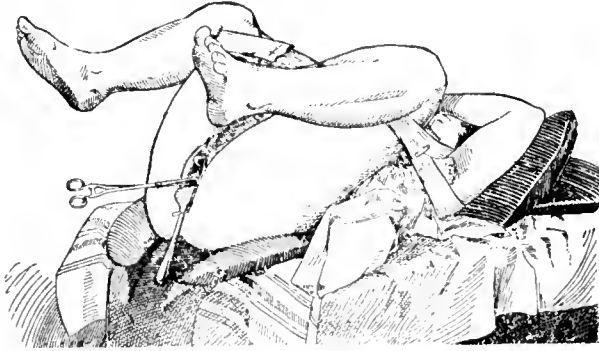


Figure 2.

down the uterus but a superior tenaculum and tissue forceps in many general gynecologic operations as well.

In the year that has elapsed since my instrument was devised, I have used it in many operations on the cervix and cavity of the uterus and the requirements have been admirably met. It was constructed for me by Charles Truax, Greene & Co., of Chicago.

THE SERUM TREATMENT OF DIPHTHERIA.

Read before the Michigan State Medical Society, at Bay City, June 6, 1895.

BY CHAS. T. McCLINTOCK, PH.D., M.D.

ANN ARBOR, MICH.

There can be no reasonable doubt that the larger part of the ill-effects of diphtheria, are due to the soluble poisons (toxins) formed by, or during the growth of the germs of the disease. The paralysis, the albuminuria, the necrosis in the various organs can all be produced at will with these poisons. Here is a diphtheria toxin. This was made by inoculating a flask of alkaline beef tea with a virulent culture of the diphtheria germ. This germ was obtained in December last from a child in Harper Hospital, Detroit. After the flask had been in the incubator, at the body temperature, for several weeks, the germs were killed by the addition of carbolic acid. The beef tea, or as we now call it, toxin, was filtered, first through paper, and then through porcelain. The latter removes all the germs. On testing this, we find that one-tenth c.c., or a large drop, is sufficient to kill a half grown guinea pig within thirty-six hours. Had we cared to study this, as has been done over and over again, we would have given a smaller dose, one sufficient to kill the animal in five or six days. Then had we studied this animal clinically, we would find all the essential phenomena noticed in a fatal case of the disease in a child. We would have the fever, more or less albuminuria, the paralysis, and on section we would find the necrosis.

From such studies, and the like is not true of this disease alone, there is but one conclusion—the toxin is the cause of the fever, the paralysis, the necrosis, the death. I need only mention that when the system is weakened by this poison, it is often preyed on by the pus germs, streptococci, etc., and that these may hasten and modify the uncomplicated disease. This poison, the diphtheria toxin, is produced by the germs of the disease which are generally confined to

the upper air passages. The poison is absorbed, and circulating throughout the body produces its harmful effects, it may be, in every organ.

The above being true, it follows that when we have a natural recovery from the disease, the body must in some way dispose of or destroy this poison, and the thought is at once suggested that, knowing the cause of the disease, it may be possible to find an antidote, an anti-toxin, a something which when introduced into the body may destroy, or so aid the cells of the body that they can destroy this poison. Such a substance we have in the antitoxic serum of Behring and Roux. And here may I say, that it was not a happy thought, not a revelation, not a happening, that led Behring to antitoxin. Ever since Pasteur's work in 1880; away back in the ancient history of bacteriology, we have been gradually approaching antitoxin; a fact here, a theory there, step by step, scores of observers aiding in the work, until at last this worker, placing together all that had been done before him, saw how it might be completed. It had been shown: 1, that the disease was due to a toxin circulating in the blood and lymph; 2, that the animal body had more or less power to neutralize, destroy, or dispose of this toxin; 3, that this power varied with the age and species of animal, an older animal or one of a certain species having much more resisting power; 4, by appropriate treatment this poison-destroying or antitoxic power could be increased; 5, that this power could be borrowed by taking the blood, or blood serum of the resistant animal, and loaned to the one with less resistance. These experiments on animals having shown the possibilities in the work, Behring began his work of perfecting the methods. Before it could be applied to the cure of diphtheria in the human being, the poison-destroying or antitoxic power of the blood in the animal used must be enormously increased, so that a small part of its blood serum would be able to neutralize or destroy all the poison produced in an ordinary case of the disease. Again, an animal must be used whose blood serum when introduced into the human circulation would produce little or no ill effects. Again, methods of preserving the serum must be discovered, so that it could be sent wherever needed. Methods for measuring its worth, poison-destroying or antitoxic power must be devised. These difficulties, Behring asserts, were one by one overcome. Various animals were experimented on—rabbits, sheep, goats, cattle, horses. It may be well to note that a satisfactory antitoxin was first worked out for tetanus, not diphtheria. But possibly on account of the infrequency of this disease, together with the fact that almost irreparable damage is done before it can be recognized clinically, and probably still more to the fact that the news was too good to believe, but little attention was given by the profession at large to these results. Not until after the reading of Roux's paper at the International Congress of Hygiene, held in Buda-Pesth, September last, was any very general interest aroused in the subject. Since then the medical journals and even the daily press have been filled with the subject.

I am appointed to-day to summarize for you, if I can, the results of the serum treatment of diphtheria.

The young science bacteriology, has claimed so much, demanded so much of our attention, asked to remake so much of our belief and practice, that when she puts forward a new claim for recognition, a claim

that in all the history of curative medicine has no parallel, many hesitate and say: "Once I was young, but now I am old; never have I known or seen such things. I do not believe."

Let us see. This, now, is a question of facts. It has ceased to be a question of opinion. It is no longer what you or I believe. It is, what are the facts?

With over ten thousand cases treated with this remedy—used by careful, critical, often fault-finding men—probably 80 per cent. of these cases being reported from hospitals, often the diagnosis made by one man, the treatment given by another, and the report made by still another, the larger part of the diagnosis being confirmed by disinterested bacteriologists; with these conditions, I repeat, it is not a question of opinion whether this remedy is, or is not, a success.

Now the question, what are the results? I do not believe it necessary, or appropriate to burden you with the reading of long columns of statistics. I may say that my work has been such as to require me to keep watch of these reports. I have looked with some care over the reports in the leading medical journals in this country, England, Germany and France. It is well within bounds to say that an average of all the reports made, shows a reduction in mortality of over one-half.

The comparative estimates, treatment with serum and treatment by other means come largely from the hospitals. For the most part the death rate with the serum treatment is compared with that immediately preceding its use. But it is noteworthy, that in several cases when the serum was not to be had, or from some cause there was an interruption in its use, *i. e.*, up to a certain date the ordinary treatment, then serum, then the usual treatment, and then again the serum; in every such case that I have noticed, where the serum treatment was interrupted, the death rate rose to the old figures. Virchow reports such an instance, and although his remarks have been widely quoted, I shall repeat them. He says: "Treatment by diphtheria antitoxin was begun last March in the Kaiser and Kaiserin Friedrichs Hospital. In June and July nearly all diphtheria cases were treated with the serum. The results were as follows: in eight weeks sixty-three cases were treated, with a mortality of less than 13 per cent. Suddenly the supply of serum ceased, as, unfortunately, the very horses from which the serum was taken died. The old methods of diphtheria treatment had again to be resorted to, and the results were, in the next seven weeks 109 cases treated with 55 deaths, a mortality of over 50 per cent. This sad increase in the mortality induced the hospital to return to the serum. Immediately there was a change. In the next six weeks eighty-four cases were treated with a mortality of less than 15 per cent." The total figures he gives are as follows: five hundred and thirty-three cases were treated; 303 with the serum, with a death rate of 13.2 per cent.; 230 without serum with a death rate of 47.8 per cent. Virchow continued, that in view of the results, he held it to be the duty of every doctor to use the serum. "All theoretical considerations," he added, "must give way to the brute force of these figures." Further, he says that even if disagreeable by-effects were proved to occur here and there, they were not sufficient to dissuade him from continuing the treatment.

Roux reports that in one Paris hospital the mortality for four years was 51.71 per cent. In the six months since antitoxin was used, 448 cases gave 24 per cent. mortality, and during the same six months, in another hospital in the same city where serum was not used, 60 per cent. died.

I could, if needed, cite a number of reports fully as favorable as these. I wish you to note that these reports effectually answer the statement that has been made, that diphtheria has been a very mild disease the past year, since the advent of serum-therapy, and yet in Virchow's report the mortality with the old treatment was 47.8 per cent. In the Trousseau Hospital in Paris, 60 per cent.

	Cases.	Albuminuria. Per cent.	Nephritis. (Clinical.) Per cent.	Nephritis. (P. M.) Per cent.	Deaths. Per cent.
Without serum..	993	42.00	25.78	16.31	43.2
With serum . . .	525	40.95	12.57	15.80	15.8

I want to call your attention to the above table. This is taken from a very recent report or book of 336 pages on the serum treatment of diphtheria, by Dr. Baginsky, Professor of Diseases of Children in the University of Berlin, and Director of the Royal Hospital for Children, in Berlin. This is one of the largest and best equipped children's hospitals in the world. Baginsky discusses at length the influence of the serum treatment on the complications and sequelæ of diphtheria. In his opinion the injection of serum does not increase the frequency of nephritis. Cardiac collapse occurred in 10.9 per cent. of those treated without serum, and in 5.69 per cent. of those treated with it. He finds little difference in regard to the frequency of diphtherial paralysis, but such difference as there was is in favor of the serum treatment, the percentages being 6.8 without and 5.14 with the serum.

One more set of figures and I am through with statistics. Dr. Foster, of Washington, in February last tabulated the reports of 7,185 cases, collected from all sources. Of these, 4,445 were treated without antitoxin, with a mortality of 45.56 per cent.; 2,740 cases were treated with serum, with a mortality of 18.54 per cent. Of the cases treated with antitoxin, there was not a single death when the treatment was given in the first day of the disease. When it was begun on the second day, the mortality was 2.83 per cent.; begun on the third day, the death rate was 9.99 per cent.; on the fourth, 20 per cent.; on the fifth, 33.33; after the fifth day, 41.38.

These figures seem to establish Behring's prediction that the mortality will not exceed 5 per cent. if the treatment is begun within forty-eight hours after the attack.

It would not be fair to you, gentlemen, if I did not remind you that there have been a few men who have questioned the efficacy of the serum treatment. It was in reply to an attack made by his own assistant, who denied the efficacy of the serum, that Virchow made the statement I have already quoted. This attitude of Virchow is the more noteworthy, since as you are doubtless aware, he has been for years the severest critic, the most persistent fault finder and "doubting Thomas" that the bacteriologists have had to face. But even Virchow was disarmed, and forced to champion the therapy, as he says, "by the brute force of these figures." In this country there have been two adverse reports made in regard to this treatment. One of these was by Dr. Winters, of New

York. He made a sweeping challenge of every claim made for serum-therapy, attacked the statistics and alleged a number of serious after-effects due to the antitoxin. Dr. Winters' opinions were the outcome of his observations in the Willard Parker Hospital. At this distance we can only judge of the facts from the statements made. This report of Dr. Winters was made to the New York Academy of Medicine. In the reports of the meeting, it does not appear that Dr. Winters had a single supporter; on the other hand, Dr. Somerset, who had been connected with the hospital for the past sixteen months, virtually contradicted every conclusion drawn by Dr. Winters. Dr. Biggs showed that over and above every question of opinion, was the fact that since the introduction of antitoxin in Willard Parker Hospital, the mortality had decreased over 10 per cent. He concluded by saying that, "Dr. Winters had shown from the beginning of the antitoxin treatment in the hospital, profound distrust of the method," and then declared that, so far as he knew, there was not a single distinguished clinician, pathologist or bacteriologist in Europe who had not accepted the new treatment of diphtheria as the most important advance in therapeutics in modern times.

The other adverse report comes from Assistant-Surgeon Cordeiro, of the United States Navy.

If there were need and time for such, for every such adverse report I could show you an hundred, from men of as wide experience and with broader training, the finding being, as stated before, a reduction of at least 50 per cent. in the death rate, with no increase in the after-effects of the disease.

In judging of these statistics, I want to ask your attention to one point that has not yet received the consideration it deserves. In the statistics of the treatment of diphtheria under the old methods, it is to be remembered that in nearly all cases the diagnosis was made from the clinical symptoms; while in the larger part of those reported with serum treatment, the diagnosis has been confirmed by bacteriologic examination, and those cases which did not show the germs of diphtheria were not included in the reports—that is to say, speaking generally—the statistics for serum treatment refer to diphtheria, while those for the older methods refer to diphtheria and those diphtheroid conditions which are so often indistinguishable, clinically, from the true disease. That such cases often pass for diphtheria is well shown in the results of the examinations made in the Willard Parker Hospital in New York. These cases were first diagnosed by the health officers, they were then sent to the hospital, and the diagnosis confirmed by the physicians in charge; and yet subsequent bacteriologic examination in these cases showed that from 30 to 50 per cent. were not diphtheria, but maladies of non-infectious character. During the last six months I have made a bacteriologic study of a number of cases that were called diphtheria; a part of these cases were in private practice, a part from Harper Hospital, Detroit. In less than half of all the cases examined was I able to find the germs of diphtheria. Now, if these diphtheroid cases, cases in which the mortality is much lower than in the true disease, could be excluded from the statistics given for the old methods, as they have very largely been from those given for the serum treatment, we would find a far greater difference in the figures.

The after-effects of antitoxin—urticaria and erythema, in the neighborhood of the locality of the injection—are rather frequent. Widespread urticaria occasionally occurs. Aronson says that these rashes only occur when a new serum is used; that if the serum is kept for some time, none of these effects are to be found. These rashes have occurred much oftener when large doses of a weak serum have been used. Occasionally neuralgic pains have been noticed, particularly in the legs. This may go further, and we have swollen painful joints, and occasionally paralysis.

Dr. Paquin, of St. Louis, who has used the serum of immunized horses for the treatment of tuberculosis, tells me that he has occasionally had these symptoms in some of his patients. A New York observer who used the serum from an untreated healthy mule reported symptoms practically as above. These symptoms, it seems to me, are justly referred to the serum. For the most part the rashes are transitory and, save for the itching, are of no importance. The graver ill-effects are fortunately rare.

A number of workers are endeavoring to isolate the active principle from the serum and it is a reasonable hope that this will soon be accomplished. It is to be remembered that antitoxin has no restorative power. It is only what the name indicates, a poison neutralizing or destroying agent. If this poison has been at work long enough to damage the cells of the kidney, or paralyze the nerves of the leg, antitoxin will not repair them or restore their functions.

If we give an experimental animal 1 milligram of antitoxin and then give it ten times the fatal dose of diphtheria poison or toxin, this will more surely protect it from the effects of the poison than if we give it a thousand times as much antitoxin twenty-four hours after giving the poison.

In tetanus, the dose of antitoxin necessary to save an animal when given some time after the poison, is more than a million times as large as that which will protect it when given before the poison. So in treatment, the clinical evidence goes to show that one drop of the serum given the first day of the disease is of as much value as hundreds of times this amount given on the fifth day.

It is not to be forgotten that for the most part antitoxin has been made and used by unskilled hands, and yet see the results.

In conclusion, it is possible that these figures and these men are all wrong, but if they are right, curative medicine has never before seen such results.

SKIN GRAFT—INCISION TO PREVENT SCARS.

BY CARL BECK, M.D.

CHICAGO.

In operations on the face and neck, we are often confronted with the difficult problem, "how to prevent ugly scars." The rules of surgery require extensive incisions, while cosmetic reasons call for the opposite, and even the most exact coaptation will not prevent cicatrices.

It is evident that if we found a method which would enable us to make an ample incision, and leave little or no trace of it, this method would be of great advantage.

After having studied this question theoretically and by experiments I have, in a few instances, made use of a special method. The results, though few as yet,

and not conclusive, are so much encouraging that I venture to publish it.

The method is simple. Contrary to the accepted rule of our technique, the incision is made obliquely to the surface with a razor or a scalpel, one border of the wound forming a broad strip like a Thiersch's graft, then the incision is carried down as deeply as needed. In uniting the wound, the graft is exactly spread out and adapted to the surface from which it was taken.

Small incisions are sealed without suture with colodion, or treated in the usual way of skin grafting.

In large incisions, deep catgut sutures may be employed to close the wound, the graft spread over the same and treated as before stated.

Drainage may be used, but this complicates and endangers the healing.

The same method may be of value in some cases to remove existing cicatrices.

The theoretical consideration, experiments and details will be the subject of a paper in connection with the exhibition of cases.

900 Reliance Building.

CRANIECTOMY—AN IMPROVED TECHNIQUE.

Read at the Meeting of the Tri-State Medical Society, held in St. Louis, April 2, 3 and 4, 1895.

BY A. H. MEISENBACH, M.D.

PROFESSOR OF SURGERY IN THE MARION SIMS COLLEGE OF MEDICINE.
ST. LOUIS.

In this paper I do not wish to discuss the rationale of, or the indications for, craniectomy; but wish to limit myself to the description of an operation which differs in its technique from those heretofore described.

Craniectomy may be either linear, circular or irregular in form; may be confined to one or both sides of the cranium, and may be anterior or posterior. The method of performing craniectomy (one-sided linear) employed by most surgeons, is as follows: a large scalp flap is cut so as to expose the entire field of operation on the bone beneath it. The flap has its base at the base of the skull and extends in a curved line along the sagittal suture, beginning at the hair line of the forehead anteriorly to the coronal suture, and extending posteriorly across the lambdoid suture onto the occipital bone. Its upper border runs parallel with the superior longitudinal sinus, and may extend as high on the vault of the cranium as the sagittal suture. The flap includes all the tissues of the scalp and the pericranium. It is important that the incision be firmly made and carried directly down to the skull, making a smooth, clean incision through the pericranium. With a flat periosteal elevator the pericranium is lifted off of the skull and with it the tissues of the scalp. In this manner the bone is bared as far as the base of the scalp flap, which is on a level with the tip of the ear.

With a small-sized trephine an opening is now made on the frontal bone, anterior to the coronal suture and at a safe distance from the superior longitudinal sinus. The trephine opening is the starting point for the next step in the operation, viz., the cutting of a longitudinal strip of bone out of the cranium, three-eighths to one-half inches wide, including both

tables, and extending backward from the trephine opening in the frontal bone, across the parietal and on to the occipital, as near to the lateral sinus as is safe. This part of the operation is done with especially devised bone-cutting forceps (Keen's, Lannelongue's, etc.), or the chisel.¹ The bony parts divided are parts of the frontal, the parietal and part of the occipital bone. In skulls in which the tables are soft, or not very thick and moderately ossified, the cutting out of this strip of bone by Keen's or other forceps, may be readily accomplished in a moderate space of time, say one-half hour. In skulls, however, that are thick and hard, the cutting out of the bony strip is not an easy or rapid task.

It is in cases in which the skulls are thick and hard that I have devised the operation which I shall now describe. The instruments required are a scalpel, artery forceps, periosteal elevator, double-bladed saw (see cut), a chisel with a beak (see cut), an ordinary chisel three-eighths inches wide, a mallet and dural elevators (see cut).

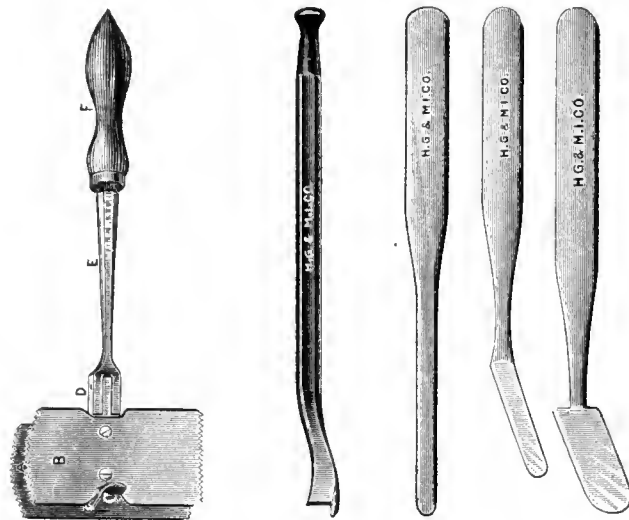


Fig. 1. double-bladed saw (author's.) Fig. 2, beaked chisel (author's.)
Fig. 3, dural elevators (author's.)¹

I make the scalp flap as already described. When the bone is cleared and the flap retracted, a button of bone is taken out of the frontal bone (or elsewhere, according to the operation to be done) with a small-sized trephine. It is in the removal of the bony strip that the improvement in the operation consists. Beginning at the trephine opening with the double-bladed saw, I cut a strip of bone the width of the saw (three-eighths to one-half inch) as far back as indicated. The saw cut is carried through the outer tables, the diploic structure, and onto or into the inner table. The outer table is now cut out by means of the ordinary narrow surgical chisel. The next step in the operation is to cut out the inner table by means of the beaked chisel; with a dural elevator (see cut) the dura is separated from the inner table; separating it step by step, as piece after piece of the inner table is cut out. The beaked chisel is of much service; for, on account of the dull projecting beak, the dura is not injured, as the beak glides over it readily. I hardly need mention that with the ordinary chisel this part of the operation is not free from danger to the dura.

¹ There is no doubt but that the quickest way of opening the skull is with a properly constructed electrical or dental engine, with properly constructed saws. Those devised by Cryor, of Philadelphia, are the best, but they are very expensive and not available outside of large well-equipped hospitals.

¹ The above instruments were made for me by Hokekamp-Moore Instrument Company, St. Louis.

REMARKS.

The double-bladed saw that I use was devised by me some years ago, to cut off plaster-of-Paris casts. It cuts a strip three-eighths of an inch wide. It very much facilitates the operation of craniectomy, as described.

I have found the beaked chisel (my own device) very useful in operations on the skull, especially where the inner table is to be cut through. On account of the blunt beak the dura is not liable to be injured. I have found it very useful also, in cases of depressed fractures where it was necessary to smooth off the sharp projecting edges of the inner table. The chisel is about eight to ten inches long and made of three-eighths to one-half inch octagonal steel; the blunt beak projects one-eighth to one-quarter of an inch beyond the perpendicular edge. The cutting edge is at right angles to the shaft of the chisel, and is one-half to three-quarters of an inch long. The chisel has a curve so that the contour of the cranium can be easily followed.

I am well aware that many surgeons deprecate the use of the chisel in operations on the cranium, for fear of the resulting concussion of the brain. This seems to me to depend, in a measure, on the skill of the operator, and also on the character of the chisel used. It is a noticeable fact that most chisels made by instrument makers are improper

true, "a good mechanic needs but few tools;" and I would add that they must be of "proper construction and properly used."

I should be loth to present for your consideration a procedure that I had not tested, both on the cadaver and on the living. On the cadaver, I have cut out the bone, as described, within twelve to fifteen minutes.

Within the last year I had the opportunity to execute the operation on two cases.² The first, a modified linear craniectomy in a child 7 years old, for ossification of the cranium and defective development of the brain; the second, a metastatic tumor of the cranium (carcinoma), in a woman, age 56, in which I removed the tumor with the same instruments, double-bladed saw, trephine and beaked chisel. In this case the bone (and tumor) excised was rectangular, measuring about two inches square. In both cases there were no untoward symptoms, as far as the operation was concerned, viz., concussion from the use of the chisel. I refrain from reporting these cases *in extenso* at this time, as I shall incorporate them in a future paper.

2229 South Broadway.

SOCIETY PROCEEDINGS.

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

(Concluded from page 328.)

DR. W. J. MEANS, of Columbus, Ohio, presented a paper on INFLAMMATORY DISEASES OF THE CERVICAL LYMPHATIC GLANDS.

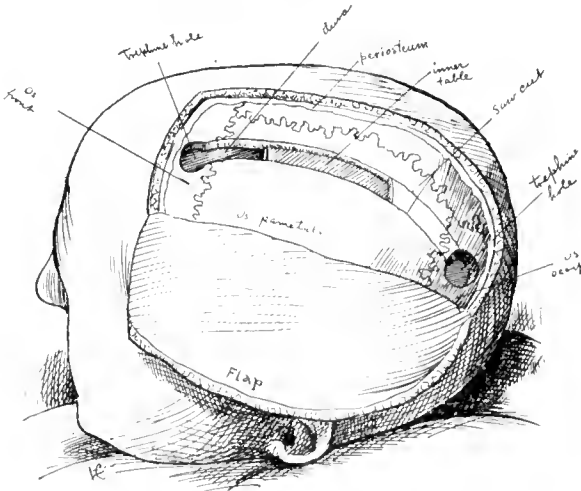
After outlining the topographical anatomy of the neck, and calling attention to the important and intimate relations of the various structures, Dr. Means continued:

The inflammatory diseases of the cervical lymphatic glands in their general features are so well understood that I will not devote much space to a description. Since the management of the different forms is in many instances so radically different, I am compelled, however, to give a classification and a short clinical history of each.

The most practical grand divisions are simple and specific. The simple variety is met with in children perhaps oftener than most any other disease. In severity, simple adenitis exists from the evanescent swelling of the glands that passes off in a few days, to that of suppuration or chronic enlargement that continues for weeks, causes the patient much trouble and is liable to become specific from secondary infection. The etiologic factors are numerous. Inflammatory processes about the mouth, face, head and ears, such as ulceration of a tooth, stomatitis, tonsillitis or any of the diseases of mucous membranes, eczema of the face or scalp, dermatitis, otitis media, pediculosis capitis and other diseases too numerous to mention are frequent causes. The eruption of the teeth, exposure to cold and sprains are all common causes in producing swelling of the cervical glands.

The pathologic changes that take place are first found in the cortex of the gland. It becomes more vascular, soft and swollen; the reticulum loses its distinctiveness, the lymph passages become packed with lymph. The capillaries become enlarged and the gland becomes a deep purple in color. The termination may be by resolution, chronic enlargement or suppuration. Owing to the inherent power of the glands to throw off foreign bodies and to resist the attacks of invading microbes, a large proportion of them undergo resolution and disappear. When the inflammation becomes chronic there is a failure to absorb the exudates and they become organized. This thickens the capsule and it becomes hard and adherent to the surrounding tissues. In some cases the lymphatic vessels are compressed and there follows dilatation of them and edema of the parts. If the termination is by suppuration, the gland itself will be the seat of necrosis,

² Since the writing of this paper I have performed two additional craniectomies after the method herein described. In both cases the results were perfect, as far as the operation is concerned. No shock; union per primam intentionem.



The above cut shows the skull exposed, flap of scalp turned down, and the different stages of the operation on the cranium.

tools, being too short and also too light for proper manipulation. In my estimation, the best chisel for surgical purposes generally is the carpenter's or joiner's socket-framing or firming chisel, into the socket of which a metal knob has been fitted to receive the mallet blows. It seems to me that with a chisel of this form (or any other long heavy chisel) the concussion of the brain is much less than where a short light chisel is used. Surgery is mechanical in part, and the surgeon can learn many important technical lessons from the skilled craftsman in the workshop. A skilled sculptor or mechanic would not think of using a tool so short that he would continually run the risk of pounding his fingers; for, certainly, the fear of hitting the fingers would detract materially from the delicacy in execution of the work to be done. How often do we see improper instruments used in surgery, and, if bad results follow, the blame laid to other causes than to the execution of the operation? The old saw is

or the tissues surrounding it. If the latter, the gland is often found partially intact in the abscess.

There is always danger of a simple adenitis becoming tubercular. A healthy gland has a resisting power to the growth of tubercle bacilli, but when diseased it very readily becomes a nidus for their cultivation. I do not believe the profession is fully alive to the danger of this source of tubercular infection. Enlarged glands are so frequent and terminate favorably in so many cases that the physician becomes indifferent to the gravity of them.

Under the specific inflammatory enlargements we have tubercular, syphilitic and glandular and a few others. It is now a well established fact that the lymphatic glands all over the body are frequently affected by tuberculosis. The cervical glands are especially prone to be affected, probably owing to the numerous sources of infection about the mouth, face and head. It is claimed that 95 per cent. of all the cases of tubercular adenitis occur in the cervical lymphatic glands. The source of infection is much the same as in the simple variety. There is some abrasion or disintegration of the skin or mucous membrane through which the bacilli gain entrance to the lymphatic vessels and are carried to the gland. The bacillus tuberculosis is non-motile, so this is the only explanation we can give of its entrance and progress. Another clinical fact goes to prove this, in that when a gland becomes infected, belonging to the superficial set, others in the same chain become affected. It is so with the deep set. This is the most conclusive evidence that the bacilli are carried by the lymph current. In the active stage of the inflammatory process the lymph vessels are sometimes occluded and thus prevent the extension of tubercular infection for the time being. There are some exceptions to this rule of invasion in the direction of the lymph current. These exceptions may be accounted for by the wandering leucocytes, to which the bacilli may become attached.

We may note another clinical feature that bears upon the above theory, that as long as the bacilli are confined to the lymphatic glands there is no danger of general infection, but when they pass these filters and the germ gets into the general circulation there follows general tuberculosis, generally pulmonary. For an extended description of the pathologic anatomy I will refer the reader to the works on that subject. Suffice it to say that cell necrosis is followed by caseation, and the bacilli within these nodules die or become inert and remain frequently for months or years without any signs of activity. During this time the gland is not tender and remains quiescent and gives the patient no particular trouble. The cheesy material may dry and become inclosed in the capsule or connective tissue and remain in calcification, or it may undergo liquification.

Secondary infection may take place from pus microbes when an acute inflammatory process will set up, involving the surrounding tissues, followed by suppuration. When a group of glands are diseased the first infected may have undergone the degenerative process above mentioned while the last ones are simply pinkish and only show the primary stage of the disease. I recently removed eighteen axillary glands from a patient where they ranged in size from a walnut to that of a small almond. They were knotted together by connective tissue and the larger ones had undergone the cheesy degeneration. Liquefaction had not taken place in any of them. Several of them had a few foci of necrotic degeneration, and the smaller ones did not present any changes further than the hyperemic enlargement.

In simple adenitis there is difficulty oftentimes to differentiate the true condition. Suppurative adenitis is an acute inflammatory process that terminates in a few days in pus. Adenitis developing from a sore about the lips, that has the characteristic of a sore, can be easily differentiated from the simple or tubercular varieties.

In tertiary syphilis, the whole glandular system, especially the superficial set, is affected. The affected glands are painless, indurated and loose in the tissues. Carcinoma never occurs as a primary affection of the lymphatic glands. When enlargement of glands occurs close to a suspicious tumor, there is not much doubt as to its character. Lymphoma always affects but one and the cause is benign.

Lympho-sarcoma gives rise to regional and general infections. In this respect it is like tubercular adenitis, but it is not inflammatory and therefore does not produce degeneration of the tissues. A prognosis of inflammation of the cervical glands depends largely upon the variety and the management. If left to themselves or treated in an improper manner, they become a frequent cause of death. Simple adenitis *per se*, is not dangerous, but when we consider the danger of secondary infection from tuberculosis, it becomes

a grave disease. Local tuberculosis is a constant menace to the life of the patient, and therefore the gravity of tubercular adenitis in the cervical glands especially should be recognized. General infection may not occur, but the disease remains there with the wand of death, ready to beckon its victim.

The treatment of cervical adenitis after a careful diagnosis has been made is important. In the simple variety much can be done to avoid suppuration and secondary infection. One of the cardinal principles in treating adenitis, of whatever kind, is to remove the cause or source of the trouble. When called to see a patient with enlarged cervical glands, it is the imperative duty on the part of the physician to carefully examine the mouth, throat, nose, ears and scalp to find the cause of the trouble; and if found, it should be removed. Rest and the application of cold to the swollen glands is about the only treatment necessary following the removal of the cause. I wish here to protest against the almost universal custom of applying local irritants over swollen glands. I also protest against the indiscriminate use of fomentations. The ancient theory that iodine applied externally causes absorption of exudates or will reduce enlarged glands, seems to be prevalent among physicians of the present day. The external use of tincture of iodine is unsightly, painful, and may be injurious. Local irritants stimulate the peri-cellular tissues to a vascular hyperemia and thus may convert a quiescent enlarged gland into an acute inflammatory section and possible suppuration.

Another source of danger may arise from abrasion of the skin so that microbes may find their way into the lymph currents and diseased gland. These restrictions on the use of irritants apply both to the simple and specific varieties. When suppuration has taken place, fomentations may take the place of the cold applications. As soon as fluctuation can be detected, a free incision should be made into the pus cavity. The patient should be anesthetized, and then the abscess can be opened carefully and thoroughly cleaned out. By "cleaning out" I mean curetting and washing with antiseptic solution and then packing with iodoform gauze. If this plan can be followed there will be a speedy recovery with the least possible drain upon the system and resulting scar. Constitutional treatment is necessary to support the system. I depend upon the lime salts, arsenic and iron. If the suppuration is found to be in the peri-glandular tissues and the gland not fully broken down, which is often the case, it should be removed and the cavity treated in the above manner. The treatment of the tubercular variety is one of the most interesting and important subjects pertaining to the management of the lymphatic glands. The treatment very naturally resolves itself into two forms—constitutional and local or surgical. Under the constitutional treatment there lurks much danger to the patient. The old idea of the effect of the alterative treatment in scrofula is still abroad in the profession. No one knows what it means, but through ignorance of the action of drugs and the pathology of tubercular adenitis, the physician goes on prescribing nauseating medicines, hoping thereby to cure these local swellings, but his patient goes on toward the grave, or a return to health, after months or years of running sores and resulting hideous scars. The true purpose of constitutional treatment is, or should be, to build up the system. This can best be accomplished with cod-liver oil (pure); (emulsions should be discarded), arsenic, iron, nutritious diet and proper hygienic surroundings.

The curative treatment is surgical and should be resorted to at the earliest possible time. On general principles there are no good reasons for delay. Early extirpation of tubercular glands affords as great immunity from subsequent infection as it does in carcinoma. In the face of modern statistics, no one would advise delay in removing a malignant tumor before the surrounding tissues and glands become infected. So it is with tubercular lymphatic glands; if left alone, additional glands become infected; there is constant danger of general infection and there will be more or less peri-cellulitis, thus complicating operative interference, and other complications will arise that will make what primarily would have been a simple surgical operation, one of the most formidable known to surgery, thus jeopardizing the life of the patient.

The surgeon must be thoroughly familiar with the topographical arrangement of the tissues and organs of the neck before he ventures to operate, and he must be prepared to meet emergencies of the gravest character. Exercising all the skill and care possible, he will meet with difficulties that will require mature judgment to overcome. I have found it necessary to ligate the jugular vein in two cases, and the

external artery in one. These cases presented no unusual features, except that the enlarged glands were closely adhered to the vessels by adhesions caused from peri-cellulitis, and could not be diagnosed before the incision was made. In the posterior triangle of the neck, if a tumor is large and with a tendency to grow downward, there is a considerable danger from direct infection through the apex of the lung. In one case, operated about three years ago, the gland had become quite large and pressed upon the lung in such a way as to produce a severe cough. The tumor was found to be attached to the pleura and subclavian artery and the several cords of the brachial plexus. A subsidence of the cough followed the removal of the tumor, what seemed to be an incipient tuberculosis was fully arrested, and the patient now enjoys perfect health.

There are some important points in the technique of these operations, that should be closely observed:

1. The incision through the integument should be large enough to expose the glands to be removed. By adhering to this rule, many of the accidents referred to will be obviated.
2. Never use a cutting instrument if it is possible to avoid it. One of the best instruments for the purpose is the plain curved scissors; the concavity fits nicely over the surface of the tumor and reduces the danger of injury to either the cyst or blood vessels to a minimum. The finger is also an efficient and intelligent dissector, to be used in preference to any other instrument, if space will admit of it.
3. If suppuration has taken place, the sac should be thoroughly curetted, removing if possible all the diseased tissues, and have the exposed surfaces wiped out with pure carbolic acid and then packed with iodoform gauze. There should be no effort to close the incision by sutures. Tubercle bacilli do not flourish in a dry place; therefore, the wound should be kept as free from secretions as possible. The dressings should be changed every second or third day.
4. If suppuration has not taken place and the glands can be removed without bursting the sac, the incision can be closed up without drainage.
5. It is highly necessary to remove all the glands that can be found in the region infected. The operator will often be surprised at the number affected, when he comes to make an examination directly through the wound. One small gland left, if infected, will defeat the result of the operation.

CONCLUSIONS.

1. Inflammatory diseases of the cervical lymphatic glands are frequent, and a common source of grave complications.
2. Simple adenitis should receive careful and prompt attention from the physician.
3. Constitutional treatment has no direct influence on these enlarged glands.
4. Irritating local applications are unsightly, painful and a frequent source of secondary infection from pathogenic microbes.
5. The tubercular form frequently leads to general tuberculosis and death, or chronic suppurating sinuses, that continue for years and eventually leave disfiguring scars.
6. The early removal of chronically enlarged glands or tubercular glands is followed by a greater immunity from a return than is the early removal of carcinoma.
7. The operation should be thorough, removing all the glands in the plexus that can be found.

SELECTIONS.

Significance of the Löffler Bacillus in Apparently Healthy Individuals.—Dr. P. Aaser, Christiania, relates in the *Deutsche Medicinische Wochenschrift* of May 30, 1895, that in the middle of June, 1894, a severe case of diphtheria occurred in certain cavalry barracks. The patient was removed to a hospital, the room was disinfected with soap and water and a 5 per cent. carbolic solution, and his clothing subjected to steam at 110 degrees C. June 20 and July 2, two other cases were found. They were isolated and the room again disinfected. Yet August 1 a fresh case appeared. All the men were then quartered in another room, fresh clothing furnished, then all the rooms were painted. The infected clothing was steamed each time. In spite of this, September 21 a case was discovered. At this point the suggestion was made to immunize all by antitoxin; lack of material prevented. But all in the barracks were then subjected to bacteriologic examination, and

out of eighty-nine persons, cultures of Löffler bacilli were obtained from the throats of seventeen. Here was a possible source for the spread of the disease. The seventeen suspects were at once isolated. On the next day one severe case of diphtheria developed and later two cases of tonsillitis. The health of the remainder was undisturbed apparently, but in each the mucous membrane of the throat was reddened and this persisted until it was no longer possible to demonstrate diphtheria bacilli, some three or four weeks. Dr. Aasen has made investigations of this sort several times. In another instance a case of diphtheria developed in a scarlet fever pavilion. Examination showed bacilli of diphtheria in 20 per cent. of the children. Antitoxin was used in all. Nearly a month later one of these children, in whom the latest examination developed only very few bacilli, was allowed to go home. A few days only elapsed before two younger sisters were brought to the hospital with diphtheria. All other chances for this infection were eliminated.

An Unusual Source of Lead-Poisoning.—During my term of residence in the Manchester Royal Infirmary as house physician, a man (P. N.), 27 years of age, was brought to the accident room one day, as a case of acute intestinal obstruction, for immediate operation. As no very urgent symptoms were apparent, he was admitted to the medical wards, under Dr. Steell, to be under observation. The following morning the discovery of a very well-marked blue line on the gums cleared up the case, the diagnosis being lead-poisoning, with colic and constipation. The patient was pale, anemic and rather nervous in manner; he complained of severe pain in the abdomen, chiefly referred to the umbilical region, relieved somewhat on pressure. There was a history of constipation for some days, but the bowels were moved on the day following admission.

The patient rapidly improved under the administration of potassium iodid; colic and constipation disappeared, and he left the infirmary in nine days, feeling perfectly well. There were no signs of neuritis, except occasionally feeling of pins and needles in the feet, and numbness and coldness of the hands on washing with cold water. Knee jerks and plantar reflex, wrist jerks and triceps reaction were all readily obtained.

At first, no clue could be perceived as to the source of the lead in this case. The patient stated that he was a worker in a rubber factory, and questioning ultimately brought out the fact that he had been for some time in the habit of chewing portions of the soft unfinished rubber. He believed white lead and red lead were used in the process of manufacture of the rubber, but had not to handle these himself. He was asked to bring a specimen of the material he had been in the habit of chewing, and it turned out to be in the form of thin sheets of brownish-red rubber, about one-sixteenth of an inch thick.

On incinerating the rubber, much residue remained, which, dissolved in nitric acid, gave very abundantly the characteristic reactions for lead. When opportunity offered I made a more systematic examination, with the following results: the specific gravity of the rubber was 1.647, while, according to "Thorpe's Dictionary of Applied Chemistry," the specific gravity of pure caoutchouc is 0.925. A piece of the rubber 1 inch long and a half inch wide weighed about 13 grains, and on ignition and incineration left 51.55 per cent. of residue, consisting chiefly of sulphate and carbonate of lead, with iron, etc. Quantitative analysis revealed the presence of 23.57 per cent. of lead, calculated as metallic lead (Pb), which would correspond to 29.44 per cent. of white lead, calculated as $2\text{PbCO}_3 + \text{PbH}_2\text{O}_2$, or 27.62 per cent. red lead, calculated as Pb_3O_4 . This comparatively enormous quantity of lead would easily account for the symptoms of poisoning following the chewing of the rubber material. The patient was seen about twelve months after he had left the infirmary, and was then enjoying good health, but he still complained of weakness and cramps in his fingers after they had been in cold water.

I have to thank Dr. Steell for kind permission to report this case, which may be of some interest as pointing out a possible source of lead poisoning which I believe has not been hitherto suspected.—By FRANCIS J. H. COURTS, M.B., F.C.S., in *The Druggists Circular*, July, 1895.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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SATURDAY, AUGUST 31, 1895.

THE VENOM OF SERPENTS.

From the childhood of the world, serpents have been objects of great interest to mankind, regarded with awe and worshiped. Indeed snake worship is to be found even at the present time and in our own country, as witness the "snake dance" of the Moqui Indians of Arizona. The fact that these animals can progress rapidly over the ground, climb trees and swim through the water without limbs probably accounts for some of the interest manifested in them; but it is as agencies of terrible death that they exert a peculiar fascination. Animals, the bites of whose insignificant fangs will cause the death of even "My Lord, the Elephant" in two hours, are surely of more than ordinary interest. It is their poisonous qualities, then, that most concern the medical man, since about one-third the known species of snakes are poisonous, and the mortality from snake bites amounts to several thousand a year—20,000 per annum in India alone—FAYRER. Even in France and Switzerland, of 433 persons bitten in twenty years by the European viper, 61 died, and in Germany the mortality of those bitten is 25 per cent.

A serpent's mouth is provided with three groups of glands; one, the inferior labial, is under the lower lip; another, the sublingual, under the tongue; the third the superior labial, in the cul-de-sac of the upper lip. From this last, in the venomous serpents alone is found a prolongation backward on each side, the glandula venenata, which secretes the poison and is of a whitish-yellow, contrasting with the rosy color of the ordinary glands. The venom glands differ in size in different species, but all agree in

having a reservoir, in which the venom may be stored for use, and a duct leading to the base of each fang. In the group of serpents containing the cobra da capello the fangs are permanently erect and fastened to the maxilla; in another, represented by our rattlesnakes, the fangs are depressed and can be raised by muscular contraction which turns the maxillae and elevates the quadrate bones thus carrying the mandible away from the upper jaw and preventing the snake from biting itself. Rattlesnakes shed their fangs periodically and the small imperfect teeth in the back of the mouth move forward to be developed into the fangs, somewhat as in the sharks.

The chemic composition and physiologic action of snake venom seem to vary but little in different species and is practically identical, save for the intensity of its toxic effects. Fresh venom is a viscid, nearly tasteless fluid, ranging from light yellow to amber or even greenish-yellow in color and occasionally colorless; the specific gravity is from 1030 to 1046 and the reaction is acid. It sometimes happens that the alka lin secretion of the ordinary salivary glands is mixed with it, when it becomes neutral. When dried, venom presents itself as small, brilliant, yellowish-brown scales. Fresh or dried, it dissolves easily in hot or cold water, glycerin and dilute alcohol; it is insoluble and immediately precipitated in absolute alcohol, ether, ammonia, oils, etc.¹ In the dried state or in solution it seems to keep indefinitely. DR. WEIR MITCHELL kept a glycerin solution unchanged for twenty years.

As the venom gland is the homologue of a salivary gland, it is interesting to note that the earlier writers looked upon the venom as the saliva of serpents. In 1881 GAUTHIER announced that "the venom of serpents appears to me to differ from our saliva only in the intensity of its effects." This author and STERNBERG have been able to cause death in rabbits and pigeons by injecting human saliva. The chemic construction of ptyalin is very similar to that of venom, as may be seen from the following analysis:

	C.	H.	N.	Ash.
Ptyalin (Hüfner)	43.1	7.75	11.86	6.1
Cobra venom (Armstrong)	43.4	7.	12.45	traces.

The chemic composition of serpent venom seems to have been investigated for the first time in 1845 by PRINCE LUCIEN BONAPARTE. In 1886 WEIR MITCHELL and REICHERT² succeeded in extracting from cobra and rattlesnake venom, three substances with which they experimented on pigeons. These were: (a) peptone venom, but feebly active; (b) globulin venom, very active; (c) albumin venom, inactive. In the same year WOLFENDEN, in communicating the results of his studies of cobra venom, stated that he found four toxalbumins, to which he gave the names of globulin, serin, acid albumin and peptone. The

¹ Rons; Province Médicale, No. 13, 1895.

² Researches upon the Venoms of Poisonous Serpents.

last one is inactive and inconstant; the globulin is the most abundant and most active; and is an asphyxiant and paralyzant; the acid albumin has similar properties and the serin kills by ascending medullary paralysis. Lately PHISALIX and BERTRAND,³ investigating the venom of vipers, have separated a phlogogenous substance analogous to some diastases, and to which they give the name of *echidnose*; and a substance which they call *echidnotoxin*, having a systemic action capable of causing death by itself, acting violently on the nervous system—vasomotor disturbances. These authors brought venom to the boiling point for 20 to 25 seconds; it was then quickly cooled, when it was found that the local effects—caused by their *echidnose*—did not appear, while the general effects, due to their *echidnotoxin*, persisted and caused death, thus confirming KAUFMANN's opinion, 1890: "Venom probably contains two sorts of active principles, one producing local, the other general effects; the former is surely destroyed by permanganate of potash or chromic acid, while the toxicity of the other is only attenuated."

The amount of venom furnished by serpents varies with the species; *e. g.*, the European viper furnishes about .15 ctgm., the rattlesnake 1 gr. .50, the cobra 1 gr. .20 and even as much as 3 gms. in a very large specimen. CALMETTE has investigated the question of relative toxicity by experiments with the venom of serpents from different parts of the globe. Fresh venom was used from the cobra da capello, the rattlesnake, the fer-de-lance, the asp and the horned viper, and dried venom from five other species. All these venoms naturally present very different degrees of toxicity, but a more interesting fact is that the secretion of the same serpent varies in considerable proportions, according to the length of time it has fasted and, perhaps, other conditions at present unknown. M. CALMETTE kept an Egyptian asp for eight months during which period it refused all nourishment. When it first arrived, venom collected in a watch glass and dried in vacuo killed a rabbit weighing 1700 gr. in four hours in the dose of 0 mg. 7; at the end of eight months and before the animal's death, a rabbit of nearly 2 kilos weight was killed by 0 mg. 1. The same experiments were made on a cobra with similar results. A cobra which has not bitten anything for at least two months may furnish 220 milligrams of venom.⁴

Warm-blooded animals are more easily affected by snake venom—birds, especially, dying very rapidly; the bite of a large cobra is fatal to a fowl in one minute. Cold-blooded animals succumb less rapidly. It is interesting to note that in sea snakes, which are very poisonous and which live on fish, the venom has such a paralyzing effect that the fish die with the spiny fins depressed, thus allowing them to be

swallowed. The size of an animal seems to bear some relation to the fatal dose; for example, the bite of *Ophiophagus Elaps* of India and Burmah, the most poisonous serpent known, is fatal to man in three minutes, to an elephant in two hours. On the other hand, cats can resist a given quantity of the venom as long as dogs several times their size. CALMETTE⁵ has made some interesting studies in this direction, which he sums up as follows:

Serpent experiments.	Fatal dose in 45 minutes for a rabbit of 1 k. 600 to 2 k.	Fatal dose in 40 minutes for a guinea pig of 450 to 500 gms.
Cobra No. 1	0.5 milligr.	0.05 milligr.
Cobra No. 2	0.6 "	" "
Cobra No. 3	0.3 "	" "
Horned viper No. 4	0.7 "	0.07 "
Horned viper No. 5	0.3 "	" "
Horned viper No. 6	0.6 "	" "
Asp No. 7	1.5 "	0.1 "
Asp No. 8	2 "	" "
Rattlesnake No. 9	3.5 "	0.3 "
Banana snake No. 10	2.15 "	0.2 "
Broad-headed snake No. 11	2.5 "	" "
Death adder No. 12	1. "	0.08

"We see from this table," says CALMETTE, "that the respective resistances of the rabbit and guinea pig are in nowise proportioned to the animal's weight; thus, to kill 500 grams of rabbit, it took nearly twice as much venom as to kill 500 grams of guinea pig. The same held true of dogs; it took 6 mgs. of cobra venom No. 1 to kill a dog of 7 kilos in twelve hours, while the same quantity would kill twelve rabbits in three hours."

The principal cause of death after snake bite is paralysis of the heart or respiratory centers; cobra venom first irritates, then depresses, the respiratory center. Changes in the blood, though profound are not the cause, for, as BRENNING points out,⁶ frogs whose blood has been replaced by a 0.07 per cent. solution of sodium chlorid, have the same symptoms.

Therapeutic efforts for the relief of snake bite have been almost as numerous as the sands of the sea for number; they vary from the savage's invocation of his fetich, through amputation of the part and other heroic measures, to the resources of our modern materia medica.

The temperature limit at which the toxic power of venom is annihilated is from 80 to 100 degrees Centigrade. Heating to 38 degrees Centigrade for fifteen hours has no effect on the virulence. Carbolic acid, bichlorid of mercury (1 to 1000), sulphate of copper, nitrate of silver, iodine, alcohol have no action, either *in vitro* or in the organism, even if injected at the same time as the poison. Permanganate of potash, introduced by LACERDI of Rio de Janeiro in 1881, seems to neutralize the poison when mixed with ten parts of a 1 per cent. solution to one part of the venom. Chromic acid was recommended in 1888 by KAUFMANN. In 1891 CALMETTE endeavored to ascertain the real value of the permanganate and demonstrated that it is an excellent antidote—provided

³ Soc. de Biologie, Feb. 10, 1894.

⁴ Gaz. Med. de l'Algerie, No. 10, 1895.

⁵ Loc. cit.

⁶ Die Vergiftung bei Schlangen, 1895.

that it is exhibited immediately after the bite or experimental punctures and through the same openings. These conditions preclude it having much practical value. From theoretical considerations he was led to use chlorid of gold, and announced that this agent, "in sufficient quantities—ten drops of a 1 per cent. solution to one drop of the venom— injected into the tissues of an animal inoculated with a mortal dose of cobra venom, even away from the point of inoculation, prevents intoxication when done before symptoms of bulbar asphyxia are manifested."

This author, who is Director of the Bacteriological Laboratory at Saigon, Cochin China, also undertook experiments in order to produce artificial immunity. Three different methods were used: 1, successive inoculations of heated venom, then of virulent venom; 2, injection of mixtures of virulent venom with permanganate of potash or chlorid of gold; 3, ingestion of increasing doses of virulent venom. These results were absolutely negative at first, but during the course of his researches covering a period of some two years, he discovered that chlorid of calcium is the best chemic agent to use. For the immediate treatment of the wound a one-twelfth solution of the salt is preferable, diluted at the moment of use to one thirty-sixth: 20 to 30 c. c. of this dilute solution are injected into the wound direct and for a considerable distance around it. This substance, like the other alkalin hypochlorites, seems to owe its efficiency, without injurious action on the tissues, to the liberation of hydrochlorous acid. Two cases have been recently reported of successful results from this treatment following bites by the brown-banded snake of Australia, the most dangerous reptile of that country.

In 1888 F. A. PERROUX, of Calcutta, addressed a "confidential memorandum" to the Department of State in which it was asserted, with much circumstantiality of detail, that "Asiatic cholera is certainly cured by the inoculation of cobra venom," and that this inoculation is practiced only in India where it is "jealously guarded as a precious secret" by the few who are familiar with it. This memorandum was referred through the Secretary of the Treasury to DR. JOHN B. HAMILTON, then Surgeon-General of the U. S. Marine-Hospital Service, who, while pointing out the inherent improbability of the claim, agreed to submit the cobra poison, if a specimen could be obtained, to an investigation as to its germicidal property by application to the different bacteria and especially to the comma bacillus. Two collections of the venom—one from four and the other from fourteen live cobras—being received from Mr. PERROUX, they were exhaustively experimented upon by Assistant Surgeon J. J. KINYOUN at the U. S. Marine-Hospital Laboratory in New York harbor. The conclusions drawn from DR. KINYOUN's elaborate

report to Surgeon-General HAMILTON, and indorsed by the latter, are: 1, cobra venom is germicidal to the cholera spirillum in a three-fourths per cent. solution; 2, there is no antagonism between the cobra venom and the poison (toxin) of the spirillum of cholera; 3, the venom does not prevent the coagulation of blood; 4, when the two poisons are administered together, or the cholera poison followed by the cobra venom, the toxic effects of cholera are intensified.⁷

In the latter part of 1893 MM. PHISALIX and BERTRAND created a new epoch in the history of serpent venoms by their announcement to the Paris Biological Society that their researches show that there exist in viper's blood, principles similar to venom, with great physiologic activity—2 c.c. of its serum being capable of killing a guinea pig of 480 grams, and that this is to be considered as the reason for the immunity of the viper to its own venom. In February, 1894, they announced that by heating viper venom with certain precautions, they gave it certain vaccinal properties and transformed it into *echidno-vaccin*. This does not confer immediate immunity—it takes a certain length of time, during which the *echidno-vaccin* leads to the formation of an antitoxic substance in the blood, capable of attenuating or even completely neutralizing the toxic properties of the venom. Thus, while 0 mgm. .3 of venom, diluted with 3 c.c. of serum from an animal previously inoculated, injected into a guinea pig of 380 gms. only caused some insignificant symptoms which rapidly disappeared, 0 mgm. .15 of normal venom kills a guinea pig of 500 gms. in less than twelve hours.

At the same meeting of the Biological Society CALMETTE also announced a means of securing immunity against snake-bite which, according to this author, may be accomplished in four ways: 1, by the use of increasing doses of diluted venom—not recommended; 2, by the use of large doses of the venom followed by chlorid of calcium or the alkalin hypochlorites; 3, by repeated injections of mixtures of mortal doses of venom with decreasing doses of gold chlorid or, better of hypochlorite of calcium or soda; 4, by injections of 6 to 8 c.c. of hypochlorite of calcium to one-sixtieth, repeated four or five days in succession—rabbits are thus rendered insusceptible to twice the fatal dose,

FRASER⁸ has confirmed these ideas of immunity very recently, and it seems that fresh triumphs are in store for serotherapy. It is probable as Roux⁹ suggests, that the serum of animals which seem to be naturally immune, such as the hog and the hedgehog, will be productive of even better results.

⁷ Report on the Antagonism between the Venom of the Cobra and the Poison of the Cholera Spirillum. Operations of the United States Marine-Hospital Service, 1890, pp. 13-17.

⁸ JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, July 6, 1895.

⁹ La Province Medicale, No. 16, 1895. The writer is greatly indebted to Roux's articles in La Province.

MEDICAL SUPERINTENDENTS FOR PUBLIC INSTITUTIONS.

A daily Chicago paper, editorially commenting upon a proposed reform of the medical institutions of the county, gives utterance to the following: "The medical profession ought to be debarred from the business management of every public institution and every public department, but it should be made supreme in the medical portion of each public institution and every public department requiring its coöperation."

The first part of this quotation is the expression of a delusion that has apparently a strong hold of the professional politician, whose business capacities are not, to judge by the usual results of his administration of public affairs, the most brilliant; and the second part is theoretically and practically an absolute negation of the first.

How is the medical profession to be debarred from all part in the business management of an institution or department and yet be made supreme in the medical portion of every department requiring its coöperation? Experience has not demonstrated the success of divided authority in medical establishments and hospitals, and their exclusive lay management has everywhere and at all times made a record of maladministration and abuse. Medical supremacy, it must be understood, implies necessarily more than the mere doling out of drugs, and the nursing and medical care of the patients; it includes the general sanitation, the inspection of supplies, the direction of construction and repairs, the regulation of the lighting, heating, and water supply, and a host of other details that can not be safely intrusted to any one not fully acquainted with, and fully in accord with, the direct and ultimate objects of the institution. It would be as correct to say that the paymaster of a man-of-war should be supreme over the captain and the admiral, as to claim preëminence for a "business" man without professional qualifications in a hospital, or, more especially, an asylum. As long as the administrative department is in full accord with the medical, and recognizes its right to dictate on all matters even remotely pertaining to the proper functions of the establishment, there may be no gross mismanagement, but human nature seldom furnishes all the requirements for this state of affairs, and it is easy to see how, without this, lay supremacy in purely medical institutions can only lead to mismanagement and abuses.

This is the plain, common sense view in the case, and it ought to require no illustrations of its truth to the average citizen who gives it any consideration whatever. If illustrations are wanted, however, they can be had in abundance, and opposing facts are absolutely wanting. Every medical establishment in the world that is worthy of being cited as a model is such, only so far as it is under absolute medical

authority. In successful general hospitals the word of the clinical staff is law to the administration, and the only asylums in the country that are worthy of the name, or that are not a reproach to the communities that support them, are under exclusive medical control.

Even the most sacred obligations of religion are no security against abuses, as was shown in the recent *exposé* of the Mariaburg Asylum in Prussia, which, it is to be hoped, will have some effect in counteracting the agitation that is being made in Germany in favor of placing asylums under lay (clerical) control. Ecclesiastics and business men are alike unfitted to have chief charge of institutions for the care of the invalid and the insane; the medical authority should be supreme. Any other arrangement is abnormal, and while it may be accepted for want of a better one, and while in some rare instances, by reason of the good judgment of the layman in charge and his practical recognition of the superior authority of the physician in all matters of medical importance, it may possibly not work actual disaster, this must be taken only as a happy accident which experience shows to be of rare occurrence.

The State of Illinois tried for years in its medical charities the system of a divided responsibility, but was forced to abandon it, and the reasons why the chief control of such institutions should be medical are logically stated in the following quotation from a special report of the State Board of Charities on one of the Cook County institutions in 1886:

"The reason why a medical man should be at the head of this hospital, rather than a business man, is that, in a medical institution every question to be decided has a medical bearing, which a non-medical man may not perceive, and the final word on every subject should be spoken by the physician from which there should be no appeal."

The fiction that physicians are not good business men has certainly no such excuse as could be afforded by the experience of Cook County with lay heads of its medical institutions.

Another point is, that the alleged "business" men are seldom anything more than mere politicians who have failed in every private business, and many times have failed even in politics to command a sufficient following to cause their return to elective positions.

OMPHALOPSYCHISM, OR FAITH HEALING, MODERN AND ANCIENT.

The *Lancet* is interested in some mild cases of mind-cure that has obtained a tentative foothold on the shores of Albion. We quote below a portion of a well-written annotation, in the issue of that journal for August 10, in the course of which the editorial writer demands that a law be passed, in England,

which will prevent the experiments of faith-healers being tried upon the persons of helpless children. This is a practical view that may properly be taken, even in this land of free-and-easy habits of thought, in the handling of quackery and superstitions. The American mind tolerates too easily the various phases of crankism; and no doubt lives are lost in that manner, especially in the cases of children and other feeble dependents. The *Lancet* says: "An inquest was recently held upon the body of a girl aged 17, who died in Brixton of acute tuberculosis and peritonitis from a perforating gastric ulcer, having been very ill since last Easter. She had no medical advice because, according to the evidence of the woman in whose house she stayed, 'she trusted in the Lord to heal her without medical aid.' It is useless to point out to people of this cast of mind the falsity of their theological reasoning, but we do think that the Legislature, which takes care to prevent people jumping off the monument or going on ice too thin to bear their weight, might step in and prevent peculiar people and faith-healers from murdering their children by neglect. We should be the last to deny the power of faith, but, as a recognized authority says, 'faith without works is dead,' and it is a canon of theology that the Almighty works by means, and those means humanity is bound to use. The *New Science Review* for July contains an article entitled 'Has Mental Healing any Scientific Basis?' The teaching of this article appears to be that there is a broad field for 'auto-suggestion and systematic concentration with happy results.' The way and means to become properly auto-suggestive is as follows: You say mentally to yourself—even mechanically at first—until the habit is formed, 'I [the real ego] am well. I am strong. I am pure. I am perfect. I am one with the Divine Spirit of Wholeness.' The next step is, 'To insure progress, special times and seasons should be set apart for the focalized thought and affirmation. . . . At times when the objective world, with all its cares and anxieties, may conveniently be barred out, the full glare of the consciousness is turned upon the Divine ideal within, which thereby gradually becomes graphic and ruling.' It is evidently quite easy to become a mental healer, but we seem to remember that this process is not new. There was once a sect in the Eastern Church called the Omphalopsuchoi, who by steadily gazing at their navels were at length rewarded by a sight of the light (created or uncreated) which shone at the Transfiguration. This method, we suppose, is what Mr. Henry Wood, the writer of the article in question, calls 'keeping company with his inner ideal.' However, he does not seem to have much faith in the process he recommends, for he concludes: 'As related to illness, prevention is the end to be sought, so that in time cures may be unnecessary.' If any one

by 'keeping company with his inner ideal' can cure a gastric ulcer he would be a most valuable addition to our present therapeutic agents."

THE BENEFICENT MICROBE.

In his presidential address before the British Medical Association, DR. RUSSELL REYNOLDS calls attention to the "gradually increasing appreciation of the fact" that the lower forms of life that we include under the general head of microbes, and to which it is the popular fashion nowadays to refer all manner of disease, are not altogether mischievous in the influences they exert on the human economy, but are, on the contrary, often beneficial. Though this is no new medical view, its statement under such circumstances by so high an authority at this time has a certain significance. It is a recognition of a truth that is becoming more and more evident, that we only know as yet a small part of the beneficent functions of these bodies, and that even the maleficent ones may have their uses to mankind. DR. REYNOLDS goes at some length into the subject of immunization as indicating this utility and alludes to the long-known facts that bacteria are useful and probably essential in many of the healthy processes taking place in the human body. It has been taken for granted as a fact in physiology that they have their part in digestion, and it seems to be established that they are under certain conditions essential in the life of some higher vegetable types, and in other instances, as in the case of the normal vaginal bacillus, they seem to exercise a directly protective influence. These facts are known to medical men, but in these days of popular "microbe killers," and with the general tendency of the public to absorb a little medical knowledge to its own hurt, a little reiteration and consideration of them may not be altogether a bad thing.

Even the pathogenic bacteria may have their uses in causing a constant and general immunizing process in human populations. Probably, with less frequency of these occurrences and a less general distribution they would be far more virulent when they did attack the system—the fatality of measles and other comparatively harmless infections of civilization among savages, the extra virulence of new epidemics and the occasionally observed proportional mildness of the same disease after it has become common, quite apart from the selective process that might be assumed were the disorders always self-protective or fatal, all point in this direction. While, therefore, there are many of these organisms which mankind could well dispense with, were that possible in any absolute sense, it may be that we are gradually getting better off as regards their influence by their very frequency. Pathologic familiarity may breed a physiologic contempt.

These are only suggestions, and may not be necessarily accepted, but they are permissible ones in the present state of our knowledge, which is still largely in the suggestive phase.

NOTICE TO OUR READERS.

We have been informed that some person to the JOURNAL unknown, is traveling in New York pretending to represent this publication. We have no traveling agents, and no credence should be given any such party—and we *once more* advise that no money be paid to any person on account of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Payments of whatever character should be made to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and to no other person whatsoever. Checks or drafts in payment of annual subscription to the ASSOCIATION (membership dues) should be made payable to HENRY P. NEWMAN, M.D., Treasurer.

Canvassers for subscribers to the JOURNAL are not authorized to receive money, and all canvassers are furnished with written authority to solicit subscriptions.

CORRESPONDENCE.

Is After the Reviewer.

3910 WALNUT ST., PHILADELPHIA, Aug. 26, 1895.

To the Editor:—In our JOURNAL for the 17th inst., appears a notice of the third volume of the "Twentieth Century Practice of Medicine," in which I am charged with "looseness in the manner of quotation" in my section on the Diseases of Occupations. The charge is based, so well as I can understand it, upon the alleged fact that in quoting a passage from Patissier I did not give credit to the real author and that I ascribed sentiments to Patissier which he did not express.

The exact facts are as follows:

Patissier, a French author, in his *Traité des Maladies des Artisans* (Paris, 1822) page 196, writing of pastry-cooks, says that Cadet-Gassicourt said that these workmen are less debauched than bakers and more gentle and more sociable. Patissier does not include this statement from Cadet-Gassicourt in quotation marks, nor give the reference to the original. He evidently adopts the opinion as his own, else he would not take the care to incorporate it without quotation marks in his own text.

In my article, page 312 (not 512 as your reviewer erroneously has it) I wrote as follows: "As an example of Patissier's method and acumen the following may serve: 'Pastry-cooks,' he quotes, 'are less debauched than bakers, and more gentle and more sociable.' He thinks he sees in pie-dough a mysterious influence that renders a man more sweet and companionable than his fellow who makes bread."

It is to be observed here that I do not say that Patissier said so-and-so, but that he quotes it. As he does not give the reference to the original, but adopts the statement as his own without noting its rank absurdity, I do not see how I have misrepresented him in concluding that he thinks he sees some mysterious influence in pie-dough. On the contrary, I think that I had a perfect right to nail this on Patissier, and to point out that "this extravagant induction" (not deduction, as your reviewer misquotes me) "is on a par with much that has been and is still being written" (not still is being, as

your reviewer misquotes me again) "on the influence of occupation on health."

I submit that your reviewer has made a rather serious charge against me on a rather slight foundation, and that he himself is careless in his quotations. Kindly publish this and oblige,

Yours very truly,

JAS. HENDRIE LLOYD.

ANSWER:—The statement made in the review is not invalidated by calling the reviewer "another." It was Cadet-Gassicourt, and not Patissier, who made the statement mentioned, and as he made no comment upon it, there is no evidence that he approved or disapproved it.

Treatment of Typhoid Fever.

GRAND RAPIDS, MICH., Aug. 10, 1895.

To the Editor:—I have just been reading Dr. Woodbridge's article, read at Baltimore, giving quotations from my letters. I notice one mistake. In one of the aborted cases the types read that *four* grains of quinin were given in twelve hours. It should have read *forty* grains. The object I had in mentioning the quinin at all was to show that a large dose had no effect in the fever, and that the medicine did, after the quinin failed to abort the disease.

I have had no typhoid cases this year but have had the druggist put in a stock of Parke, Davis & Co.'s "Woodbridge" treatments and will try the new formula upon the first suspicious case that presents. Sincerely yours,

W. T. DODGE.

What the Code Is.

ORAN, MO., Aug. 26, 1895.

To the Editor:—If allowed space I will make a brief reply to Amicus Veritatis.

To believers in the Code, medicine is a profession; to non-believers it is used as a trade. The Code was written for the benefit of believers and in condemnation of unbelievers and their practices. Any argument on the question should be addressed to believers. To them the Code is effective and has penalties for its violation—but to the unbeliever it is a dead letter. Very respectfully submitted,

W. P. HOWLE, M.D.

A Poser.

SAN JOSE, CAL., Aug. 19, 1895.

To the Editor:—If you have the information at command will you be kind enough to publish, for the information of the readers of the JOURNAL, a list of all countries on the globe in which the medical profession of same are governed by a written code of ethics? Yours truly,

A. C. SIMONTON, M.D.

SOCIETY NEWS.

The Tri-State Medical Society.—The autumnal meeting of this society will be held in Des Moines, Iowa, October 1 to 3. Dr. Howard A. Kelly, of Baltimore, Md., will deliver the Address on Gynecology and hold a clinic; Dr. Sanger Brown, of Chicago, will deliver the Address on Medicine; Dr. Nicholas Senn, of Chicago, will endeavor to be present and will conduct a clinic. Papers have been promised from leading physicians of Illinois, Iowa and Missouri. The meeting promises to be a great success. If there are other physicians who wish to contribute to the program, kindly notify the secretary,

FRANK P. NORBURY, M. D.,
1006 Olive Street, St. Louis, Mo.

Steuben Co. (Ind.) Medical Society.—The thirty-fourth annual meeting of the Steuben County (Ind.) Medical Society was held at the Court House, Angola, Ind., Aug. 23, 1895. The following papers were read: The Medical Man, F. B.

Humphreys, Fremont, Ind.; Rheumatism, D. W. Fenton, Reading, Mich.; Modern Therapeutics, T. J. Creel, Angola, Ind.; Some of the Diseases Incident to the Summer Months, T. F. Wood, Angola, Ind.; Hernia, W. H. Myer, Fort Wayne, Ind.; Dislocation of the Shoulder Joint Complicated with Fracture of the Upper Third of the Humerus, C. B. Stemen, Fort Wayne, Ind.; The Treatment of Retro-deviations of the Uterus, C. N. Smith, Toledo, Ohio; Etiology and Treatment of Granular Conjunctivitis, A. E. Bulson, Fort Wayne, Ind.; A Few Thoughts on Strychnia, G. W. McCaskey, Fort Wayne, Ind. A forenoon, afternoon and evening session was held, together with a banquet at Hotel Hendry in the evening. T. J. CREEL, Secretary.

American Dermatological Association.—Program of the nineteenth annual meeting to be held at the Windsor Hotel, Montreal, Canada, Sept. 17, 18 and 19, 1895:

Scientific Session (open meeting) at 10:30 A. M.: Address by the President, S. Sherwell; Angiokeratoma of the Scrotum, Raynaud's Disease of the Ears, Report of Cases, by J. A. Fordyce; Two Cases of Hydroa Vacciniforme, by J. E. Graham; Two Cases of Bromide Eruption, by G. T. Jackson.

Scientific Session at 3 P. M.: The Value and Limits of Usefulness of Electrolysis in Dermatology. General Discussion: Dermatologic Notes, by W. A. Hardaway; The Epithelial Layer of the Epidermis and Its Relationship to Ichthyosis Congenita, by J. T. Bowen.

Second Day, Scientific Session at 10:30 A. M.: Remarkable Drug Eruption, by F. J. Shepherd; A Hitherto Undescribed Sequel of Non-Parasitic Syphilis, by J. A. Cantrell and J. F. Schamberg; The Infected Scratch and its Relations to Impetigo and Ecthyma, by H. G. Klotz; A Contribution to the Study of Mycetozoa, by J. N. Hyde.

Afternoon Session at 3 P. M.: Unusual Papulo-Pustular and Fungating Bromid of Potash Eruption in a Baby (illustrated), by G. T. Elliot; An Etiologic Puzzle, by J. C. White; Studies on some Dermatologic Subjects, by A. R. Robinson.

Third Day, Thursday, Sept. 19, Morning Session at 9:30 A. M.: A Unique Case of Agminate Folliculitis of Parasitic Origin, by M. B. Hartzell; Note on Antiparasitic Treatment of Eczema, by J. Zeisler; The Treatment of Erysipelas based upon a Second Series of Fifty Cases, by C. W. Allen; Notes on Drug Eruptions, by J. A. Fordyce; A Further Study of Alopecia Prematura and its most frequent Cause, by G. T. Elliot.

Afternoon Session at 3 P. M.: The Prevalence of Germ Dermatoses, by J. C. White; Symbiosis of Cutaneous Eruptions, by J. Zeisler; Sleep in Its Relation to Diseases of the Skin, by L. D. Bulkley; Exhibition of Photographs of Unusual Cases, by H. W. Stelwagon; Urticaria Pigmentosa—Case Twenty Years Under Observation, by P. A. Morrow; Note on the Elastic Circular Bandage, by G. H. Fox.

Officers for 1895: S. Sherwell, President, Brooklyn; J. A. Fordyce, Vice-President, New York; C. W. Allen, Secretary and Treasurer, New York.

BOOK NOTICES.

Jahrbuch der Practischen Medicin, edited by Dr. J. SCHWALBE. Pp. 666. Stuttgart: Ferdinand Enke. 1895.

With the large amount of literature which appears annually in each department of medicine, it is impossible for the average reader to keep posted upon the whole field by means of the current periodicals. By the publication of annual volumes which briefly cover the whole ground, it becomes comparatively easy for the student in special departments of medicine as well as the general practitioner to become intelligently acquainted with the progress which is being made throughout the whole domain of medicine, without excessive effort or waste of time. Of books of this character the one under consideration is an excellent example. The contents are arranged under thirteen chapters, which are given the following headings: General Pathology and Pathologic Anatomy; Internal Medicine; Surgery; Obstetrics and Gynecology; Diseases of the Eye and Ear; Diseases of the Nose, Throat, Mouth and Larynx; Skin and Venereal Diseases; Pediatrics; Climatology and Balneology; Materia Medica and Toxicology; Legal Medicine and

Public Health. Each of these general topics is dealt with by a sub-editor who is particularly fitted to review the literature of his own department. The contents of each chapter are arranged under systematic subdivisions so that one may readily refer to any part desired. In each instance the most important papers of the year are briefly reviewed and only the valuable facts to be gained from them are stated and in a concise manner. The reference to the original articles is given in the text, avoiding any necessity of referring to foot notes or a system of numbers.

The references to German literature are quite complete, and fairly full references are given to the French. It is noticed that there is no mention of some valuable articles by American writers which have appeared during the year. At the end of each chapter is a list of text-books bearing on the subject, which have been issued during the year.

PUBLIC HEALTH.

Hygiene of the Teeth.—In a communication to the Berlin Medical Society, Dr. Ritter reported that after having examined the teeth of 637 persons, more than half of whom were under 15 years of age, he found only 4 with sound teeth. On this basis the number of individuals with their teeth in good condition is only about 6.2 per 1000, which shows how necessary is a scrupulous hygiene of the mouth and teeth.¹

Wrapping Paper for Articles of Food.—The city of Montpellier is said to be the first in France to adopt regulations concerning the kind of paper to be used for wrapping up articles of food. By a municipal decree, in force for some months, the use of colored paper is absolutely forbidden. Printed paper and old manuscript may only be used for dried vegetables, roots and tubers. For other articles of food, new paper either white or straw-colored, must be used.²

Three New Cases of Actinomycosis.—Professor Poncet, of Lyons, has pointed out that actinomycosis is somewhat frequent in the region around that city. Dr. Meunier, of Tours, shows that it is not rare in Touraine, for he reports three cases all of which were at first diagnosed as alveolar abscesses. The microscope corrected this diagnosis and iodid of potash effected a speedy cure of the local lesions, which in one case at least had assumed a very grave appearance.³

Variola in Marseilles.—According to statistics furnished by Professor Proust there were during the first six months of 1895, 175 deaths from smallpox in the city of Marseilles. The city has 406,000 inhabitants, hence there were 4 deaths to each 10,000 of population. During the same period, Paris, with a population of 2,424,000, had only 10 deaths, or 0.04 per 10,000, according to N. Martin. In Paris, vaccination and re-vaccination are regularly and seriously carried out; in Marseilles, however, it seems either that the system of vaccination is defective or that the cosmopolitan population refuses to take advantage of the means of protection offered by the authorities against a disease which should claim only exceptional victims. The mayor of Marseilles is a medical man, Dr. Flaissieres, and as our contemporary⁴ remarks, it is to be hoped he will be able to overcome this state of affairs.

Epidemic Spread of Cholera in Japan.—Much anxiety is felt in Japan lest the cholera scourge extend throughout that country, notwithstanding the efforts made by the sanitary officials. The *Japan Gazette*, August 1, published in Yokohama, has the following paragraph compiled from facts given by native authorities:

"Fears are entertained in some quarters that this year may

¹ Jour. d. Hygiene, July 25, 1895.

² Jour. de Med. de Bordeaux.

³ Le Progres Medical, 1895, No. 29.

⁴ Le Progres Medical, 1895, No. 29.

prove one of the most calamitous Japan has witnessed for many years past. To begin with, cholera broke out in the country early in the year, slowly but steadily working its way even to the remote corners of the Empire. Though stringent precautionary measures are taken by the authorities, and the exceptionally cool weather has been prevailing, and the malady has so far been prevented from general spread in a city like Tokyo, we are still in the middle of summer, and the worst may yet be brought about. In Osaka, Hiroshima, and other western cities, the disease shows no signs of abatement. The official report to hand puts the total fatalities from cholera up to the 28th, noon, at 6,592. This is by no means a small figure, though it is small compared with that in 1883 and the year following."

Tubercle Bacilli in Butter.—Roth of Geneva, after demonstrating the frequency of the bacillus of tuberculosis in milk, relates¹ his experiments with cooking such infected milk—from which it appears that a simple ebullition destroys the virulence of milk drawn from cows with sore udders and shown to be very infectious by inoculations on other animals. So far as butter is concerned, cooking changes its taste too much to be used as a means of prevention. Nevertheless, as Rang had already demonstrated, Roth proves that the cream and butter of milk from cows with tuberculous udders will infect guinea pigs; with some samples of butter sold in the market he infected two out of twenty and Brofferro has infected one in nine. Unfortunately, there is no method of promptly recognizing the bacillus in butter. Cream may be sterilized by successive boilings, but butter so treated has a somewhat strong taste which, however, disappears after keeping for some time. Butter which is very carefully and thoroughly washed is less liable to be infected and, moreover, it keeps better and for a longer time. Infected milk may also be sterilized by cooking and the butter made from it will be good, though the quantity will be smaller. The most effectual means of preventing the tubercle bacilli in butter is an early diagnosis of infected cattle and their prompt destruction.

Disinfection of the Rooms of Tuberculous Patients.—At a recent séance of the Paris Academy of Medicine,² M. Landouzy presented the results of some important experimental researches into the infectiousness of the dust of rooms of tuberculous patients after disinfection, undertaken by Dr. Lalesque, of Arcachon, and M. Rivière, of the Bordeaux Faculty of Medicine. The conclusions of the authors, which confirm those of Cornet and Kirchner, are founded on results obtained by inoculating 70 guinea pigs in the cellular tissue of the thigh with dust taken from rooms inhabited by consumptives with purulent expectoration and after the rooms had been disinfected. The disinfection consisted in placing all hangings, carpets, etc., in a Geneste-Herschel stove, wiping walls and furniture repeatedly with cloths soaked in 1 to 1000 sublimate solution, washing the woodwork with boiling water and then with sublimate solution. The dust for the inoculations was collected from places cleaned with difficulty, such as tables, around the bed and chimney, in corners, cracks in the floor, joints between hearth-tiles, etc. Of the 70 animals inoculated, 57 lived and 13 succumbed to septicemia or tetanus within a few days. When the 57 were killed in from 40 to 45 days, none of the organs showed a trace of any tuberculous lesions whatsoever. MM. Lalesque and Rivière conclude from their experiments, which were made on a much larger scale than those of Cornet and Kirchner, that the measures for cleansing and disinfection, as practiced at Arcachon in localities occupied by tuberculous patients, are perfectly efficacious and suffice to prevent contagion of tuberculosis from the air of such disinfected localities.

Medical Climatology of Chili.—Chili, which is one of the most thickly populated countries of South America for its size—751,216 sq. kilom.—has the shape of a long, narrow strip, 3,000 miles long, washed by the Pacific and bounded by the Argentine Republic, Peru and Bolivia. On the east are very

high peaks, among them Aconcagua, with numerous spurs; on the west the Coast Range. Between these mountain chains is the central valley. A great part of the country is rainless and arid, especially in the north. The guano industry is highly developed here. In other regions, rains are abundant and heavy and agriculture is successful. The climate, on the whole, may be said to be agreeable and the mean temperature varies between 10 and 18 degrees C. The temperature record of the four principal cities is as follows:

	Santiago	Copiapó	Talca	Puerto Montt
Winter	7.30°	18.0°	7.88°	8.44°
Spring	13.06°	17.78°	14.42°	11.72°
Summer	18.47°	22.69°	—	11.43°
Autumn	12.68°	17.18°	14.01°	11.95°

The population, including 50,000 nomad Indians in the south, is estimated at 2,958,418, of which 42 per cent. is urban. The annual increment is about 45,000. The annual mortality shows the following oscillations: 1849–1875, 26.3 deaths per 1,000, or 1 for each 1,000 inhabitants; 1876–1885, 21.7 deaths per 1,000, or 1 for each 40 inhabitants; 1886–1889 30.3 deaths per 1,000, or 1 for each 34 inhabitants. The Chilean hygienists attribute this large mortality to a number of causes—absence of good drinking water; want of proper means of disposing of the filth, which impregnates the soil; the action of the marshes, which are produced by the inundations of the Biobio; the damp, cold atmosphere; the dampness of the houses, which are built in earth, etc. It is interesting to note that some departments which are close to the Biobio River have a high mortality—Talcabano, 1 in 23—while others at a distance from that stream are among the healthiest in the country—Coelemu, 1 in 63. The morbidity is chiefly caused by tuberculosis, variola—in 1892 the deaths from variola were 6,012; while tuberculosis represents 25 per cent. of the general mortality—scarlatina, syphilis, erysipelas, influenza, enteric fever, cardiac lesions, alcoholism, and the *typhoid* of summer, cholera. Goitre is observed among the inhabitants of the Coast Range at the sources of the streams, but it is not frequent. Among endemic diseases may be mentioned measles, dysentery and hepatic disorders. Santiago, the capital, 1,755 feet above the level of the sea, has a population of about 240,000. The climate is said to be one of the most agreeable in the world and its skies the most beautiful. The system of sewers is still incomplete and leaves much to be desired from a hygienic standpoint. The inhabitants of the province of Santiago suffer from intense variations of electric tension. The electrometer in the same day changes many times, passing from positive to negative, which is exceedingly rare in any climate so far known. Immigration to Chili is small. According to a late census, there are 5,625 foreigners in the province of Santiago, 5,000 of whom live in the city. Valparaíso, with a population of 130,000, is the most important seaport. Part of the town is built on a long strip of land between the Coast Range and the sea, and another part climbs up between the mountains, which gives the town a very singular appearance, especially at night. The hygiene is bad, by reason of a considerable part of the population being crowded together along the shore, with the consequent pollution of the soil due to want of means for disposing of the filth and also by reason of insufficient drinking water. Alcoholism is the curse of the town. In 1894 the police arrested 23,000 persons for drunkenness.¹

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arizona: Arivaca, August 15, 5 cases; Nogales, August 15, 2 cases.

Illinois: Chicago, July 1 to 31, 3 deaths.

Louisiana: New Orleans, August 10 to 17, 8 cases, 1 death.

Tennessee: Cow Island, July 15 to August 14, 16 cases; Memphis, July 15 to August 14, 8 cases.

Texas: Eagle Pass, August 21 to 23, 8 cases, 5 deaths.

SMALLPOX—FOREIGN.

Dublin: August 3 to 10, 5 cases.

¹ Jour. d' Hygiene, July 25, 1895.

¹ Les Nouveaux Remèdes, July 24, 1895.

² Bulletin Acad. de Med., July 23, 1895.

Buda Pesth: July 29 to August 5, 1 case.
 Calcutta: July 6 to 13, 4 deaths.
 Glasgow: August 3 to 10, 3 cases.
 Guayaquil: July 26 to August 7, 3 deaths.
 London: August 3 to 10, 3 deaths.
 Madrid: July 28 to August 5, 5 deaths.
 Montevideo: July 13 to 20, 2 cases.
 Rio de Janeiro: June 22 to 29, 25 deaths.
 St. Petersburg: July 27 to August 3, 1 case.
 Warsaw: July 27 to August 3, 1 death.

CHOLERA—FOREIGN.

India: Calcutta, July 6 to 13, 29 deaths.

Japan: Nagasaki, July 16 to 23, 19 cases 15 deaths; Yokohama, July 12 to 26, 13 cases, 11 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Havana, August 8 to 15, 75 cases, 27 deaths; Santiago, August 10 to 17, 34 deaths.

Brazil: Rio de Janeiro, June 22 to 29, 21 deaths.

Mexico: Vera Cruz, August 8 to 15, 9 deaths.

NECROLOGY.

GEORGE KEATING DYAS, M.D., of Chicago, August 24. He had been afflicted with tuberculosis since last March and during the last two months was confined to his home. Dr. Dyas, was a son of the late Dr. William Godfrey Dyas, who was killed by a railroad accident at Park Manor last February, and was 59 years old. He was born at Rathangan, County Kildare, Ireland. At the age of 17 he came to this country. At the breaking out of the civil war he entered the Southern army as a private and rose to the rank of lieutenant. Soon after the close of the war he studied medicine at the Chicago Medical College and was admitted to his profession in this city.

MISCELLANY.

Quintuple Birth in the Dominion.—The Associated Press has received a dispatch from Charlotte, P. E. I., which says Mrs. Alexander Campbell, of Montague, gave birth to five daughters on July 28. Her husband is a tailor and is in his eighty-fourth year.

To Abort Erysipelas.—Bar-iodo-potassic-arsenite.—A medical student in the University of the South, Mr. W. E. DeLong, sends the JOURNAL a letter in which he says that by the hypodermatic use of this agent, he is able to abort erysipelas, by destroying the streptococcus. The same result is claimed by him, when the medicine is administered internally.

Burial of a "Weighty" Man.—A butcher named Brissollier, who died recently at Mondeville, near Caen, in Normandy, had reached the extraordinary weight of 251 kilograms. It was necessary to use great precautions in order to prevent accident with the bier, which weighed about 300 kilos. The coffin was 2 meters long, 1 m. .05 high and 85 centimeters wide, and had to be lowered into the grave by the aid of very strong pulleys. All the persons at the funeral were heavily impressed, says our exchange.¹

Change in the Wisconsin Pharmacy Law.—The Wisconsin pharmacy law was almost entirely rewritten, and considerably changed, in a statute passed by the Legislature at its session, relating to the practice of pharmacy, the licensing of persons to carry on such practice, and the sale of poisons in the State, the changes made showing an intention to improve the State law on these subjects and make same more efficient in many respects.

Liability of Volunteer in Providing Surgical Services.—Where one, as a volunteer, undertakes to provide necessary surgical services for another, he can not be held liable in damages for the negligence or malpractice of such surgeon as he

summons, the Supreme Court of Nebraska holds (Chicago, B. & Q. R. Co., v. Howard, decided June 21, 1895,) provided such surgeon possesses the knowledge and skill ordinarily possessed by other surgeons, and the employer had no reason to suspect that such surgeon would neglect or fail to use his knowledge and skill to the advantage of his patient.

How Doctors' Fees are Collected in France.—Dr. C. had attended a "young person" who was recommended to him by a Mr. D. Failing to receive his fee from either the "young person" or Mr. D., he wrote to the wife of the latter, stating the circumstance and advising that she see the bill paid to avoid scandal. Receiving no reply, Dr. C. sued for the amount of his bill, 420 francs, and Mr. D. sued the Doctor for 5,000 francs for betraying a professional secret. The court decided that the Doctor was entitled to 300 francs instead of 420, and decreed that it be paid by Mr. D. On the other hand, the judge ordered the Doctor to pay 300 francs to Mr. D. for violation of professional secrecy and grave inattention to his duties as a physician. The costs were divided equally.¹

Large Bequests to Massachusetts Institutions.—Under the will of the late Thomas O. H. P. Burnham, who was for many years a dealer in second-hand books, nearly two-thirds of an estate of \$602,562 will go to charitable and educational organizations. The Massachusetts General Hospital was made the residuary legatee, and has been paid \$263,048. The Home for Aged Men, and Tuft's College will receive \$10,000 each; Children's Home, Children's Hospital, Boston Asylum and Farm School, Washington Home, Massachusetts School for Feeble Minded Children, Perkins' Institute for the Blind and Boston Lying-in Hospital, \$5,000, each; Boston Dispensary, Asylum for Aged Females, New England Hospital for Women and Children and Consumptives' Home, \$2,000.

Castration as a Sectarian Rite.—The *Lancet* has recently referred to a book, by a French writer, regarding a sect in Russia, known as "The Skoptzies." The *Lancet* paragraph states that "there is a very singular religious sect in Russia, whose chief tenet consists in castration. These ridiculous fanatics are said to be convinced that mankind can only obtain admission to Paradise in a mutilated condition, and consequently all males who join their ranks must submit to be deprived of their testicles, but whether the females have to undergo spaying or any analogous operation is not clear. According to M. E. Teinturier, who has written a book entitled 'Les Skoptzy,' these blind enthusiasts are tolerably numerous; but, happily, there is one good point connected with their particular form of madness—it can not be transmitted hereditarily."

Confidential Communications.—Confidential communications in the Iowa Code, which provides that no practicing physician shall be allowed in giving testimony to disclose any confidential communication properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice, the Supreme Court of Iowa, holds, in the case of Prader v. National Masonic Accident Association, decided May 28, 1895, covers, not merely verbal communications, but the prohibition of the statute refers to those of any kind by which information of the character of that specified in a statute is imparted. Information of the actual condition of the patient, the court says, may be more readily communicated to or acquired by a physician through a personal examination than by statements of the patient. In many cases, exact knowledge can only be obtained by means of such examination, and it is clear that it is in the interest of the patient to have the information so obtained treated as confidential, as it would be had he known and communicated it verbally. Consequently, it is concluded that the prohibition of such a statute as the above extends to facts which are learned by a physician in the dis-

¹ Le Progres Medical, 1895, No. 29.

¹ Gaz. Med. de Paris, 1895, No. 20.

charge of his duties, from his own observation and examination of the patient. If the facts thus learned are of a confidential character, and are necessary and proper to enable the physician to discharge his professional duty to his client they are protected.

Term of Office for Kansas Insane Asylums.—Under section 3, chapter 113 of Kansas Session Laws for 1879, (paragraph 6188, General Statutes of 1889), which provides that "each insane asylum shall have a superintendent, an assistant superintendent, steward and matron, who shall be chosen by the board of trustees, and shall hold their office for the term of three years," no vacant unexpired or fractional terms are recognized, says the Supreme Court of that State, in the case of *State v. Wentworth*, decided June 8, 1895, and such officers, whenever appointed, are entitled to hold their respective offices for the period of three years from the date that the appointment of each takes effect.

Annual Report of the New York City Hospital.—This year's report of the above named institution is an elaborately illustrated book. Interior and exterior views of the hospital and its annexes are given, to the number of about twenty that will excite the envy of many a younger, struggling board of managers. The total number of patients receiving care and treatment in all departments of the service, for the year 1894 was 39,012, and the grand total since the beginning of hospital work, Jan. 3, 1891, 656,017. The proportion of patients in the wards of the several institutions receiving absolutely free treatment during 1894 was 64 per cent., and a large proportion of the remainder paid less than the actual cost of treatment. At the New York Hospital in West Fifteenth Street, the number of patients receiving medical or surgical treatment in its wards was 4,878, and the highest census of the hospital was 201, and the lowest 151, the average number of patients being 174. The average number of days of treatment per patient was 13, and the per capita cost was \$1.88 plus. Of the total days of treatment of ward patients, namely, 68,183, 84 per cent. were absolutely free. In the Out-Patient Department connected with the hospital, 8,700 patients were treated in its several classes, and the total number of visits of such patients amounted for the year to 40,792, and the number of prescriptions compounded, 35,957. The Ambulance Department at the New York Hospital responded to 1,441 calls, and at the House of Relief to 2,812 calls, the daily average ambulance calls at the New York Hospital numbering 4, and at the House of Relief, 7.

To Prevent Life-Loss from Fires on Shipboard.—The veteran chemist, Dr. R. Ogden Doremus, of New York city, has recently published a plea for the more general furnishing of liquified carbonic acid by ship owners as a life-saving and property-saving expedient, especially on all passenger steamships. Liquified carbonic acid has been quoted abroad as low as 12½ cents per two and one-half pounds, in iron bottles. The published remarks of Professor Doremus contain the following statements favorable to a wider employment of this substance: "About thirty years ago, the United States government appointed a commission to examine and report on methods for saving life on shipboard. I repeatedly exhibited to this commission the efficacy of liquid carbonic acid in extinguishing fires, and suggested that wrought-iron cylinders filled with this liquid should be placed on the decks of vessels and connected with iron tubes passing by the sides of the stanchions into various compartments. Should spontaneous combustion of cotton, jute, coal, etc., occur, the fire would be instantly extinguished by releasing the gas and driving it by its enormous pressure into the hold or compartment of the ship where the fire exists. The commission reported unanimously in favor of this method, and advised the passage of a law by the United States government requiring all our vessels to be provided with such means for extinguishing fires and saving life. Similar experiments were also shown to a committee appointed by the New York Board of Marine Underwriters. The committee commended this mode of putting out fires in the highest terms. With carbonic acid gas released into said compartment from wrought-iron cylinders filled with the liquified gas, the fire could have been extinguished in-

stantly and without injury to the 'high class freight.' Liquified carbonic acid is now a commercial article. It is prepared in this city, at Saratoga Springs, and is even exported from Germany."

Treatment of Inebriates at County Expense.—The Wisconsin Legislature enacted, at its recent session, that when any citizen of the State becomes a habitual drunkard and is peculiarly unable to procure and pay for treatment for such disease, any citizen of the State, the next friend, the attending physician, or any public officer may petition the county court or judge thereof, within and for the county where such habitual drunkard resides, for an order of said court or judge thereof, permitting said habitual drunkard to take treatment at some institution for the cure of drunkenness and drug addictions, established within the State, at the expense of the county, as the judge may select. But no such court or judge thereof shall entertain a petition or make any order to send any person for treatment, as set forth, a second time. Persons treated, who desire to do so, may reimburse the county. The term "habitual drunkard," under this act, it is said, shall include all persons addicted to the use of spirituous, malt or fermented liquors, morphin, opium, cocain, or other drugs or narcotics to such a degree as to deprive him of the power of reasonable self-control.

Intravenous Injections of Mercury.—Intravenous injections of sublimate, introduced by Bacelli and principally employed in the treatment of syphilis, has had different results in the hands of various observers. The general opinion is that they are efficacious, but opinions differ as to their inconvenience and the indications for their use. Görl, in a recent article¹ gives a resumé of the advantages and disadvantages of this method. The injections are painless, provided they are made in the lumen of the vessel. Pain at the moment of injection shows that the point of the needle is not free in the cavity of the vein. These injections enable us to incorporate precise and very small quantities of mercury, which will reassure timid patients and avoid intoxicating those with an idiosyncrasy. A third advantage is the rapidity of action, a fact of the greatest importance in certain cases of cerebral or ocular syphilis. Lastly, Bacelli's method is not dangerous, at least no fatal cases have been reported yet; does not frighten the patients and does not cause any incapacity for work. On the other hand, they are impossible or very difficult in individuals in whom the subcutaneous veins are not visible, obese persons, for example. The principal objection is that their effects are of short duration. It is true that after warding off the most menacing symptoms of syphilis by these injections we may prolong the effect either by subcutaneous or intramuscular injections of insoluble mercurial salts, or by administering the metal in the form of inunctions or pills.

Diabetes Mellitus in a Child.—This disease is rare in children and very fatal; death generally occurs quickly, as a new case reported by Cnopf shows.² It occurred in the person of a child aged 2½ years who had always been healthy. During a stay in the country it was noticed that while the child was apparently in perfect health it did not increase in weight as it should from drinking two or three liters of milk daily. This lasted for some weeks, after which the author was consulted. The child was much emaciated, the skin was pale, there was no fever; the nervous system, heart and lungs were negative; the liver, spleen and stomach appeared healthy; there was no diarrhea, but the child vomited the milk from time to time. The author advised that the quantity of milk be diminished and that it be drunk cold. Hydrochloric acid and wet packs were prescribed, but this treatment was of no avail. The child wished to drink constantly, day and night, and continued to vomit without signs of any digestive disturbance. Fearing a beginning meningitis, the eyes were examined with negative results. Urinalysis finally revealed the presence of a great quantity of sugar and a little albumin. This was hardly determined when the child was seized with diabetic coma, with the characteristic respiratory symptoms, and died in a few hours. A

¹ Münch. Med. Woch., 1895, No. 20.

² Münch. Med. Woch., 1895, No. 18.

necropsy was refused. We are unable to determine exactly the duration of the glycosuria in this case; it may be that therapeutics might have been of some avail if the child had been treated more than four days. Statistics show that in at least nine out of ten cases, diabetes in children is a rapidly fatal disease. In the case detailed neither heredity, cranial or abdominal lesion, traumatism, convalescence from a grave pyrexia nor any other of the usual causes of the disease in children was discovered. The case emphasizes the importance of a complete and early examination of the urine even in children.

A Neuropathic Family.—Max Nordau relates the pathologic history of a neuropathic family which he observed in Berillon's clinic. The mother is emotional and with exaggerated affectivity. Her sister died paralytic. There are no other exact details regarding other relations, but vague indications of various neuro- and psychopathies. Her husband, who in life was a man of vigorous health, had been dead for many years, and she had borne five children, three of whom were girls. Her daughter, A., born in 1873, did not walk until 5, nor talk until 8. She learned to read and write and sewed as an apprentice to a dressmaker, but without gaining sufficient expertness to obtain a situation as a workwoman. When 20 years and 3 months old she had an attack of epilepsy for the first time, which has been repeated every two or three months since. Each attack is followed by stupor, then by delirium lasting many hours or days. For the last year she has had paralysis of the tongue and all the limbs, which is constantly progressing. Her mental state is also constantly deteriorating and rapidly tends toward dementia. Her sister C., born in 1874, was always sickly and feeble. Otitis media caused a slight deafness; character diffident and undisciplined. She witnessed the attacks of her sister which impressed her profoundly. In March, 1895, at exactly the same age, 20 years and 3 months, she had an epileptiform attack, which has been repeated several times since; and always with phenomena which enable us to exclude true epilepsy. A brother, born in 1871, having witnessed one of the epileptiform attacks of C. in his turn had precisely similar attacks. One daughter and a son present no anomalies. This is a case of family contagion. A. alone is a true epileptic; C. had a "suggestion" that she was bound to have the same sickness as her sister and at the same time; and M. by unconscious mimicry, reproduced the accesses of C.¹

The Physics of the Bicycle.—When a wheelman is moving forward on a bicycle, what keeps him up? is a question often asked, as the rider passes swiftly along on a wheel base practically without width. Sitting on a still wheel is an almost impracticable feat; but it is simple enough to maintain an upright position when moving at a very slow speed. It is a physical fact that a body in motion persists in maintaining its plane of motion, and unless some additional force acts on the body at an angle to the original line of motion, it will continue to move in its original plane until stopped by friction or arrested by an obstruction. A body set in motion tends to move in a straight line, and will do so unless affected by a force acting on it in a different direction from that of the first movement. A wheelman is propelled through space at a velocity sufficient to cause him to maintain his plane of movement. Should he desire to change this plane of motion, as in describing a curve, he can do it only by calling in the aid of gravity, *i. e.*, he must lean to the concave side of the circle, more or less, according to the radius of the curve he is following. And further, in describing a curve, he is impelled outwardly by centrifugal force, which is more or less, according to his velocity, and he must oppose this force by a centripetal force, which in this case is gravity. This he does also by inclining his body toward the center of curvature of the path he is describing. In this case the wheel sometimes forms a considerable angle with the ground, so that under some conditions it slips from under the rider. The ability of a bicycle and rider in rapid motion to do serious damage in a collision with another machine or with a pedestrian is fully appreciated by few wheelmen. A man weighing 150 pounds and moving at the rate of ten feet per second (which is only about seven miles per hour) has a

momentum of 1,500 pounds, leaving out of the account the weight of the wheel. This is sufficient to upset any pedestrian with terrific force. A collision between two wheels, each with a 150 pound rider, spinning at the moderate speed of seven miles per hour, would result in a smashup with a force of 3,000 pounds. In view of these facts, it is no wonder that bicycle accidents are often very serious. The tractive force required to propel a bicycle over a smooth level surface is estimated at 0.01 of the load; calling the load 150 pounds, a force of one and one-half pounds would be required to move the wheel forward, and this calls for a pressure on the pedals of six and three-fourths pounds on a wheel geared in the usual manner. When, however, the road is rough or on an up grade, the case is different. On a grade of 1 in 10, for example, the rider, in addition to the tractive force, actually lifts one-tenth of his weight and that of the machine. With a rigid or semi-rigid tire the rider is obliged to exert sufficient force to lift himself over every obstruction encountered by the wheel; the descent from the obstruction gives back a portion of the power expended in surmounting it, but not all of it. In the case of the pneumatic tire, however, the small obstructions are not an opposing element of any consequence, as the tire yields in lieu of the wheel being raised, and the result is the wheel travels as upon a smooth track.—*Scientific American*.

A Brilliant Scheme.—A physician recently answered an advertisement for a partner and received the following circular. The person is not a member of the Association as he claims, and is not on the JOURNAL list, either as member or subscriber. His advertisement was presented to the clerk, who referring to the medical directory, noted that Dr. Henderson was alleged to be a member of the Association and therefore presumably in good standing—in this the directory was wrong. As the JOURNAL has no desire to further the interests of any scheme of this stripe, we turn on the light by printing the document.

This is the advertisement:

PARTNER WANTED.

Thoroughly competent physician, honest, honorable, to take charge of my city office practice and correspondence. A rare chance to right physician, and a fortune to one who perseveres. Address,

Dr. H., 54 Adams St., Suite 81, Chicago.

This is the reply sent to a physician who answered the advertisement:

"Illinois State Institute of Physicians and Surgeons; devoted to the treatment of Chronic Diseases, Deformities and Surgical Operations. Conducted by a full staff of specialists. Ample facilities for room and board. Office and laboratory, 82 and 84 Adams Street.

CHICAGO, August 13, 1895.

"Dr. _____.

"Dear Doctor:—Your letter of recent date has been received in reply to my advertisement for a partner. I am desirous of obtaining a partner to take charge of my city practice, which is almost entirely office work, and of my country correspondence. It is difficult to give you a correct idea in the short space of a letter of all the advantages which are to be had with taking charge of my office. You will observe in the above heading that I am doing institute work which is all outside of the city and is very remunerative, the gross receipts therefrom being about \$12,000 last year. The office work is of course from influence within the city and which I can bring to any one who takes the office here. Owing to sickness and three deaths in our immediate family, I have been unable to get out of the city to do any advertising since January of this year, but the receipts from that part have kept up remarkably well. The receipts in city practice are excellent, considering the time of year when there is so little sickness and so many patrons out of town, the receipts of the past month (July) being \$65. My object in taking a partner is that I may devote all my time to the road work. I will expect the partner to pay \$500 in cash, and in return he will own all the fixtures and stock of medicines that the office contains, and will be entitled to all the receipts of the office that come from within the city. I will then travel and give him half the receipts of the country work for putting up the medicines and doing the correspondence. The actual value of the office is about \$800, so you see I do not ask any bonus or pay for goodwill or even full pay for the actual value of the outfit. To do the work in the office requires just such an outfit as I have here and

¹ Le Bulletin Medical, July 24, 1895.

were we to begin new it would require more capital than this to start. The office expenses, including the telephone, are \$27.50 a month. Each box of medicine sent to a patient for one month's treatment averages about forty cents and I get from four to fifteen dollars for it, so you can see the profit. This is the best part of the year for the country work, from September 1 to January 1, and I am satisfied we can clear \$800 per month each. The amount you get out of the office work will more than pay your expenses of living, etc., so you will have all the receipts of the road work clear. I have been doing this country work about half of my time the past five years and am a member of the AMERICAN MEDICAL ASSOCIATION, so you see it is all right and legitimate. As an act of justice to my large patronage in the city, and to the large list of patients I am now treating in the country, I am anxious to get a competent man in here. Hoping to hear from you at your earliest convenience, and with best wishes, I am

Fraternally yours,
J. P. HENDERSON, M.D."

Hospital Notes.

THE addition to St. Mary's Hospital at St. Louis, Mo., is nearing completion and a portion of the rooms are now in use. The addition is three stories high with a frontage of 100 feet, and will be devoted mainly to wards, operating rooms and a laboratory. It is expected that the entire structure will be ready for occupancy on September 15. Plans and specifications for the addition to St. Joseph's Hospital at St. Paul, Minn., have been filed with the building inspector of that city. The building will be 135x54 feet in dimensions, four stories high, with basement and attic. It will be constructed of brick with stone trimmings, with steel roof and fire-proof walls. Articles of incorporation of the St. Alexis Hospital Association of Cleveland, Ohio, were filed August 21. The institution is incorporated to furnish hospital care to all persons, regardless of race, color, creed, or other condition. The monthly report of the Cleveland State Hospital shows that there were in the hospital on July 15, 996 inmates; that 25 were admitted during the month, and 29 discharged, leaving 992 persons remaining. The convict prison hospital of the Tennessee Coal, Iron & Railway Company at Pratt Mines, Ala., where State convicts are worked in the coal mines, was burned to the ground August 28. The fire originated from a defective flue and the flames spread so rapidly that the twenty-five inmates were rescued with difficulty. The laboratory and surgical instruments were a total loss. The new hospital for contagious diseases at Boston, Mass., will be ready for occupancy September 1. The cost of the building was nearly \$500,000.

Louisville Notes.

G. A. R.—Elaborate preparations are being made by the local profession for the care of the sick during the encampment. The following are the officers: Medical Director, W. P. White; Secretary, Henry E. Tuley; Assistant Secretaries, T. S. Bullock and C. T. Pope; Chief Surgeon, T. P. Satterwhite; Chief of Ambulance Corps, Samuel H. Garvin; Assistant, L. D. Kastenbine; Chairman of Ladies' Medical Department, Dr. Julia Ingram; Secretary, Anna Lawrence. The following are the chiefs of the ambulance corps divisions: Drs. Peter Gunterman, J. M. Krim, I. N. Bloom, J. M. Mathews, Ewing Marshall, George Simpson, W. B. Doherty, H. H. Grant. Dr. Charles P. Cook will be in charge of the ambulance corps from New Albany, and Dr. T. A. Graham from Jeffersonville, Ind. The members of each ambulance corps will be uniformed and mounted. An ambulance fully equipped will follow each division in the parade; in it will be a driver and surgeon, and two stretcher bearers, with two stretchers. Each chief of ambulance will have ten mounted physicians in his corps, who will notify the ambulance when needed. There will be 120 cots at the City Hospital, 20 cots at the Louisville Medical College, 20 cots at the Kentucky School of Medicine Hospital and 15 at the "Homeopathic" Medical College, if needed, and 15 at St. Joseph's Infirmary. These hospitals will be under the charge of Dr. T. P. Satterwhite and a corps of physicians, who will be arranged in relief corps, two on duty at each hospital at all hours during the day of the parade. These hospitals are located at conven-

ient points along the route of the procession, so little time will be consumed in making a trip with sick or injured. On the day of the great barbecue, when it is expected 200,000 will be fed, there will be two hospital tents with physicians in attendance, on the grounds. The admirable arrangements for taking care of the sick during the G. A. R. encampment are due to the Medical Director, Dr. W. P. White.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended August 17, is as follows: number of deaths (still-births not included): white, 79; colored, 56; total, 135. Death rate per 1,000 per annum, white, 22.38; colored, 33.47; total, 25.95.

INSPECTOR OF CONTAGIOUS DISEASES RESIGNS.—Dr. Austin O'Malley, who has had charge of the department of contagious diseases in the health office has resigned and intends discontinuing the practice of medicine. He has accepted a position as professor of English literature in Notre Dame College, Indiana. The duties of Dr. O'Malley in the past will be divided. One physician will have charge of the inspection of cases of contagious disease, while another will be appointed bacteriologist. An excellent laboratory will be provided in the health office.

MRS. ANNA WOLCOTT'S CHARITY.—The will of the late Mrs. Anna Wolcott, which was filed for probate on the 21st inst., directs that her entire estate be turned over to Benjamin P. Snyder and Mahlon Ashford in trust. They are to invest \$41,000, and from the income shall use \$25 per annum in keeping in order the burial lot of the deceased at Oak Hill Cemetery, and with the balance establish and maintain in the Washington Home for Incurables, in memory of the daughter of Mrs. Wolcott, a ward, to be called the "Lillie Wolcott Ward," for the treatment in the best manner and free of charge of children afflicted with curvature of the spine and kindred diseases. Should the Home for Incurables decline the bequest for the purpose specifically designated, it is provided that the trustees shall select some other hospital in Washington, Baltimore or New York city for the purpose described.

THE PUBLIC SERVICES.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 21, 1895.

August 17, Surgeon S. H. DICKSON, detached from the Medical Examining Board to temporary duty in Bureau of Medicine and Surgery. P. A. Surgeon H. T. PERCY, detached from the Washington Navy Yard to duty as member of Medical Examining Board, Washington. Assistant Surgeon C. P. BAGG, detached from the "Monterey" and granted two months' leave. Assistant Surgeon H. D. WILSON, on arrival of "Monongahela" at Annapolis, detached from that vessel and ordered to temporary duty at the Washington Navy Yard.

LETTERS RECEIVED.

Alleger, W. W., Washington, D. C.; Anderson, R. B., Seguin, Texas; Alta Pharmacal Co., St. Louis, Mo.; Alma Sanitarium Co., Alma, Mich.; Ammonol Chem. Co., New York, N. Y.; Blithinger, W. M., Grady, Ark.; Belt, R. C., Milford, Ohio; Curtin, W. A., Syracuse, N. Y.; Clark, M. S., Youngstown, Ohio; Cunningham, M. E., Garnett, Kan.; Codman, E. B., Fulton, Mich.; Clark, M. C. & Sons, New York, N. Y.; Carrow, F., Ann Arbor, Mich.; Drevet Mfg. Co., New York, N. Y.; Engelman, G. J., Chocoma, N. H.; Fletcher, W. W., Susquehanna, Pa.; Greenley, T. B., Meadow Lawn, Ky.; Hicks-Judd Co., San Francisco, Cal.; Hunn, Henry, Albany, N. Y.; Hummel, A. L., Philadelphia, Pa.; A. L. Hummel, New York, N. Y.; Imperial Granum Co., New Haven, Conn.; Johnson, H. L. E., Washington, D. C.; Johnson & Johnson, New Brunswick, N. J.; King, W. D., Chicago, Ill.; Kelly, Howard A., Baltimore, Md.; Lewis, P. C. Mfg. Co., Catskill, N. Y.; Lenhart, W. C., Columbus, Ohio; Lentz, Chas. & Sons, Philadelphia, Pa.; Mowery, H. W., Marietta, Pa.; Mavity, D. E., Towler, Ind.; Milliken, Jno. T., St. Louis, Mo.; Norris, M. D., Catonsville, Md.; Pollock, R. M., Princeton, Ill.; Parke, Davis & Co., Detroit, Mich.; Polk, R. L. & Co., Chicago, Ill.; Papold Co., New York, N. Y.; Pepper, Wm., Philadelphia, Pa.; Ridlon, John, Chicago, Ill.; Regensburger, Alfred E., San Francisco, Cal.; Rohé, Geo. H., Baltimore, Md.; Stewart, F. E., Detroit, Mich.; Scott, X. C., Cleveland, Ohio; Sterne, A. E., Indianapolis, Ind.; Scribners, Chas. Sons, New York, N. Y.; Schimmel, M. S., Baltimore, Md.; Vansant, E. L., Philadelphia, Pa.; Woodbury, Frank, Glen Summit, Pa.; Woods, G. B., West Alexander, Pa.; Warner, W. R. & Co., New York, N. Y.; Wesener, Jno. A., Chicago, Ill.; Wiley, Z. K., Baltimore, Md.; Wegge, W. F., Oshkosh, Wis.; Würdemann, H. V., Milwaukee, Wis.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, SEPTEMBER 7, 1895.

No. 10.

ADDRESS.

OUR PRESENT KNOWLEDGE OF TUMORS AND CANCERS.

Read before the Mississippi Valley Medical Association, Sept. 3, 1895.

BY THEODORE A. MCGRAW, M.D.

DETROIT, MICH.

It is natural in selecting a subject for an address on an occasion like this to choose those achievements in surgery which have made the glory of this generation. The rehearsal of triumphs is a most pleasant theme for both orator and hearers, and I have been tempted to indulge in that mutual congratulation which is not out of place when a great profession is called together to debate matters of common interest. It has been with a good deal of self-denial and some misgivings that I have turned from these pleasanter matters to ask you to join me in an attempt to review the darkest and most difficult field of surgery, in order, if possible, to gain some clear ideas as to the present state of our knowledge of the pathology of tumors and cancers. In this department of medicine, we may indeed claim some advances in exact knowledge made during the last three decades, but we can not pretend to any such triumphs as have in the same period revolutionized the methods of operative surgery.

If we compare the ideas that prevailed relative to these diseases, thirty years ago, with those which the profession hold to-day, we find a change which is marked rather by a clearer view of the nature of the problem than by any actual gain in its solution. Before Virchow, the subject of tumors and cancers was wrapped in the greatest confusion. It was not only that pathologists had not learned to distinguish accurately between neoplasms and the many false tumors which stimulate them, a kind of diagnosis indeed which is still very defective, but chiefly because at that time there were no clear conceptions of those cellular relations which to-day are regarded as fundamental in all pathology. Tumors were divided and classified in that era according to their clinical histories. They were divided into the innocent, which were looked upon as purely local, and the malignant, which were regarded as due to dyscrasia, the seat of which was in the blood. The latter were looked upon by many as parasitic, and surgeons who dabbled with the microscope were sure that they recognized peculiar cells which differed from all others, and indicated the cancerous nature of the disorder.

Under the influence of the new cellular pathology the faith in so-called dyscrasia was abandoned and supplanted by a new doctrine, which taught that tumors and cancers resulted ever and always from aberrations in cellular nutrition, development and growth. For three decades pathologists have sought

the explanation of the mystery of morbid growth in histologic studies. It may be truly said that during this time the energies of the profession, as far as tumors are concerned, have been confined almost solely to this channel. Clinical observation and chemic analysis had failed alike in throwing light upon this most vexed problem, and the profession turned with enthusiastic hope to the study of the morphology of the cellular elements of the body, as a new field in which they could work without despair. There can be no doubt of the gain which has accrued from these labors; clearer ideas have been acquired of cellular relations and even incidentally, of cellular pathology. Systems of classification have been founded for the study of tumors which if not altogether satisfactory have, nevertheless, some warrant in science. The important rôle played by the embryonic processes of development in the causation of certain morbid growths has been established, and the educated physician of to-day could not possibly fall into some of the gross errors which were common thirty years ago, but after all, our progress, great as it has been in some respects, has been thus far disappointing, that it has not brought us to our goal. We have been like those early wanderers in Florida, who sought for the magic fountains; they found innumerable tribes of Indians, they crossed many great rivers, they learned more of the new world, than they had ever dreamed of, but the magic waters continually eluded them. So we have learned much of cell life and have wondered more and more at the living tissue, but know hardly more of the causes which underlie the growth of a neoplasm than the surgeon who lived a hundred years ago. It is interesting as well as wonderful to note how after thirty years of cellular study, many in the profession are reverting to the old theory of parasitism, by which since the world began, men have tried to account for malignant diseases. In fact, notwithstanding the ingenious systems of classification now in vogue, it is to-day as difficult to define exactly the word tumor, as it was when Virchow wrote his great book. All sorts of enlargements at that time were huddled together in the same category. Hematocèles, dropsies, inflammations, aneurysms and varicocèles, retention cysts, the distended bladder and even the pregnant uterus were all spoken of in the same chapter with the neoplasm, as tumors. Now, while to-day, more judgment is used in this respect, we nevertheless find even in our newest text-books the true tumors discussed in connection with purely accidental swellings. It does not help us much, to recognize the fact that the difficulties in classification are inherent and insurmountable with our present knowledge of pathologic processes.

In the term, cancers and tumors, we group together certain diseases in common that distinguish them from all other maladies, but when we come to

ask ourselves what these common traits are, and try to define them, we become at once perplexed. The reason of this is that, in studying the subject closely, we find a multitude of growths which occupy that doubtful zone which lies between the neoplasm on the one hand, and the accidental and inflammatory enlargements on the other. We find swellings which seem in part accidental, and yet which belong clinically to the new growths. I became first fully aware of this when I tried for purposes of classification to divide all morbid enlargements into two classes: 1, the neoplasms proper, or true tumors; and 2, those swellings which imitate them, but are purely accidental or inflammatory, the false tumors. I had wished in this way to simplify the subject, but when I began to classify tumors and to determine which properly belonged to the neoplasms and which to the false tumors, I became involved in difficulties. There are, in the first place, many growths of inflammatory origin which eventually develop into undoubted neoplasms, and it is impossible to draw a line and say, Now, this is an inflammation and this is a tumor. A wound will heal badly and there will be left a large, thick, ungainly scar which in its structure resembles closely the keloid growths which spring from scars and are regarded as true tumors. Are we to look upon every permanent thickening of a scar as a neoplasm?

The retention cysts are usually regarded as accidental formations, due either to closure of a duct or to a thickening of secretion. They sometimes result directly from injury, and yet there are retention cysts or cysts which can not be distinguished from them, which occur under circumstances which make us conclude that they are true neoplasms. It is, however, especially with those tumors which spring from irregularities in embryonic development that we are puzzled in classification. There are cysts under the tongue which are due to an imperfect closure of the thyro-glossal duct. The duct becomes obliterated at both ends, but leaves a cavity in the middle lined with secreting cells, and as a result there is a cyst. Here, then, is no new growth whatever, only a defect in coalescence, and if the defect is still greater and the duct remains open at the outer end, there is no tumor at all, but only a fistula.

A dermoid cyst is caused by the infolding of the epiblast, which become displaced and shut in among the connective tissues. The cells thus sequestered continue to develop and there results an epidermal cyst, universally reckoned among the neoplasms, but a post anal dimple is formed in precisely the same way, except that the burial is not quite so complete and yet no one thinks of calling such a recess a tumor.

If we are to class those growths which arise from superfluous and aberrant embryonic germs with the neoplasms, how can we leave out of the category those extra fingers and toes which often hang from the side of the hand or foot by a mere thread of tissue. We may say of an extra toe, when it is in its proper place on the foot and endowed with tendons, nerves and all of the apparatus for motion, that although unusual it is nevertheless not abnormal. But the extra toe that grows from the skin on the side of the foot is, in its origin and growth, just as much of a tumor as the sequestered piece of epidermis that we call a dermoid and yet no one thinks of calling it a neoplasm.

It is practically impossible to sharply define pro-

cesses which are in their nature transitional, and the utmost which can be done as yet in the way of classification is to establish certain broad distinctions which may act as landmarks by which we mark the passage of nutritive operations from the normal to those essentially abnormal conditions such as we find most pronounced in the typical neoplasm. It is a gain, nevertheless, to know that the transition is gradual and that the healthy structure is not sharply defined from that which is morbid.

There is no theory which has yet been framed which satisfactorily accounts for the phenomena exhibited by morbid growths. Virchow's doctrine of the proliferation of the cellular elements under prolonged irritations is too vague to be of practical value. What we need to know and what we have not been able to find out, is the nature of the conditions under which irritation will produce that effect, for we know very well that, as a rule, in healthy individuals, prolonged irritations cause chronic inflammation but not tumors. It may be that there are specific irritations which generate neoplasms or that common irritations acting upon peculiar local or constitutional conditions may produce such results. But of these things we have as yet no exact knowledge whatever.

The most successful attempt to account for the origin of tumors and cancers was that of Cohenheim. Like Virchow, he sought for the causes of their being in local conditions, but referred their origin to anomalies in embryonic development. He supposed that in the differentiation of the ovum and the cells of the embryo there was in many individuals an excess of material over and above the needs of the organism for the formation of the various tissues, and that the superfluous cells remained as living germs undeveloped among the unfolding structures. He further supposed that while they drew their nutriment from the organism, they were not able on account of their lack of development to establish physiologic relations with it, and came to occupy the position of parasites. Living thus in a condition of latency, they were liable to be stimulated into sudden activity by any chance irritation, and would then begin to grow and multiply, but coming belated into active life would not be able to form normal relations with the body and would develop into tumors.

He accounted for the varieties of tumors on the hypothesis that the malignant kinds dated from the very earliest periods of embryonic existence, when the cells had an enormous power of multiplication, and the more innocent, from a later period after the tissues had become more differentiated. The original chapters in which Cohenheim dilated upon his theory are among the most entertaining in all medical literature, and when we consider that his was the first and, even now, the only intelligent theory in explanation of the origin of these peculiar diseases, we can understand the enthusiasm with which it was received by very many physicians. The immediate result of its publication was to stimulate pathologists to investigate their cases with the view of testing its correctness. Evidences were therefore sought for in all tumors, of an embryonic origin, and the search was rewarded in many cases by finding traces of anomalous development.

The dermoid cysts, the enchondromata of the parotid, certain tumors of the kidneys, the adenomata of the axilla, the rhabdomyomata, and many other

neoplasms were connected with the aberration and sequestration of embryonic tissues. It was, however, quite another thing to establish this as a general law for all tumors and, thus far, research in this direction has only established the fact that certain tumors date from intra-uterine life, while others apparently originate in more or less adult structures. In cancers, and sarcomas especially, the proof of an embryonic origin is lacking. The growth of these tumors differs widely in kind from the growth of embryonic cells. The latter are marked by a vigorous multiplication and growth, in which there occurs a constant succession of new forms. The malignant tumor repeats indefinitely the one form of cell with which it started. The cells of the embryonic increase in numbers vigorously at first, then more slowly, and finally cease to multiply. Those of a sarcoma or cancer become more fruitful as the malady continues, until finally they destroy all the tissues around them. The type of embryonic development then is a rapid propagation of new cells, each new brood of which differs from the mother cells, with a continuous loss of generative momentum. The characteristics of malignant growth are a repetition of one cell form with a continuous gain in generative momentum. It is wrong to regard the embryonic faults where they occur as mere accidents. The peculiarities of the phenomena do not admit of so easy an explanation. Behind the fault in development there is some defect in energy or in the mode of its expression, which causes the fault. This theory of Cohenheim's has been variously modified. Grawitz's theory of "*schlummerzellen*" and Bibbert's of cells which have lost their organic connections would never have seen the light had not their authors read Cohenheim. Among the most fanciful of conceptions must be regarded that of Schleich who conceived the idea that tumors arose by a process of morbid cellular conception. He fancied that under the influence of certain irritations a cell became diseased, and that joining with neighboring cellular elements in a sexual union, produced a morbid progeny. The repetition of these processes led to the formation of those great aggregations which we call tumors. Such speculations, founded on no other basis than the imagination of the author, contribute little to our actual knowledge. The revival of the old theory of parasites, in explanation of the malignant growths, is an index of the insufficiency of the theories which have for thirty years past formed the stimulus to research. The belief that cancers owe their being to a parasitic infection is almost as old as human experience. It is a kind of blind faith to which the mind constantly recurs when all other explanations fail. The existence of many false tumors which are caused by parasitic infection, and the evidently infectious course of malignant tumors gives support to the theory that they too owe their origin to the introduction of living cells from without. One can not study the history of actinomycosis, or that of the coccidia of rabbits without feeling struck with the similarity of the phenomena which they present to those of sarcoma and cancer. So, too, the formation of granulation cells under the stimulus of bacteria suggests possibilities, as regards the origin of those forms of sarcoma, which can not be distinguished from granulation tissue. While we have as yet no positive evidence that the enormous cellular proliferation of sarcoma or cancer is due either to bacteria

or to protozoa, there is, nevertheless, nothing in such an hypothesis inherently impossible. The burden of proof, however, must rest on the advocates of the doctrine, and as yet they have not been able to establish their case. The objects observed in the cells of cancer are of such doubtful nature that they have been variously described by different experts as bacilli, protozoa, invaginated epithelium, products of degeneration, leucocytes, etc. No one has as yet succeeded in cultivating the parasite in artificial media, and even the efforts to inoculate it into the healthy animals have been rarely successful. As long as the histologic evidence is so doubtful that every observer feels at liberty to interpret it according to his own prejudices we shall be obliged to defer judgment, or to pronounce it on other grounds. The arguments offered in defense of the parasitic theory of cancer are: 1, the microscopic evidences, the uncertain character of which has just been remarked; 2, the frequent occurrence of auto-inoculation, and the evidently infectious course of the disease in the organism; 3, the endemic occurrence of cancer in certain localities, and in rare instances in the same houses; and, 4, an occasional success in inoculating the disease in healthy animals.

The arguments against it are: 1, the many instances of hereditary tendency; 2, the general failure of experiments of inoculation; 3, the fact that metastases occur, not through the transfer from one point to another of parasitic germs, as is usual in parasitic diseases, but by the transmigration of cells bearing the same characters as the cells of the original tumor, and the subsequent proliferation of the migrating cells; 4, the fact that not only cancers but tumors of all kinds have a more or less tendency to produce metastases; and, 5, the tendency exhibited by embryonic remains and histoid tumors to develop into malignant disease.

It is difficult to understand why, if cancers and sarcoma are parasitic, surgeons who operate often with cut fingers, and nurses who take charge of cancerous sores, never become infected unless, indeed, as has been suggested, the cancer germs have to undergo some transformations out of the body before they can reproduce the disease.

It is very possible that among the sarcomata some may be found arising from this cause, but even though this may be so, we would be as much as ever in the dark as to the causality of those other remaining tumors which could not be explained on that basis. The understanding of actinomycosis has not advanced our knowledge of true tumors, neither would the discovery of other false tumors now reckoned among the neoplasms. Among the influences which predispose to or against the growth of cancers and tumors, race must be considered the most efficient. Detroit has a pretty large colored population, and there is a thick settlement of negroes on the opposite shore in Canada. Detroit physicians, therefore, see a variety of morbid conditions in that race. I think it is the common belief among them that malignant tumors in negroes are very rare. I have seen a great many fibroids and fatty tumors, but never yet a cancer or sarcoma in a pure negro. I believe that the experience of Southern physicians will corroborate my own in this particular. Dr. R. Williams states, on what authority I do not know, that while in 100,000 whites there are 27.96 cases of cancer, there are in the same number of blacks only

12.17. I have reason also to believe that tumors of any kind are rare among the Indians. Some years ago I sent a printed circular to the medical men employed at the various Indian agencies in the West, asking for information on that point. The answers that I received were not sufficiently exact and trustworthy to warrant publication, but I gathered from them the information which I have stated. It would be an exceedingly valuable addition to our knowledge if we could secure exact data as to the prevalence of these diseases in various races all over the world. It would be a proper undertaking for the government, but much could be done in that way by international medical associations. As far as appears from the meager evidence on this point, the white and yellow races seem to be most afflicted with malignant disorders, and the black and red races most exempt.

After race, locality would seem to be most important. Certain districts in England and some in this country yield an extraordinary number of cases of cancer, while other places are comparatively immune. Whether this indicates a possible infectious influence in certain soils, or an hereditary tendency to the disease in certain families, is an important question. The facts in regard to the relative frequency of malignant disease in various places are as yet too meager to afford data for argument. The question of heredity, too, has never as yet received that intelligent investigation which can be accomplished only by large numbers of physicians acting in concert. It must be remembered in estimating hereditary influences that every human being represents an immense number of ancestors, and that few of us can go back two or three generations without finding in the direct or collateral lines examples of almost every variety of disease, common to the country and climate.

Let us suppose that a man who died of cancer had thirty grandchildren, and that one of these became cancerous while the other twenty-nine remained immune, how should we reckon the hereditary influence? There are cases undoubtedly in which the cancerous tendency is so marked in certain families as to be unmistakable. There is a form of heredity in cancers and tumors which has been too little studied, and which has an even more important bearing on the question of the essential nature of cancer than the heredity of cancer itself, and that is an heredity marked by an alternation of histoid or other comparatively innocent tumors with cancer or sarcoma.

We might explain the heredity of cancer as we do that of tuberculosis, as merely an hereditary weakness which made the organism liable to parasitic invasion, but if we can establish the fact that the hereditary influence in a given family is not limited to the growth of malignant tumors alone, but exhibits itself in the production of a variety of dissimilar growths, we shall have done much to disprove the whole theory of parasitism. There occurred in my own practice once, some cases illustrating forcibly this tendency. Mr. X. had numerous atheromatous cysts on the scalp which, however, gave him little trouble. He died from other causes. He had two daughters. His oldest died of cancer of the breast. His youngest daughter had numerous cystic tumors on the body. In 1863 she had a large cyst removed from the shoulder, and one shortly after from the thigh, in 1871 one from the head, in 1873 one from the abdomen, and one from under the chin, and in

1875 came to me on account of an ulcerated cyst in the small of the back. I removed this and examined it closely. It had every characteristic of an atheromatous cyst and nothing more. During her convalescence she had an attack of erysipelas, during which I discovered on one shoulder a small sebaceous cyst which had been overlooked. The result of the erysipelas was to cause suppuration in this cyst and the discharge of the usual contents of such formations. She recovered and has been since then, as far as I know, well.

The daughter of the first child of Mr. X. had atheromatous cysts of the scalp. The second child had four children of whom the oldest, a son, had cysts on the head and shoulder.

Her second child was exempt. The third child, a daughter, had cysts on the scalp. The fourth child, a daughter, the wife of a physician, was attacked by a sarcoma of the breast while nursing her only child. I amputated the breast, but she had an immediate and general recurrence and died. Here then were seven persons in three generations affected with tumors. In five, the tumors had the characteristics of ordinary atheromatous and sebaceous cysts. In two, there were malignant tumors causing death. It is impossible to explain such a history on the theory of parasitism. The influence of age and sex, the greater tendency of these diseases to certain parts of the body, and the effect of injuries as predisposing causes, are all too well understood to warrant me in detaining you for their discussion.

In considering the forces which further or retard the growth of neoplasms, we have to take in those dark and hidden influences which our ancestors used to call constitutional. With the advent of cellular pathology, this word has become "taboo" with the pathologists of to-day who boast of their efforts, sometimes crowned with success, to trace all morbid action to local forces. To ascribe maladies to constitutional causes is, in their estimation a confession of ignorance, best to be avoided. In order, however, to explain the immunity of some people to these disorders, as well as the long periods of latency which often exist even with malignant tumors before they manifest their full capacity for growth and infection, it has been necessary to assume the existence of some protective force residing somewhere within the organism. In conformity with the prevailing tendencies, this force has been imagined as inherent in the various tissues of the body, rather than in the body as a whole. Thiersch's theory, adopted and amplified by Cohenheim, assigns to every structure a certain capacity of self-preservation by virtue of which it is enabled to hold its proper place among the tissues and to resist any encroachment of other cells or membranes upon its territory. By virtue of this local force, granulations which fill an open wound to the surface are then inhibited from further growth by the epidermis, which begins, so to speak, to assert its rights and grow over the granulations, as a covering. This local influence, too, holds the adherent embryonic germs in check, and prevents their development until some chance inflammation or injury deprives the tissues of their self-preserving power. Two coinciding conditions are, therefore, held by Cohenheim to be necessary to the development of any tumor, the first of which is the existence among the normal structures of some belated germs, and the second of which is the loss of resisting power on the

part of the surrounding structures. The effect of an injury in producing a neoplasm is supposed to be twofold. It at the same time weakens the normal membranes and stimulates into activity the parasitic cells. All the influences which concern the formation of tumors, whether to favor or hinder their growth, are imagined to be purely local in character. It is a great question whether the facts of pathology justify the total abandonment of the conception of a constitutional something by which the power of an organism to resist injury is determined. The old doctrines of primary humoral dyscrasia are untenable, and we have no plausible hypothesis, as yet, on which we may satisfactorily explain all the phenomena, but we may recognize the existence of things which we can not explain. The constitutional tendencies of individuals to certain maladies, and the immunity enjoyed by other individuals are facts which have to be acknowledged.

A person suffering from cancer is exceedingly liable to auto-inoculation by cancerous material which can not be inoculated into another individual. Surgeons are continually working in that material, often with cut fingers, and yet never infected, although it is a prevailing belief among practical surgeons that recurrence in the patient often takes place from an auto-inoculation during the operation. As such patients may be inoculated on any part of the body, and as all tissues become alike infected, it is impossible to avoid the conclusion that the cancer is after all only the local expression of a general tendency. It is not difficult to imagine that an organism developing from a common center, should in all parts exhibit traits peculiar to itself. All of its component cells, descended from a common matrix, would have nearly the same tendencies and would on occasion tend to show the same strength and the same weakness. While it is not possible for us in any given case to demonstrate in what the constitutional peculiarities of such an organism consist, we must, nevertheless, admit that they exist and make the individual what he is, different from all other individuals, even of his own family. The doctrine that the resisting power inherent in a healthy organism is simply a local force resident in the tissue has never seemed to me to be tenable. When we consider the human body composed as it is of an infinite multitude of cellular elements, each of which may on occasion live an independent life, when we note the perfect coördination with which they perform their functions and with which they multiply and grow with sole reference to the good of the organism, we are struck with wonder and admiration at the perfection of the mechanism. It is inconceivable that such complicated processes are carried on without regulation by some governing center. To insure the perfect nutrition of the body, control must be constantly exercised not only over cell functions, but also over cell generation and multiplication, and though we may conceive this control to be rendered easy by the automatic reactions of the cells to stimulus, we may hardly imagine it as a merely local function. There is no fact more positively certain than that this power of control is exercised in the healthy body with an iron consequence. We see evidence of it in all the processes of nutrition and growth. We see it in the repair of injuries, in which the growth of granulation tissue is permitted to reach the proper level, and then inhibited from further increase, and in which the epidermal cells

remain in quiescence until the granulations are prepared for their protective covering, and then grow like a mantle over them. It may be noted in the destruction of all useless tissues. It is a law of the healthy body that all structures which have become worthless for its purpose shall be made to degenerate and disappear. The alveolar process when deprived of its teeth, the synovial membrane, when the joint is kept too long at rest, the muscles of the amputated limb, the generative organs after the change of life, all tend to atrophy or to undergo fatty degeneration. The law which makes existence in the organism depend upon the constant exercise of function is so rigid that a man can not stop the working of any organ without injuring it. If he ceases to think vigorously, his brain grows less, and if he ceases to exercise his muscles they grow weak.

On the other hand, in response to the demands of the organism, organs will increase in size and vigor, just as the one kidney becomes hypertrophied if its neighbor becomes incapacitated.

While the fact of the control on the part of the healthy organism of its component parts is then beyond question, while indeed its very existence as an organism depends upon that control, we are as yet in the dark as to where the controlling force resides and as to how it is exercised. There are some facts which indicate that it may be located in the central nervous system. We may infer this from the disorganization which is apt to follow upon disease of the spinal cord. No one who has seen the diseased joints of locomotor ataxia, the muscular wasting of poliomyelitis, or progressive muscular atrophy, or the sloughing bed-sores which follow upon injuries of the spine, can refuse to recognize the effect of the disorganization of the spinal center upon the nutrition of the body. It is, however, not only in the disorganization which ensues upon the destruction of the spinal cord that we may note this influence, but in an actual growth of tissue which follows upon certain disorders of the nervous centers. Of late, some observations have been made in that peculiar condition called acromegaly which indicates that it is caused by disease of the pituitary body. Acromegaly manifests itself in an abnormal growth of one side of the face, or jaw, or of the hands, or feet, or other parts of the body, and may occur in connection with gigantism. Now, in several cases of this disorder, the pituitary body has been found to be enlarged and apparently diseased.

In pseudo-hypertrophic paralysis and in Graves' disease, there is reason to believe that the abnormal growth of connective tissue in the one malady, and of thyro-glandular tissue in the other are directly due to nervous disturbance. The theory that tumors originated from some trouble of the nervous system is not new.

Virchow quotes Schroeder Vanderkalk, as advocating the doctrine that neoplasms owed their origin to a disease or injury of the central nervous system and the loss thereby of that governing force which regulates cell growth and reproduction, but himself rejects the theory on the ground that paralyzed animals are not especially given to the production of tumors.

This conclusion does not seem to be altogether justified, for while paralytic conditions are more or less apt to lead to disorganization and atrophy rather than growth of tissue, it is not impossible that cell

nutrition and reproduction may be, like some functions of the body, regulated by centers of two ganglia, one of which would stimulate and the other inhibit all proliferation. In that case it may be easily possible that an injury which would totally destroy the spinal cord or cut off all communication with it, would result in disintegration, while one confined to the inhibiting centers might become manifest by a growth of new tissue.

The disorderly growth in acromegaly, marked in many instances by an enlargement of the pituitary body is supposed to depend, not upon the paralysis, but on the over-stimulation of a nervous center. Whatever weight may be eventually accorded to Vanderkalk's theory, it would seem to be a lead worth following. For that which distinguishes the neoplasm from all other morbid enlargements is the fact that the cells which compose it have, in some way, succeeded in escaping control, and in proliferating without regard to the necessities of the organism. This characteristic of a persistent growth of useless tissue and reckless, uncontrollable reproduction is our only criterion of a true tumor. Lücke's definition of a neoplasm "that it is a mass of growing tissue which has no physiologic connection with the organism," does not seem to me to express the whole truth. I should define it rather as a mass of growing cells over whose nutrition and growth the organism had lost control. For this seems to me to be the one essential factor in the growth of any neoplasm.

When one considers the absolute necessity imposed upon a complicated organism, made up of a multitude of semi-independent cells, of holding these, so to speak, in discipline, and obliging them to conform in all their activities to organic law, it becomes apparent that the power of control is that which is most essential to its healthy existence. The loss of that power over any of its parts means something more than a merely local defect or local disease. The commonest fatty tumor has, therefore, in its very existence something portentous. It does not mean merely that a few fat cells have been stimulated to needlessly multiply, but it signifies also that in that organism there is some defect in the mechanism of control. It may mean too that there exists a liability to the development sooner or later of more formidable growths.

For these reasons, I can not but dissent from the prevailing doctrines which ignore all other causes in the production of tumors than those of local significance. There is a tendency in modern pathology to exaggerate the significance of local conditions and operations, and, in the study of cancer, this may be remarked in the undue importance attributed in its causation to local irritations. If we examine, for example, the list for alleged causes of cancer of the lower lip, and for the immunity of the upper we shall find that they will not bear criticism. Tillmann lays great stress on the use of tobacco and brandy, but Bardelsen tells us that the inhabitants of the coast of Pomerania who do not smoke, but who chew tobacco, have frequently cancers of the lip but few of the mouth or fauces. Surely if tobacco causes the disease the reverse ought to be true. All the world uses tobacco and brandy and no persons more so than certain inhabitants of the tropics and yet cancer is said to be rare in the tropics. Thiersch ascribes its prevalence among the peasants to the injuries inflicted on the lower lip by the weekly use of a dull razor but

it is frequent, as I can testify, among a class of American farmers who never shave and some of whom use neither brandy nor tobacco.

It is difficult, too, to understand why exposure to the weather, another alleged cause of labial cancer, should not affect the upper as well as the lower lip.

So, too, as regards the occurrence of cancer at the cardiac and pyloric orifices of the stomach and the comparative immunity of the rest of the organ, we read that the greater liability of the cardia and pylorus to insults and injuries is the cause of their greater susceptibility to the disorder—but here arises the question of fact. Are those places more subject to repeated irritations than the mucous membranes of the interior of the stomach? When food passes through those orifices there may be a momentary friction, but is that more irritating than the long presence of great masses of undigestible food, or acid fluids, some of which are absorbed directly through its walls?

It is a notorious fact that the mucous membrane of the stomach is especially exposed to the greatest variety of chemical and mechanical insults and that inflammation is a frequently recurring result of such injuries.

I do not think that any unprejudiced man, examining the facts impartially, would affirm that the extremities of the organ suffered more in this respect than its interior. If repeated cellular irritations cause cancer, how is it that the liver is so rarely affected with the primary disease? It is peculiarly exposed to injury by the frequent passage through its vessels of alcoholic and other irritants, which frequently cause destructive chronic inflammations. As the liver is especially prone to the secondary manifestations of the disease, it can not be said that its comparative immunity from the primary is due to any peculiar power of local resistance. If we wish to get at the truth of the etiology of cancer and tumors it will not do to accept statements with so little criticism.

We have not yet collected the data on which we can found a rational judgment as to the origin of cancer. We do not know, for instance, the relative frequency of the disease among the people who do not use tobacco, or who do and do not shave. That local irritations may excite the growth of neoplasms in some subjects and in some tissues is beyond all question, but this irritation can be but one factor in what is a complicated chain of morbid activities. Whether we can consider the beginning of trouble, with Schroeder Vanderkalk, to lie in a morbid change in some nervous center, or whether we rest content in our present ignorance, to ascribe it to some vague constitutional defect, we must, nevertheless, recognize behind the neoplasm, an impairment of that controlling mechanism, without which no complicated organism can exist. It does not militate against its existence that we are unable to define and locate it. Now if we apply this principle to those tumors which result from anomalies in embryonic development, we shall interpret the phenomena far otherwise than was done by Cohenheim.

To Cohenheim, the occurrence of useless aberrant germs was something merely accidental. While the excess of germinal matter itself was regarded as something fortuitous, its persistence was considered as a matter of course. It did not seem to occur to that investigator there might be in every embryo a

larger supply of germinal matter than is actually needed for the development of the various organs and tissues, and yet there are reasons which I shall not discuss here for believing that that is the case.

Nature is a spendthrift in all that concerns the proliferation of organic bodies. In the development of the embryo there must be a large surplusage of embryonal cells, which have to be disposed of. Whenever embryonal junctions take place, there must be a liability to the infolding and dislocation of germs. When such superfluous and aberrant cells remain undeveloped among the tissues, that which is morbid is not their primary existence, nor their displacement, but their persistence. In the healthy embryo they would be treated like the *débris* of a new building, they would be destroyed and expelled. This disposal of useless material must be a constantly occurring process in every organism which passes through the stages of development in a normal manner. Occasionally an exuberance of growth will be corrected after birth. This may be seen in the frequent disappearance in the early months of life of the milder forms of congenital *nævi*. A child will be born with numerous stains on the skin, caused by a growth of the minute capillaries, and in a few months they will be no longer perceptible. Sometimes even larger *nævi* will thus spontaneously lessen in size, and finally vanish, as if the organism were finally perfecting itself and acquiring a late control over its members.

In some cases, indeed, in which the effort to get rid of useless material has been only partially successful, we may see, nevertheless, that the effort has been made. If a supernumerary finger or toe is so located among the digits as to be a useful member, nature is content to leave it undisturbed, but when it grows from the side of the hand or foot, where it is only an inconvenience, she will apparently try to cut it off. Such growths are often formed to hang by a mere thread of tissue, although otherwise quite well developed. We may believe that in many cases the amputation thus begun may have succeeded, and the useless member thus disposed of. The survival then of embryonal remains must indicate something more than an accidental excess of tissue. It means that there exists a congenital defect in the mechanism of control, which if not corrected may lead to danger. Experience shows, indeed, that such imperfect structures are exceedingly liable to malignant degenerations.

In speaking of the loss of control as a defect, it must not be understood that it is always congenital, or always permanent or progressive. We may believe that while certain individuals are born defective in this particular, others become so by the wear and tear of time, and even that, in some cases, the power may be regained by a return of the individual to a state of health. We can imagine that in some cases the loss of power might result from organic change, while in others it would be a mere functional disturbance. We may also suppose that even though the controlling power is weak, it would suffice to maintain order until the occurrence of prolonged local irritations would excite a cellular rebellion, and that a neoplasm once formed would tend to increase the disorder. The extirpation of the tumor and of the disturbed area would in many cases cure the malady, temporarily, at least, by removing an element of contagion, as well as of irritation.

The knowledge that behind the local growth there was a constitutional defect should cause no relaxation in our efforts to get rid of a presence, which, either by scattering seed, or possibly by some catalytic influence, would tend to spread the disorder over new areas. The established fact that cancer may be easily inoculated on the individual who has it, though with great difficulty on healthy persons, shows the influence of constitutional conditions on such growths, but the equally established fact that thorough extirpation will often act curatively for many years, proves no less the influence of local conditions and of the contagion exercised by the disease.

The test, then, of a true tumor is that it is a cellular rebellion. All other morbid enlargements are either established in the interests of the organism, to protect it from harm or to repair injuries, like the inflammatory exudate, or are accidental products of disease, or are tumefactions caused by parasites. The inflammation becomes a cancer when the cellular proliferation takes place, no more in the interests of the organism, but as a wild and purposeless growth. It marks the loss of control, which is one of the worst forms of degeneration.

As regards the treatment of these maladies, whatever success has been obtained has been by complete and thorough extirpation. Whatever the character of a tumor, whether fatty, or fibrous, or cancerous, or embryonic, it always has the tendency to an aggressive growth. While extirpation does not cure the underlying defect, it may and often does prevent it from becoming operative. All that we have gained in treatment has been in the way of earlier and more thorough operative procedures. If we compare the practice of to-day relative to cancer of the breast with that of thirty years ago, we may see best the change which has taken place in this respect. The surgeons of the earlier day rarely operated in the early stages of the disease. Only when the infection had become pronounced was the patient brought to the knife. Care was taken in operating to leave sufficient integument to cover the wound, and the axilla was only opened when the glandular infection had become very apparent.

Now, notwithstanding the many sins still committed in this respect, physicians send many cases to the surgeon as soon as their attention is called to the trouble. In all cases the competent surgeon removes the entire breast, following it up in its many ramifications over and between the pectorals, and everywhere far under the integument. He invariably removes all of the axillary glands, all of the infected skin, the pectoral fascia, and often both pectoral muscles. He explores the sub- and supraclavicular spaces, and extirpates any perceptibly swollen glands, and following the practice of Tiffany, when the inner edge of the breast is involved, he resects a couple of ribs, in order to get the infected glands out from under the sternum, and, finally, if the blood vessels and nerves have become so infiltrated as to preclude recovery by any method of lesser gravity, he may proceed to amputate the arm at the shoulder in order to extirpate the affected tissues.

If we seek from the literature to learn the success of these radical operations, we find ourselves at fault on account of the insufficiency of the statistics. It is impossible to judge from the published statements what proportion of cases were operated on in the early and what in the late stages of the disorder, and

yet, this is the most important point of all to be considered. There is little value in figures which say simply that during a given time at a given place so many cases were operated on and so many recovered, for it is evident that such operations as were undertaken after general infection had been accomplished would entirely vitiate the statistics of those cases subjected to operation in the beginning of the disorder. All that we may safely say, as regards this question, is that a considerable minority of the cases operated on early, possibly 20 per cent., have been radically cured.

The important thing for the profession now to consider is the direction in which we may push our investigations to the best advantage. The hopes which were entertained on the first introduction of the cellular pathology of the speedy solution of the problem of morbid growth have not been realized. We have learned to trace certain tumors to embryonic anomalies, we have been treated to a great number of improved theories. We have added an element to our diagnosis of somewhat uncertain value, but the study of histology has not enabled us to know why certain cells rebel against the organism and grow into it as foes and parasites. Neither may we hope ever to gain that insight by purely histologic studies, for the explanation of physiologic and pathologic processes does not inhere in anatomic knowledge. It is a long way from the knowledge of form to that of function. We can not tell why one cell will secrete gastric juice and another mucus, nor can we tell by examining a cell what it will secrete. For this reason, the exclusive devotion to histologic investigations of the last thirty years has failed to bring the required understanding. Even the efforts to classify tumors according to their cellular genesis have been only partially successful. If, however, we could learn to trace every cell in every tumor back to its early progenitors and follow every step in the acts of the genesis, we should indeed know much that we do not now know, but should nevertheless be as much as ever in the dark regarding the causes and essential nature of the pathologic change. It would be as it is now with a superfluous finger. We know that the finger has originated in superfluous aberrant embryonic cells, but why the unnecessary tissues was formed, and why it was not cut off and destroyed, we do not know. We can not too highly estimate the gain to the world from the line of thought initiated by Rudolph Virchow, and from the painstaking work which has been accomplished in the field of minute anatomy during the last three decades, but we should make a great mistake if we neglected those other sources of knowledge which no less require patience and laborious study. The relations of the cell to the organism can never be understood if we confine our attention to the cell alone. We must study also that complex mechanism which out of a multitude of cells makes an organism. The secret of the neoplasm is hidden in the laws of organic control. This most evasive of physiologic laws may never be fully understood, but it at least, calls for an effort at investigation. We need a much more complete knowledge of the functions of nervous centers. The post-mortem examinations of patients dying of tumors or cancers should not be confined to cellular changes exhibited by the growths, but should be extended to the sympathetic ganglia and the central nervous system. Perchance in the spinal cord, pituitary body or some

large mass of ganglionic cells, we may be able to locate the original seat of trouble. If the results of such examinations should prove to be altogether negative, they would still have been of service.

There are many relations of tumors to the organism and to each other which have never yet been ascertained. We have never yet learned in any exact way the relations of the more innocent to the more malignant growths. Whether a man who has a fatty tumor is more liable than another to cancer, whether the persistence of useless embryonic remains indicate a constitutional or local defect, whether the benign tumors occur in a community in the same relative proportion as the malignant growths, and whether they are alternate with one another in cases of proved heredity, these, and a multitude of others are questions to which, with our present knowledge, we can give no satisfactory answer. One difficulty in eliciting satisfactory information is the length of time over which the history of a cancer stretches. One must know the medical records of several generations to be able to correctly judge of a given case.

It is exceedingly important to determine, if possible, the real truth regarding the alleged parasitism of cancer and sarcoma. This ought not to be the most difficult of the difficult problems to be solved in this study. If we ask what the profession can do, that it has not done to make these researches more intelligently and efficiently, the answer would perhaps be this, that while individuals in the profession have made most laborious researches in special directions, there has never yet been that systematic well-directed coöperative investigation of these diseases which promises the best returns.

The men who have chiefly studied these maladies, have been the school men in their hospitals and laboratories. But there is a vast amount of information needed which can never be acquired from such sources. What can the hospital surgeon or the pathologist in his laboratory learn, except at second hand, of the racial peculiarities of these diseases or of the family tendencies, or of the endemic relations of soil and water, or of similar troubles of the lower animals, or of the modes of life of the persons affected. While the hospital and laboratory work will probably always occupy the first place in these researches, there are other lines of investigation which we can not afford to neglect.

The French have recently formed a society called the League against Cancer, whose object is to institute a crusade against the malignant diseases. I am inclined to think that some of the more stolid Anglo-Saxons regard the movement as fantastic, and yet the work which could be accomplished by such an association of enthusiastic observers might be invaluable. Instead of the limited investigations of specialists in narrow fields, there could be instituted a comprehensive scheme of inquiry, by which every possible source of knowledge could be probed to its depths. The etiology of all true tumors and cancers, in their relations to the numerous animal species as well as human races, and as influenced by civilization, habits of life, hereditary, climate, water supplies, and all endemic conditions, could be studied in a way that would give us exact scientific data instead of the no knowledge which we possess to-day. The influence of hereditary syphilis to which the elder Gross and after him Esmarch have ascribed the origin of

certain so-called sarcomata, could be made the subject of special study.

The practicing physicians who more than any one else have access to the facts upon which our doctrines of hereditary transmission rest, could be interested in keeping exact records on blanks furnished them by the association. Boards of health could be stimulated to use the material at hand for scientific research.

In every large city, competent pathologists and histologists could be appointed and paid, for carefully examining and reporting on all tumors sent to them by physicians living within a certain radius, and printed instructions, directing in detail the methods of investigating cases, making post-mortems, and preserving the morbid specimens, could be sent to all applying for them. Veterinary surgeons could be enlisted in the work for the purpose of bringing to our aid the knowledge to be gained from the study of comparative pathology, and the experiments which we are forbidden to make on the human subject could be instituted on the lower animals. Medical colleges could be invited to add to their clinics for the treatment of human maladies, clinics for the domestic animals which would then provide the material for study. The various governments of the world could be asked to collect careful statistics as to the prevalence of these diseases among the many peoples.

Physicians could be better instructed in the means of diagnosis and in the necessity of early operative treatment. And last, but not least, the laity, admitted to the association could be induced to assist, not only with liberal contributions of means, but also by that intelligent coöperation which would lessen our difficulties in collecting evidence and making post-mortems and keep the sufferers out of the hands of the quacks.

It seems to me that there can be no question of the utility of a project which would put the direction of the investigations in the hands of the best men in the profession, and which could enlist even its humblest in the work of supplying the necessary knowledge. The movement of the French society deserves our applause and sympathy, and we should manifest our approval by taking measures for effective coöperation.

It is fitting that this society, composed of the flower of the profession of the great Mississippi Valley should assume the initiative in this country in effecting an organization for this purpose.

SANITATION IN STREET PAVEMENT.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

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BOSTON, MASS.

One of the most interesting problems of modern sanitation is found in the making and maintaining of the roadbed in the streets of all our larger cities. The dangers therefrom consist chiefly in the atmospheric contamination induced by the great variety of material which necessarily collects upon the roadway and is usually denominated as dust. This, when it is wet, is generally considered as mud, but is better stigmatized by the use of the English acceptance of the word "nasty." When dry, as dust, the atmospheric currents disseminate it in all directions. This the passers-by must often inhale

and, by any means yet known, it can not be excluded from the neighboring houses. In great measure, dust is the bane of the housekeeper in urban surroundings. In character it is composite, consisting chiefly of the pulverized material from the surface of the roadbed, mixed with animal excreta, incident to ordinary travel. Under favorable conditions of heat, moisture, etc., these furnish the media for the development and dissemination of disease germs. Infective bacteria are almost never absent from street dust, and they often find an easy entrance into the human economy by means of respiration. So long ago as 1883, I cultivated various forms of bacteria taken from excavations at different depths beneath the best streets in the city of Boston, a noteworthy illustration of which, published at the time, was taken from Beacon Street, opposite the Public Garden, a considerable distance beneath the surface.

Dr. Sternberg, the present Surgeon-General of the United States Army, was one of the first scientists to call attention to these dangers, and after reporting the results of his investigations upon the filth of cities, as dangerous in large degree, because of septic organisms, wrote: "It must be remembered that the gutter mud of to-day, with its deadly septic organisms, is the dust of to-morrow, which, in respiration, is deposited upon the mucous membrane of the respiratory passages of those who breathe the air loaded with it."

In a circular just issued by the State Board of Health of Massachusetts, indorsed and circulated by the Boston Board of Health, emphasis is made upon the danger arising from the dissemination of the bacilli of tuberculosis. I quote briefly: "Consumption is the most destructive disease of New England; the number of persons dying annually from this cause in Massachusetts alone, amounting to nearly six thousand. The disease is infectious. The chief danger exists in the expectoration of the sick; and if this expectoration is destroyed, little danger is to be feared. Consumptives should be instructed not to spit in open places, "nor in the streets." Remember, the sputa must never be allowed to dry. One of the most common forms of the dissemination of consumption is by the respiration of street dust, never free from infectious material."

Dr. George Baird, discussing the subject of "Sanitation in Street Paving," writes as follows: "Should sanitarians be consulted by municipal authorities in reference to the material used for street paving, and the manner of laying it so as best to protect the lives and health of the citizens?" To this question there should be only an affirmative answer. The macadam road, the cobble pavement, the wood pavement in its various forms, and the granite pavement have all been found more or less objectionable from a sanitary standpoint. The macadam, with its rapidly worn surface and its clouds of dust, carrying disease germs in them; the cobble pavement, with its noise and innumerable pockets, furnishing lodging places for decaying animal and vegetable matter; the wooden pavement, decaying in a few years, and absorbing urine of horses and foul liquids of all kinds which are poured out upon its surface; and the granite, with its noise far exceeding the cobble, its slippery surface when worn, and its open crevices between the blocks, permitting liquids of all kinds to pass down and pollute the street surface beneath, are

each and all of them subject to adverse criticism."

The least unsanitary of all pavement must be impenetrable, present a surface easily cleaned and be kept as free as possible from dust and dirt. The important questions of expense, durability and economy of repair, are the determining factors in the selection of pavement material. In streets subject to the heaviest of teaming, where the weight of the constantly passing load, the minimum resistance offered to traction are important desiderata, it is necessary not alone to have a firm foundation, but also of the first importance to have a surface highly resistant to wear. For this purpose, granite blocks are in much favor. But they should be put down by the pouring of hot asphalt or some of the tarry products, filling the interstices. In this way we have an unyielding, comparatively even-wearing surface, giving a good foothold for the horses' feet, and at the same time easily cleaned and impenetrable to fluids. Although noisy and expensive, it is perhaps the best adapted for service in this class of streets.

In the residence portions of a city, such pavement is undesirable, and at present some form of macadam is more commonly used. In the form of macadam, with or without the Telford foundation of large stones, crushed rock has been used as a road covering in Europe and America for nearly a century. Macadamized surfaces become more or less rapidly worn; the wearing is produced by the pulverization of its surface, which, when dry, is a dust more or less mingled with vegetable and animal matter. When wet, it is mud. This surface is costly to keep in repair and is cleaned with much difficulty. In fact, it can never be freed entirely from objectionable material.

Asphalt, on the contrary, forms an impenetrable surface, is easily cleaned and can be kept clean at small cost. It is comparatively noiseless, is durable and can be easily repaired. Its first cost is greater than macadam.

From a paper published the present year by the Reussellaer Society of Engineers of Troy, N. Y., for the use of professors and students of the Institute, by J. M. Howard, upon "Natural Asphalt and Its Compounds," I quote: "The civilization of cities can be gauged by the condition of their streets. The suppression of noise and dirt, made possible by asphalt pavements, in a great measure determines the character and progress of a city. . . . Jan. 1, 1894, the total asphalt street pavements of European cities are as follows: London, twenty-four miles; Paris, twenty-six miles; Berlin, eighty-three miles.

"In the United States and Canada, Trinidad asphalt, 911 miles; asphaltic limestone and other asphaltic materials, 51 miles. The volume of this industry is measured by the fact that the one branch, asphaltic paving, is found in more than ninety-one American and fifty-five European cities. This means an investment of at least fifty-five millions of municipal funds and a working capital, if combined, of \$15,000,000."

A publication upon asphaltum in 1893, from the United States Department of the Interior, by Richardson and Parker, under the head of the durability of asphalt pavements, gives the following: "With the best materials, combined and laid with the greatest skill, where traffic is of the ordinary character, and the street not too narrow, so as to confine the wheels to ruts, the life of the pavement should

be fifteen years. There are surfaces in existence to-day which are of that age, which have had scarcely any repairs and seem to be good for many years to come. Such a pavement can be seen in front of the Arlington Hotel on Vermont Avenue, Washington."

Washington is to-day known as the best paved city in America. Its seventy miles of smooth, durable asphalt afford roads which for comfort, convenience and economy of transit are unequalled.

Asphalt offers a smooth and uniform surface, which reduces the force of the traction and thereby effects an economy in transportation, and at the same time adds to the comfort of every person who rides in a carriage; in its cleanliness, containing no joints to collect street filth and give it off in dust, and no vegetable matter to decay and poison the air with noxious germs; in its noiselessness, which relieves the racket and roar of great cities, so trying to the nerves.

These excellent qualities are not denied by any one. Two defects have been alleged against it: 1, that it is slippery; 2, that it is not durable. Neither allegation is founded in fact. Careful observations by competent engineers have established the fact that under ordinary conditions of weather the number of accidents to horses from falling is greater on stone than on asphalt pavements.

The great cause of horses slipping on asphalt pavement is the foreign material which may be allowed to remain on it. For example, the slipping of the pedestrian who inadvertently steps upon a banana peel left upon the sidewalk.

When in Paris in 1890, I examined carefully a piece of roadbed on one of the public thoroughfares, laid in 1812, probably the oldest asphalt pavement in existence. The surface was even, without cracks. When put down, it was eight inches thick, and the constant service of nearly eighty years was said to have reduced its thickness less than one inch.

In Hamburg, I was shown an excellent piece of asphalt pavement, which was put down in 1840. I might refer to our own experiences in Boston, but they have not been as satisfactory. The asphalt first laid here was defective, improper material being used. The trouble is in the asphalt sheet being quite too thin. The more recent paving with the asphalt has been much better constructed.

The repairs to such a pavement are really quite difficult to make. "If the day is cold when they are undertaken, the old surface is in a contracted condition, while the new material put in, being in a heated condition is considerably expanded. If the patch is left perfectly level with the surrounding pavement when finished, it soon settles and forms a little depression. In hot summer weather the expansion of the surrounding pavement has a tendency to push this patch on every side and make it rise above the surface surrounding it, causing a ridge. In making these patches it is customary to cut through the asphalt coating with heavy chisels, so that the part to be repaired can be removed. Then the hot mixture of asphalt and other materials is rammed into the place and tamped and rubbed with hot iron implements until it is apparently united with the old coating around it and the foundation below. It requires considerable skill and experience to do this well, and even the best men fail at times. Recently a special machine has been designed to facilitate and improve such repairs, which has been highly recom-

mended in several cities where it is used. It consists of a sheet metal tank containing gasoline and mounted on a pair of wheels so that it can be easily moved from place to place. Behind the tank is a collection of burners so arranged that when the vaporized gasoline is forced through them by means of a small air-pump attached to the tank, the several jets of flame warm up the surface of the asphalt below them. The material becomes as soft as when first laid, and while in this condition enough of it is taken off from the injured portions by a hoe to secure a clean fresh surface. On this, fresh asphalt is rammed and rolled to the desired surface, and as the old and new material is at about the same temperature when the tamping begins, it has been found possible to weld the whole together into a homogeneous mass. Another advantage of this method of repairs is that asphalt is removed from half an inch to an inch in thickness so that not only is less new material used, but the thin coating is more easily rolled and tamped and less likely to contract and leave a depression."

The present month Hon. E. P. North, in charge of the street paving of New York city, presented his report for the paving to be accomplished the ensuing year. It includes 109,025 square yards, at an estimated cost of \$780,100. Coming from such an authority and as the result of long study and observation, I have thought it advisable to quote from the report quite freely:

"This proposal is in conformity with your general instructions to expend the public money for the greatest public good by providing asphalt pavements in the poorer and more densely populated portions of the city and on streets that are likely to become great thoroughfares. The larger sum is expended for asphalt pavements, instead of granite and trap pavements, and the money is expended either in the service of the poorer portion of the community, or in the service of all by increasing the facilities for communication between all parts of the city.

"Somewhat over 63 per cent. of the pavements relaid since and including 1889 have been granite or trap pavements, and rather less than 37 per cent. asphalt. Of the 1,196,079 square yards of asphalt pavement now laid in this city, between 60 and 70 per cent. has been laid in the area bounded by Fourth Street on the south, Third Avenue on the east, on the west by Seventh Avenue to Fifty-ninth Street, and thence north along the Hudson River. These boundaries, somewhat roughly, include the habitations of the wealthier portions of our population.

"Most of the asphalt in this region has been laid in short lengths, which do not average, in the cross streets, a block and a half long, there being over sixty separate pieces a full block or less in length. Some of these are without connection with other asphalted streets, so that much of the work done in this area has been a matter of luxury and convenience to those living on such streets, and is not calculated to appreciably affect either the death rate or the general health of the city, and its utility where it can not be incorporated in a general scheme is practically confined to the immediate vicinity in which it is laid.

"In the project now submitted, the only region favored is that occupied by our wage earning population, and aside from this, nothing has been incorporated that does not serve large areas and all classes of people. The principle has been to continue the

very necessary work, in a sanitary point of view, commenced under our predecessor, mainly through the efforts of your consulting engineer, Mr. Towle, of asphaltting the streets in the overcrowded districts east of the Bowery, to which is added the populous regions about the Five Points. In addition to this, streets have been selected for asphalt pavement that will extend the present lines of transportation and open routes across the city which will cheapen the delivery of goods and give comfortable access to some of the more important ferries.

"Two and four-tenths per cent. of the proposed work is south of Chambers Street, in the business part of the city; 40.6 per cent. is in regions east of Centre Street and south of First Street, and 57 per cent. is devoted to routes of distribution. Of this only 22.3 per cent. is in that division of the city which contains between 60 and 70 per cent. of the asphalt now laid. So that in fact 77.7 per cent. of the proposed new work will be where most needed for sanitary purposes, in the lower parts of the city.

"It seems that as a financial measure there is sound economy in replacing our wornout pavements with asphalt. It is, however, as a sanitary appliance that an asphalt pavement presents the greatest value. It is nearly a non-absorbent, is free from cracks that offer lurking places for disease germs, and can be thoroughly washed whenever it is thought advisable.

"Leaving the streets that swarm with the children of our poorest population paved with rough stones, the interstices between which are filled with disease-breeding filth, while the streets bordering on Fifth Avenue are paved with asphalt, does not make for the greatest good to the greatest number, and in case of a serious epidemic the practice imperils the health of the entire city."

The attention of the public is being drawn more at present to the proper construction of roadbeds than perhaps ever before. Previous to the development of the railroad system in the United States, however, it is interesting to note the engrossing attention which former generations gave to the improvement of internal intercommunication throughout the older States. It was well understood by them that good roads are desirable on the highest economic grounds, not to speak of their value when judged from the esthetic point of view. The revival of this spirit has been especially noteworthy in Massachusetts during the last few years, largely brought about by one of her indefatigable public-spirited citizens, Col. Albert A. Pope, seconded by his cohorts of bicyclists.

Massachusetts has a State Highway Commission, appointed for the supervision of the construction of new, and rebuilding of old roads. Her appropriation of last year was expended in making short pieces of thoroughly good country roads, in selected parts of the State, in large measure as object lessons for instruction. This year her Legislature appropriates \$300,000 for the further prosecution of this popular work.

The attention of scientists all over the world has been directed anew to the development of improved methods of road building, and Congress has recently made an appropriation for the investigation of this subject, in order that information upon the best methods of road making may be widely discussed and disseminated.

Laboratory work is being carried on at Harvard

University upon the value of the different kinds of stones best adapted to road building.

In Massachusetts, the towns are taking up the subject and the dissemination of the good work in this important branch of internal improvements is thus permeating the entire State. This work is not limited to Massachusetts, since a number of the States have already passed new road laws, and the subject is being popularly discussed throughout the entire country. Especially in urban life is the sanitation of the street of the greatest importance, and it seems to me most fitting that the scientific men of the country should exercise a molding influence upon the development of this great public improvement. I have therefore deemed it fitting to ask the attention of the members of the Section in State Medicine of the AMERICAN MEDICAL ASSOCIATION to this subject and to give it due discussion and deliberation.

The subjoined letters are of interest and value. They represent purposely, several of our larger cities in widely varying latitudes with marked variations of climate:

CHIEF SANITARY INSPECTOR'S OFFICE,
ATLANTA, GA., July 23, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—Your letter of July 20 to hand, and in reply will state that I consider the "asphalt paving" the prettiest paving for your avenues in Boston; it is easily kept clean, is noiseless, and would give entire satisfaction. Any further information I will gladly furnish.

Very respectfully, THOS. E. VEAL, Chief Inspector.

CITY SURVEYOR'S OFFICE,
MONTREAL, CAN., July 23, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—I am in receipt of your letter of July 20, asking me for my opinion as to the best pavement to be used for a residential street with light traffic thereon. I would certainly recommend Trinidad asphalt. We have had Trinidad asphalt laid by the Warren Scharff Co., of New York, and it has stood this climate for seven years with heavy traffic.

Yours truly,
P. W. ST. GEORGE, City Surveyor.

OFFICE OF CITY ENGINEER,
SAVANNAH, GA., July 23, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—Your note of July 20 came to hand and contents noted. The city of Savannah has a great many streets paved with asphalt, and it gives entire satisfaction. The Warren Scharff Paving Co. has done most of our work. It stands heavy traffic as well as light.

I am yours respectfully,
JOHN FITZGERALD, Sup't Streets.

DEPARTMENT OF PUBLIC WORKS,
CHICAGO, July 23, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—Your favor of July 20, relative to asphalt pavement received. We have 16.65 miles of sheet asphalt streets in this city. This class of improvement when well laid has given general satisfaction on residential streets in this city. Dearborn Avenue, which was improved with asphalt eleven years ago, has just been repaired at an expense to the city of \$570. It is now in as perfect condition as it was when originally completed.

Yours very truly,
JOHN MCCARTHY,
Superintendent of Streets.

DEPARTMENT OF PUBLIC WORKS, COMMISSIONER'S OFFICE,
NO. 31 CHAMBERS STREET, NEW YORK, July 24, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—In answer to your inquiry of July 20, regarding experience in this city with asphalt pavements, I beg to say that the experience of the last six years has shown good asphalt to be the very best pavement for residential streets and on streets used for pleasure driving, provided the grades are not too steep; that is, not to exceed 4 in 100. It has many advantages over macadam or stone, in being noiseless, impervious to liquid filth, easy to keep clean, and about one-fourth less expensive to maintain. We have now in this city fifty-five miles of asphalt pavement, nearly all in private residential and tenement-house districts.

Very respectfully,
MICHAEL T. DALY,
Commissioner of Public Works.

STREET DEPARTMENT, STREET COMMISSIONER'S OFFICE,
ST. LOUIS, MO., July 24, 1894.

HENRY O. MARCY, M.D.—*Dear Sir:*—Answering your favor of July 20, would say that we have a little over nine miles of asphaltum streets in St. Louis, and they are giving entire satisfaction to the tax-payers. We have not confined the use of asphaltum streets to light traffic alone, as we have roadways here paved with that material over which from 5,000 to 7,000 vehicles pass daily with loads of from 1,000 to 10,000 pounds. Personally and officially I am in favor of asphalt for paving all classes of streets.

Very respectfully,
M. J. MURPHY,
Street Commissioner.

PHYSICAL EDUCATION IN CHILDHOOD AND YOUTH A MEANS OF PREVENTING DISEASE.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY C. F. ULRICH, A.M., M.D.
WHEELING, W. VA.

The time is rapidly approaching when the prevention of disease will be regarded as of infinitely more importance than its cure. The medical profession, although not absolutely pure, is *par excellence*, a benevolent and unselfish body. Where will you find a set of men who do so much for the general welfare, although their efforts tend continually to diminish their own profits and curtail their own income, as the medical brotherhood? Herculean labors have been performed by the fraternity to improve the water supply of our cities for the purpose of preventing disease and diminishing the death rate. Jenner's discovery, aided by a highly improved system of quarantine, has so diminished the ravages of variola that it is no longer a terror to any community, and its approach is not dreaded as in times past. Cholera has not the same terrors for us now that it had in days of yore. Although Professor Koch's discovery of tuberculin was prematurely launched into the world and has consequently disappointed the expectations of its friends, it is only a question of time, and not a very long time, until this discovery is supplemented by others that will enable us to come as near stamping out that fatal scourge as we have the smallpox. Diphtheria has hitherto baffled our efforts, and continued to slay its thousands. But the discovery of antitoxin bids fair to remand that much dreaded disease to the list of those which we have under our control. The unselfish physician is persevering in his unfaltering efforts to prevent disease; or at least to soften its asperity and shorten its duration; notwithstanding this work seems to go directly against his private interest, in removing to a great extent the source of his income.

There is, however, one prolific source of disease, or at least tendency to disease, of which I have heard very little mention made in medical societies, nor have I read anything about it in medical journals. I refer to the neglect of physical training in childhood and youth. In the earlier ages of the world, when war and the chase formed the principal occupations of the human race, there was not so much need of admonition on this subject. The male child, in its tenderest years, was taken in hand and instructed in running, leaping, hurling the javelin and bending the bow, to prepare it for the life it was destined to lead when it reached the period of manhood. The barbaric tribes knew the necessity of health and strength in the mother to enable her to bear healthy

children. They accordingly trained their female infants in the exercises that were necessary to prepare them for the duties devolving upon them in womanhood. In our modern exotic civilization, the idea of the necessity for such early training seems to have been lost sight of. Intellectual culture, money-making and general business habits seem to occupy the entire attention of our people at the present time.

A child inheriting a weak constitution from its parents, whose physical development has been neglected by parents who devoted themselves exclusively to intellectual or financial pursuits, or to fashionable follies, is sent to school to be crammed with evanescent knowledge, instead of having its physical organization developed and trained to endure the hardships of life, and its intellectual faculties drawn out to enable it to think for itself and acquire the necessary education after its school days are over. This child is required to sit at the school desk from four to six hours every day, trying to absorb knowledge, perhaps to be forgotten in a few months after leaving school. There is not even any supervision exercised over the position of the child's body, and frequently the naturally weak child comes out of school with stooped shoulders or lateral curvature of the spine. The general circulation not being promoted by judicious and methodical training, the child is pale and flabby, drags itself along like an invalid of long standing, loses even its ambition to excel in the intellectual pursuits that first inspired it, and sometimes becomes a burden to itself and its friends.

If the child is of an active disposition, fond of physical exercise, it will sit during school hours fidgeting about, anxious for the recess or intermission to be announced. Then it will rush out, leap, run and bound like some wild animal escaped from the cage, perhaps doing itself an injury. There will be no system about the exercise, some organs being worked too much and others not enough. The body will be overheated and the muscles tired out. The body is not refreshed and the mind not rested. The blood that has been overheated will cool off too rapidly and a revulsion will set in. The muscles that have been overworked will be tired out and sore, being relaxed and unfit for duty the next day. The heart, that great machine that keeps the body alive, as well as the mind, by supplying the necessary nutriment, being overexcited, gradually loses its strength, becomes flabby; dilatations and valvular insufficiency are established. The buoyant health and strength that this child started with, which was perhaps the only heritage it received, is lost by mismanagement; the foundations of life sapped, and its future prospects destroyed.

Take, now, another class; those who, although not robust but rather of a delicate physique, are not suffering from any constitutional debility. We will suppose these children to be of a studious nature, possessing a large and active brain, with no particular desire for physical exercise. Such children go to school, sit in their confined seats, devoted to their studies. When recess is called they feel a bodily languor that makes them feel indisposed to move about and exercise their limbs. They prefer to remain in the schoolroom and study their lessons. When school is dismissed they drag themselves languidly along the street to their homes. They do not engage in the sports of their companions for they are

always tired. They are pale and thin; their flesh is flabby; the heart beats feebly; the brain is always in a state of excitement, and frequently a hectic flush is seen on their cheeks.

Let us now look at the child that has been systematically trained in all those physical exercises that develop the muscles without breaking them down; that strengthen and regulate the nerves without unduly exciting them; that cause a regular and healthy circulation of the blood without overheating it or allowing it to stagnate. If such a child has inherited a good constitution this course of training will still further improve it. The child of weak constitution, by such a course, will be strengthened and improved until its cachectic condition has almost disappeared; although, of course, it is not as robust as the one that began life with an inheritance of good health.

Now let us compare two children that are stricken down by disease; one whose physical training has been neglected, whose condition is as I have described above, and one whose physical forces have been well developed by a judicious course of training. Let us suppose that pneumonia is the disease that has attacked these two children. Which one will have the better prospect for recovery? The strong child has, by skillful training, developed all its organs, especially the lungs, which, by continual exercise under the supervision of a competent instructor, have been well developed and are consequently able to throw off the products of the disease, or even resist the attacks altogether, while the child whose physical education has been entirely neglected, who has been allowed to sit bent up in the schoolroom, having little or no play of the lungs; either not going out on the playground at all, or endeavoring to play with the stronger, more robust and more active children, overdoing itself and leaving its lungs in a worse condition than before, has to succumb to the terrible disease.

Take a case of typhoid fever and see how the two will fare. In this, as in other fevers, the heart has to double, treble, or even quadruple the work that is required of it in health. Now which heart will be able to accomplish it without coming to grief? You all know it will be the heart of the strong child, the one that has enjoyed good physical training and has been strengthened by a judicious and well regulated course of exercise; while the weak and flabby heart, with its imperfect valves, its thin walls, its dilated ventricles, which is scarcely able to perform its work when no disease is present, is sure to fail when double even quadruple the labor is required of it. In typhoid fever we have a diseased condition of the intestines near the ileocecal valve. Frequently, the coats of the intestines in this region are very much thinned. During the period of convalescence, when the patient begins to eat, owing to the slow digestion gases accumulate in the bowels, rupture of the intestinal coats takes place and death ensues. In which patient is this more likely to occur? In the one whose organs and tissues, owing to a good physical development, are all in a sound and healthy condition, able to endure a strain, to throw off the products of the disease, to resist the encroachment of the destroying malady; or in the one who is weak, the muscular coat of whose intestines has lost its peristaltic power, rendering it unable to carry off the products of the disease, which are thus permitted to remain stationary, preying still

farther on the tissues until they become thin, unelastic and friable.

Consider another class of diseases, a product of our modern civilization, of which the ancients knew nothing; nervous affections. I presume no one will hesitate to decide which class is most liable to these affections. The man or woman who has been properly trained, the intellectual and physical powers having been developed *pari passu*, whose organization is well balanced; the brain with its dependencies; the nervous system; the muscular system, with its locomotive powers; the alimentary tract; the assimilative apparatus, as well as all the emunctories, in good condition as a result of a sensible course of physical training in childhood and youth, will surely be less affected by nervous disorders and their concomitant pain and misery than the pale, weak, flabby being that is in every respect the reverse of the one I have just described.

It is hardly necessary to say anything as to the causes that render such persons amenable to all kinds of nervous diseases, for I am sure every one of you can see it at a glance. When one of these nervous, excitable creatures is attacked by fever, no matter what may be its character, it is easy to foresee the result. There is no power of resistance and the patient must succumb. Should this person, nevertheless, survive the attack, he or she would remain a wreck and life would be a burden. It is unnecessary to multiply instances as the matter is self-evident, and every physician, yes, every intelligent layman will see it as soon as it is suggested to him.

I remember when I was a boy, the men in my native land, Germany, were not very robust, because they devoted themselves to intellectual pursuits without giving proper care to the condition of their bodily functions and powers. About forty-five or fifty years ago, Father Jahn, as he was popularly called, organized gymnastic societies, known as the Turnerbund. The young men, with great enthusiasm, affiliated with this association. Teachers were appointed; regular systematic instructions were imparted and the youth of the period became more and more athletic. When Prussia assumed the lead in the German confederation, thorough military drill was superadded to the gymnastic training, and the German people became a nation of athletes, recovering the reputation for strength and size of limb they enjoyed in the days of Tacitus, the ancient Roman historian. When, after an absence of half a century, I revisited my native land I was astonished to find so large a proportion of the population large, strong and athletic. Nor had they suffered in intellect by this physical growth, as was very plainly shown by their artistic, scientific, literary and educational display at the World's Fair in 1893.

Having now shown, I hope, to your satisfaction, the importance, yes, the absolute necessity of early physical training, and its remarkable influence on the health of, not only the present, but also future generations, and its great bearing on the physical and intellectual welfare of the human race, I will close these remarks by expressing the hope that our sanitarians will take the subject into consideration and see if something can not be done to promote a wise system of physical training, in connection with our intellectual education, which would certainly be an excellent safeguard against deterioration, both physical and intellectual, and would surely do more to

advance our people to the highest degree of culture than the present system of cramming the brain with evanescent knowledge, and allowing the physical powers to dwindle away, a prey to the ravages of disease and death. According to the laws of heredity and the survival of the fittest, the time would not be very far distant when the earth would be peopled with a healthy, strong and intellectual race, among whom sickness, suffering and premature death would be the exception and not the rule.

THE HYGIENIC AND SCIENTIFIC VALUE OF EXAMINATIONS OF THE EYES AND EARS OF SCHOOL CHILDREN.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. ALEX. RANDALL, M.A., M.D.

PHILADELPHIA, PA.

Much work has been done in the last half century for the improvement of the hygiene of the school, with the result of formulating with much precision the best arrangement of the school building as regards site, plan, ventilation and illumination, and much of this is continually being put into practice with ever-growing advance in these matters of the school surroundings. The parallel and equally important field of educational methods has also been well worked by the pedagogues and others in response to the protest as to overburdened pupils; and while the standards of requirement have advanced and educational forcing has continued unabated, it is probable that the resulting damage has been materially lessened. More sweeping application of the rules generally accepted as requisite, is alone needful to place this aspect of the matter in fairly satisfactory shape.

Forced into rather wholesale dealing with their scholars by large classes and the pressure of changing methods of instruction, the teachers as a class are yet sedulously careful of the health of their pupils and often nobly self-sacrificing in their efforts to save them from any injury in the educational process. Were they enabled to make more discriminating application of preventive care to the cases requiring it, much more might be accomplished through the agencies already more or less practically in existence. The conditions surrounding the scholar have greatly improved; yet near-sight and many more certain evils have been little if at all decreased.

The difficulty is not so much with the machine methods as with the material submitted to them. The hygiene of the school may be perfect; yet that of the scholar very poor. Collective methods have their value—often great; but the application to individual cases may not only fail of good, but even be productive of much injury. Perfectly hygienic school surroundings with moderate demands upon the eyes may save the majority of pupils from trouble, palliate the defective relations of others, and yet spread disaster among a notable minority. Very injurious home surroundings undermine the advantages of the most perfect sanitation in the school, and can be met only by personal examination of the scholars and the exclusion of the unfit from school tasks. Preventive measures can be only partially applied to the whole school population; while their application to the individuals most in need, will generally come only after some damage has become irretrievable, if

we wait for the conditions to force themselves into notice.

To the oculist it is needless to specify what are the evils to be thus combated: for his practice daily exemplifies them most sadly. To the general practitioner it may be well to explain that the "myopia in the schools" of which he may have heard much, is but one element and not the most important. Would-be evolutionists may claim that the near-sight is an adaptation of the eye to the tasks of its civilized environment. On the other hand, the inflammatory intra-ocular conditions such as cause myopia may wreak their ill-effects in other ways and gain serious headway before the vision is affected or unmistakable evidence of injury appears to any one except the ophthalmoscopist. To his methods, alone, will appear the optical defects of the eye which frequently are the cause of trouble and demand correction by glasses. Any medical man or an intelligent layman can quickly learn to make the rest of the tests, just as Dr. Thomson has arranged for examination of the railroad employes by non-medical clerks. These tests are as really outside of the habitual work of the general practitioner as of the school teacher; and it is merely a question of the individual, as to how perfect or how worthless may be the results obtained. The skillful use of the ophthalmoscope constitutes the acme of the difficulty of the work, while it is also its most valuable part, and occasions the most crying need for the ophthalmic expert.

It will naturally be objected that no reasonable amount of labor will suffice for such examinations as I advocate—they cost too much time of both scholar and examiner. I have elsewhere shown that such an investigation of the eyes and ears as seems to me requisite, if not indeed adequate, to inform us of the condition of these organs of our school children, costs an average of five minutes apiece, since from twelve to twenty per hour can be studied and recorded by an expert examiner, unaided—while efficient help can double the number. A dozen hours a week devoted to this work instead of to the dispensary or hospital service to which most oculists devote that much time, would suffice for examining with a thoroughness as great as many men use in their private practice, from one hundred and fifty to two hundred pupils; so that in the months before and after opening of the schools, 1,000 would be readily studied. As the conveniences for the examination can generally be arranged at the school, the loss of time to the scholars ought to be unimportant. The entire study can be made by artificial light, as I have preferred to do, except for the color tests; and it may suit all concerned to work outside of the school hours.

There are men in most communities, capable and willing to make such investigations even without compensation, if invited to do so; while most school boards are able and should be willing to pay an honorarium of, say, \$100 for each thousand examinations thus made. The main difficulty really lies in the probability of professional jealousy; for there are many men whose sordid motives seem to compel them to attribute the same to any others who might in any such way come prominently before the public. Let those of us who earnestly desire genuine advance in these matters strive to place and keep this in its proper light; or we may find that no self-respecting men will be willing to undertake such labors, much

less to inaugurate them. Absolutely disinterested investigators can often be found, who will undertake the work from their sense of duty to the community; and when these are lacking, there will be found men who will consider the time thus employed fairly repaid by the absolutely legitimate recompense offered. If the report on each case is made only officially to the school authorities, and through them impersonally conveyed to the parents, the opportunity for self-aggrandizement will be largely taken away from any so inclined.

Finally, yet fundamentally, as to the method and aims of the examination. The perfection and safety of the visual function depends upon the acuity of vision, the accommodative power, the muscle relations and the health of the retina and choroid. Defects of refraction come in as causes of disturbance of each and all of these, just as do questions of school and home tasks, prints, illumination, seating, ventilation, etc. Perfect function is compatible with marked refraction errors, if the physique be good and the eyes not greatly abused, as witness the proportion of eyes reported comfortable when defect of refraction is almost universal. Given a notable error of refraction, and the margin of safety is surely lessened, if not overstepped; and functional disturbance, if not positive damage is likely to result even under conditions more ideal than are likely to surround our school children. Hence the importance of detecting the defects of refraction present, as well as the mere sharpness of vision for far and near; since good vision and comfort can hardly be maintained under the handicap of ametropia. How small a defect is noteworthy, depends largely on the general vigor of the individual and the health of the interior of the eye. This last can be decided only by the ophthalmoscope, which in expert hands can at the same time give us the surest ready estimate of the refraction and its errors. Minute record should be made and preserved of all these details for future comparison; but it is better to simplify the report made to the school authorities for transmission to the parents, merely stating the vision, any notable error of refraction and any need of prompt medical attention. The fuller technical record, however, should state the date, school and class; the name, age and sex; the general and ocular health; the visual sharpness, muscle relations and choice of astigmatic lines at a distance for each eye separately; the nearest point of distinct vision, the muscle balance and color sense of each near by; the refraction as measured by ophthalmoscope, retinoscopy and, perhaps, the test lenses, with the condition of the eye grounds. To this I have added the record of the inspection of the drumheads, the anterior nares and the pharynx, and of the tests of hearing for whisper and conversational voice and for the tuning-forks by air- and bone-conduction in Weber's and Rinne's tests. An examiner who has practiced independence of tongue depressors and aural and nasal specula, can usually dispense with them in these studies; and while posterior rhinoscopy would be a most valuable aid, it has been omitted, since such introduction of instruments as it necessitates is often alarming to the ignorant or nervous, and might easily awaken serious opposition.

These determinations and records can be satisfactorily made by an expert examiner in from four to six minutes for each pupil, and with good assistance in about three. Each detail can be fairly reliable in

itself and also serve as a check upon the rest; and the results, while not unimpeachable, ought to give us a true estimate of the present condition and future prospects of each eye and ear in the school, such as has all too rarely been even attempted in school investigations. Couple with this a record of the needed anthropometric data of height, body and limb girth, leg and thigh length, elbow height when seated and the condition of the spine; and we may be said to know the physical condition of each scholar, so far as is needful for the safeguarding of the organs of sight and hearing. With these data in the hands of the school authorities and the parents, perversity alone should prevent the application of preventive medicine to those individuals most in need of it.

THE PROPER RELATIONS BETWEEN NATIONAL, STATE AND MUNICI- PAL QUARANTINES.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY JEROME COCHRAN, M.D.
MONTGOMERY, ALA.

I think it must be evident that the machinery of quarantine administration best adapted to the needs of any particular country has to be determined by the political organization and commercial institutions of such country. It is hence easy to understand that a system of quarantine that might be best for England or France, or for China or Hindoostan, might not be best for the United States or for the State of Alabama.

Our system of government is very complex. We have the federal government for the management of foreign affairs and the commerce between the States. We have the State government, with large powers, for the regulation of internal and domestic affairs and the conservation of the lives, the liberties and the property of the people. Within the State, and deriving their powers from the State, we have the counties and the municipalities invested with important jurisdictions and extending the principles of home rule to the utmost practicable limits. In view of these statements it would seem to be a plausible contention that all these concurrent and coöperative governmental bodies should concur and coöperate in the management of quarantines for the protection of the people against the introduction and dissemination of migrating pestilences, just as they might all concur and coöperate to oppose the invasion and subsequent progress of an army with banners.

Here it becomes necessary to inquire what is meant by the word quarantine, in the phraseology of the question under discussion, because there are practically several different kinds of quarantine.

1. There is maritime quarantine, or quarantine to oppose the importation of epidemic diseases by way of the sea from foreign countries.

2. There is inter-State quarantine to oppose the spread of epidemic diseases from one State into another State, by way of rivers and railroads, and other means of communication between the States.

3. There is intra-State quarantine, or quarantine to oppose the spread of epidemic diseases from one part of a State to another part of the same State, by the ordinary avenues of traffic and travel.

4. There is municipal or local quarantine, or quarantine involving the management of epidemic dis-

eases in a city or a country community, so as to limit the local spread of such diseases and lessen their disastrous consequences.

These statements open the way for the examination of the question of national quarantine jurisdiction, both in its legal and in its practical relations. Has Congress the right to establish and conduct quarantines? And if so, what sort of quarantines? Maritime quarantine? Inter-State quarantine? Intra-State quarantine? Municipal quarantine? No power to legislate in regard to any sort of quarantine is expressly given in the Constitution, and if such power exists it must be involved in the power to regulate commerce with foreign nations and between the States; and under this section of the Constitution, Congress would have to confine its legislative action to the regulation of maritime and inter-State quarantine. It manifestly could not legislate for the regulation of intra-State and municipal quarantine.

The Supreme Court of the United States has never had occasion to decide any case in which this question of the quarantine power of the general government was directly at issue, and consequently the ultimate issue in regard to it is unsettled and uncertain, and we are left without other guidance than the opinion of legal experts, and among these there is a wide difference of opinion. But not even the most thorough-going advocate of the supremacy of the federal power would go further than I have gone in the statement just made, to the effect that the quarantine powers of Congress can not go beyond the regulation of foreign and inter-State quarantine.

In the meantime, without waiting for the judicial settlement of these constitutional questions, Congress has from time to time enacted quarantine and health laws which have played a large part in the recent sanitary history of the country.

In 1879, the National Board of Health was established, with no power to inaugurate or to control quarantines, but with power to act in coöperation with State and local health boards and to afford them financial assistance. To this end the National Board was intrusted with the administration of a large epidemic fund.

A few years later this board fell into bad repute and the distribution of the epidemic fund was placed in the hands of the Marine-Hospital Service, and it was provided that it should still be used in coöperation with the health authorities of the States.

In 1890 Congress passed a very important act for the regulation of inter-State quarantine under the supervision of the Marine-Hospital Service. This act provides that whenever it shall be made to appear to the satisfaction of the President, that cholera, yellow fever, smallpox or plague exists in any State or territory, and that there is danger of the spread of such disease into any other State or territory, he is authorized to cause the Secretary of the Treasury to promulgate such regulations as may, in his judgment, be considered necessary to prevent such spread—such rules to be prepared by the Supervising Surgeon-General of the Marine-Hospital Service.

Again, in 1893, under the stimulus of the big panic caused by the widespread prevalence of cholera in Europe, Congress passed another act giving very large additional quarantine powers to the Marine-Hospital Service. Of this act, the following is the most significant section:

SEC. 3.—That the Supervising Surgeon-General of the

Marine-Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, cooperate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases in the United States, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, the Secretary of the Treasury shall, in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose. The Secretary of the Treasury shall make such rules and regulations as are necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers and crew; which shall be published and communicated to and enforced by the consular officers of the United States. None of the penalties herein imposed shall attach to any vessel or owner or officer thereof until a copy of this act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days, in the port from which said vessel sailed; and the certificate of such consul or consular officer over his official signature shall be competent evidence of such posting in any court of the United States."

It will be observed that the first of these two recent acts relates to inter-State quarantine exclusively, while the second act provides for both inter-State and maritime quarantine. In both, provision is made for the recognition of local quarantines; provided said local quarantines are conducted under regulations satisfactory to the Secretary of the Treasury, or to the Supervising Surgeon-General of the Marine-Hospital Service which is practically the same thing. Of course, with that power, the Surgeon-General will have it all his own way.

But does this high officer know any more than the rest of us how quarantines ought to be conducted? If so, where did he get his expert knowledge? There is only one way for anybody to get expert knowledge of quarantine, and that is by practical quarantine experience. Some of the medical officers of this Service have seen some yellow fever, and a few of them have seen a good deal of yellow fever; while a few of them have had some experience in quarantine work.

But if any of them have acquired any large amount of expert knowledge either of yellow fever or of quarantine no proof of it has been vouchsafed to the outside world.

It seems to be taken for granted, by a great many persons, that a quarantine conducted under federal authority will be safer and more to be depended upon than quarantine conducted by local health authorities. But to my mind this is a very questionable proposition, and it certainly finds no warrant in our recent quarantine history. They always have plenty of money to spend—these national quarantine officers—and they know how to spend it admirably well. A rapid historical sketch of what they have done in the way of quarantine work up to this time is not without a certain measure of interest.

In 1879 the National Board of Health appropriated \$50,000 to the Tennessee State Board of Health to prevent the extension of yellow fever from the city of Memphis, where it was then prevalent to the rest of the State. They appropriated, also, at the same time \$12,000 to the Mississippi State Board of Health, and \$8,000 to the Alabama State Board of Health for the protection of their respective States. The fever did not spread in Tennessee or in Mississippi, both of which took the money. Neither did it spread in Alabama which did not take the money; and I undertake to say, as a quarantine expert, that so far as the prevention of the spread of the fever was concerned the \$62,000 so expended was very nearly thrown away.

A few years later, the Marine-Hospital Service and the State of Texas together expended the monstrous sum of \$100,000 to fence up yellow fever in the town of Brownsville on the Rio Grande, opposite the Mexican town of Matamoras. This, in my judgment, was a wanton waste of money. There might have been good reason for spending \$5,000, but hardly for more.

In 1883, the Marine-Hospital Service had charge of the Pensacola quarantine, or at any rate it was in charge of a medical officer of that Service. That year yellow fever got through the quarantine into Pensacola and into the Navy Yard near Pensacola. The Marine-Hospital Service proceeded to put a cordon around the Navy Yard for the protection of the rest of the country, but left Pensacola to scatter the disease over the adjacent portions of Florida and Alabama, as, for example, to Millview, Oakfield, Brewton and Daphne.

In 1887-88, yellow fever spread widely over the State of Florida, and the Marine-Hospital Service was appealed to for help, and responded in its usual energetic and lavish fashion. So far as the State of Florida was concerned, the effort to prevent the dissemination of the fever does not seem to have borne much fruit. Some protection was probably afforded to the State of Georgia. What the cost of this enterprise was to the government I was never able to find out; but it must have been very great. One item I remember—the expenditure of \$60,000 in the absurd and utterly useless work of the post-epidemic disinfection of the city of Jacksonville.

In 1893, at Brunswick, Ga., a case of yellow fever got through the quarantine and died at a logging camp somewhere near that city. Whereupon the Marine-Hospital Service declared the Brunswick quarantine to be inefficient and pushed the local authorities aside, and took charge themselves. The experiment was an unfortunate one. In a short time thereafter, yellow fever broke out in the city, the first

case so far as known occurring in the person of Surgeon Brannan, whom they had made quarantine officer. The next thing the Marine-Hospital Service did was to invade the territory of the sovereign State of Georgia and take possession of Brunswick under the plea of inter-State quarantine, and with the cordon and the camp of detention undertook to confine the epidemic to the stricken city. Yellow fever spread to Jessup before the cordon was drawn around Brunswick. But why was not Jessup also subjected to the potent coercion of the cordon? If the cordon prevented the spread of yellow fever from Brunswick, what prevented its spread from Jessup?

I have given this brief sketch of the history of the quarantine achievements of the general government, with the object in view of calling special attention to what I regard as a very serious menace to the authority and usefulness of our State health authorities—to the danger, namely, that all the quarantine functions which naturally belong to the State health authorities may be absorbed and monopolized by the Marine-Hospital Service, or by some other agency of the federal government. A few of the large cities like New York, or New Orleans, or Boston, will resist the innovation for a long time, but there is danger that smaller ports will yield speedily, and that the large ones will finally also give way.

Some plausible reasons may be urged in favor of national sea quarantine. Quarantine is an incident of commerce, and it would seem to be the natural solution of the problem that the power which regulates commerce should also regulate quarantine. The great objection to this solution of the problem of sea quarantine is that it involves a central bureaucratic administration that is necessarily expensive, necessarily arbitrary, and necessarily based on insufficient knowledge of local circumstances and conditions. It would not be difficult to frame a quarantine system in which, by the thorough-going coöperation of national and State authorities, most of these objections could be obviated.

There are just three places in which to oppose the dissemination of migrating pestilences in connection with the transportation of passengers, immigrants, and merchandise. The first of these is at the port of departure in the foreign country. The second is at the port of arrival in this country. The third is at the place of destination in the interior of the country, at the end of the journey. The quarantine of the foreign port, including the inspection and disinfection of ships, passengers, immigrants, and merchandise, and a general system of bills of health and cable notification when anything is wrong—all these things should be in charge of officers of the national government. And there should be at suitable places along our sea coast, refuge stations for dealing with infected ships, crews, passengers and cargoes; and these refuge stations should also be under national control.

Inside of the refuge stations, there should be an inner line of defenses in the shape of local inspection stations at our various seaports; and these should be in the hands of the local or State officers.

Then, from time to time, when in spite of all these defenses some epidemic pestilence gets into the country, we will need to institute land quarantines, railroad quarantines, local quarantines according to circumstances; and these should be under the control of the State and local authorities. If the pesti-

lence swells beyond the power of control at the command of the State and local authorities, then the national government should come to their assistance, not to push them aside as was done in Brunswick, but in the way of supplement and coöperation.

This is in outline the theory of our present quarantine system—the system that has been developed during the last twenty years. I can imagine no better system if it is carried out in its real spirit and purpose. But it now stands in danger of being marred and outraged by the encroachments of the Marine-Hospital Service under the acts of 1890 and 1893—said Service not being satisfied with the control at foreign ports and on the high seas and at the refuge stations, but seeking also the control of the inspection stations and of internal quarantines.

TUBERCULOSIS AND ITS PREVENTION.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CHARLES E. WINSLOW, M.D.

LOS ANGELES, CAL.

Living, as I have, for the past few years, in a region of the Rockies, where hundreds of consumptives annually come to breathe the pure invigorating atmosphere, hoping to regain lost health and wasted strength, my mind has constantly turned toward the peril to our inhabitants of contagion from these invalids. Although in our high altitude the risk is greatly diminished, still "how to prevent the danger" has been an ever recurring question, and when your chairman kindly invited me to prepare a paper on "Preventive Medicine," my thoughts naturally turned to this subject.

With no space for argument in favor of statistics and cases brought forth by advanced thinkers in their researches, I simply accept their conclusions based on their proofs of facts. My ideas may be crude and my theories familiar, still if they stimulate action along the line of duty that is before us, as earnest and intelligent workers for humanity, I shall accomplish my purpose.

For thousands of years, it may be from the time Adam and Eve bade adieu to fair Eden, to battle with sorrow and death, consumption has been the great enemy of mankind. Men of thought and action have for the sake of their fellowmen, stood up and fought, with the best weapons at their command, and failed to conquer this great destroyer. Here and there down the ages have been seen the beacon fires of progress, until in 1892, Koch kindled a blaze that illumined the whole world. Then the clouds of ignorance lifted, giving us a vision of the boundless realms of preventive medicine. While the advance in curative medicine has been wonderful, the strides made in preventive medicine have been miraculous, and yet we are only on the border line of the Land of Promise, and there is still room for discoveries in preventive medicine. An earnest seeker of dauntless courage may achieve brilliant results in this line of work that will add new luster to our glory as physicians, and longer life to humanity. To-day, men are beginning to judge a physician's success by his ability to prevent as well as to cure disease.

The field is broadening. As we gain knowledge we increase in strength. We need men of strong character and keen intellect to fight the battle of life

against disease. Ours is a peculiar warfare, for not only the enemy, but those of our own household must be overcome. I take for granted that most of the men in this Section believe that tuberculosis is transmissible and that it comes from living bacilli. There are some honest doubters to all great truths and this is no exception.

Tuberculosis is by far the most destructive disease of the human race, outnumbering in its death rate, war and pestilence. In the United States every twenty-four hours, 440 human beings die of tubercular disease. While this great Association is in session, over two thousand five hundred men, women and children, through the agency of this king of terrors, will fill consumptives' graves, and homes all over this land will be in mourning for dear ones whose lives have been cut short by a disease that could have been prevented.

To-day, pulmonary tuberculosis is more widely diffused by infection from sputum than by any other means. The sputum, becoming dry and in the form of dust being carried far and wide, is inhaled into the lungs. Wherever it finds good feeding ground it makes a home. Scientific investigation has shown that a patient in advanced pulmonary tuberculosis may give off millions of bacilli in twenty-four hours. Koch found the dust taken from the rooms occupied by consumptives produced infection in two-thirds of his experiments; others have shown that the sputum retained its virulence as long as seven months. If this be true, and the sputum of tubercular patients, teeming with bacilli, is allowed to become dust, to be carried here and there, inhaled by hundreds of people, settling upon fruit and upon water, to be eaten and to be drunk by hundreds more, is it any wonder that phthisis pulmonalis is no respecter of persons but spreads to the high and the low, the rich and the poor, the young and the old, infecting whole communities once healthy? A common way of infection is through the alimentary canal, by the use of milk from tubercular cows, and meat tainted with tubercular germs; while candies, fruits and vegetables exposed for sale, becoming infected by bacilli-laden dust settling upon them, may spread the disease. With examples too numerous to mention, of the spread of the contamination from husband to wife, brother to brother and friend to friend, knowing the consumptive taints the very air we breathe, the food we eat and the water we drink, how can we, members of this great human family, keepers of our brothers, sit idly by and make no effort to save them?

Among intelligent reasoners the belief that it is an inherited disease is fast passing away, until now we rarely hear the statement. Though one does not inherit tubercular disease, he may inherit the predisposition to consumption, and his lungs form good soil in which the seed will thrive. With these facts before us, proved by a great cloud of witnesses, we are enabled to fight the disease on an intelligent basis, first by destroying the vitality of the seed, then by strengthening the soil till the germs find no nutriment. We have no hidden foe to fight, but one whose methods are known. We may have a knowledge of the best way to prevent infection, still, unaided, we can do nothing. We must have an intelligent people roused, until city, State and nation are compelled to adopt stringent measures for the protection of its inhabitants from this direful disease. When public opinion is educated to the full realization of the

danger, and awakened government enforces the laws, we can stamp out this greatest enemy of mankind, or, at least, so control it that it will cease to be a scourge to humanity.

Sanitation and disinfection have given preventive medicine a prominent place among the sciences. To-day it comes nearer giving specific treatment for this class of diseases than does curative medicine. It not only prevents disease in the present generation but it affects posterity. In this age of enlightenment, disease is no longer considered a visitation of Providence but a punishment for neglected laws of health. The people should be made to understand this, and the physician's duty is to instill into their minds the rules of good health, enabling them to save millions of lives. He must show them that although this plague of plagues causes more deaths than all other epidemic diseases combined, still it can be controlled. He should instruct them in their daily intercourse, and teach them through the great molders of public opinion, the press. He should encourage the forming of societies of hygiene, until every hamlet and city in our great nation has an organization for the promotion of life and health. Rouse the women of the land to organize another crusade, for the protection of the homes from sickness and death. One that will sweep across our beloved land, leaving peace and long life to the inhabitants. Seize every opportunity to spread the doctrines of good health. Make the way so plain that the simple can understand. We may be called alarmists, so was Paul Revere. Among our own number will be those who have no faith in things new; even Christ had his doubting Thomas. Others will ignorantly scoff at our danger signals; so did the ancient people at Noah's warning of the flood. A few medical men, with hearts like Nero, will overlook any danger to others, so long as they reap a harvest. As conscientious physicians, champions in the cause of public health, let us do our whole duty, heeding neither indifference, ridicule nor censure. To-day's work will add to the public health, wealth and happiness, and will directly influence the shaping of the course of preventive medicine in coming ages.

A reasonable limitation should be placed upon all tubercular patients. Isolation would be an added burden to the invalid, but strict sanitation is necessary. Cannot proved beyond a doubt that when his patients strictly followed orders in disinfecting their sputum, the dust from their rooms was free from contagion. A thorough system of disinfection should be used in our hotels, theaters, school houses and other public buildings. All receptacles of sputum should contain solutions that will destroy the life of the germs, or keep them moist until life can be destroyed. All cars, steamships and other public conveyances, should be provided with the means for destroying the bacilli, and should be thoroughly disinfected at the end of each trip. Owners of factories and workshops should be compelled to surround their employes with such safeguards as disinfectants and pure air. Rented houses should be fumigated and a certificate from the proper health officer furnished the new tenants. Rooms, bedding and furniture known to have been occupied by a consumptive should be disinfected as soon as vacated. Make the sale of milk and meat from tubercular cattle a crime, and the punishment so severe that men in the business will scan well what leaves the dairy or shop.

Instruct the tubercular mother not to nurse her child. Enforce laws that will restrict immigration, excluding those who suffer with the dread disease. This should be under the supervision of medical experts.

To get at the root of the whole matter—educate the children. Place books in the schools that teach true sanitation, making it the most important study, instead of the least. Develop our youths by physical training so that their constitutions will throw off the seeds of disease instead of retaining them. Teach them that inherited defective organisms must be remedied, that a depleted system will be in condition to receive the germs of phthisis pulmonalis. If principles of sanitation are thoroughly instilled into the minds of our youth, the coming generation will be better able to overcome the dread disease than has been the present one.

Reading material on this subject should be furnished by our boards of health for free distribution. There should be special hospitals for consumptives. All this can not be carried out unless aided by the State and nation. A few of the States have taken a step in the right direction. There should be experimental stations with scientific men in charge, aided by the Government. No such encouragement as Pasteur and Koch received from France and Germany, in the way of funds and laboratories, has been given to the men of our country by the government. Must America in shame always follow, instead of taking her place in the front ranks of medical progress? If there are doubts in regard to advanced theories of health, it is the duty of our government to remove these doubts, or prove the theories false by experiment and research. She can not longer shift the responsibility. If, through mismanagement of railways and factories, a man is accidentally injured or killed, large damages are awarded and the utterance of public opinion is long and loud on account of criminal carelessness. Shall our nation be held guiltless for sickness and death, which she can, but will not prevent? The cost may be great, but, compared with the number of lives saved, the expense will be trifling. Money is freely spent in almost every other line of research, but there seems to be a prejudice against the passage and enforcement of sanitary laws. Our last Congress refused to pass Representative Barthold's bill to appoint a committee to investigate the cause of the pollution of water supplies, but \$40,000 was voted to be used in exterminating the gypsy moth, \$15,000 for experiments in irrigation and \$885,000 was granted to the Weather Bureau.

We do not criticise the expenditure of these immense sums for the benefit of our country. But is it not outrageous that the lives of our people are considered of so little value? Is the financial condition of our country more important than the health of our nation? Are the agricultural interests to take precedence of the lives of our citizens? With the President's recommendation to Congress of a Public Health Department, we passed another mile stone in the march of preventive medicine. That we may keep abreast of advancing civilization, let us agitate this question before the people, until there sits in the cabinet council one whose watchful eye is ever on the foes of mankind, and his finger on the pulse of the nation, seeking for signs of disease, in order that he may ward off threatened danger. Then, and not until then, shall we see the full realization of our hope; our land freed from tubercular disease.

ISOLATION HOSPITALS FOR CONTAGIOUS DISEASES OTHER THAN SMALLPOX.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY BENJAMIN LEE, M.D.

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It is well known to many members of this Section that the various State boards of health throughout the United States and Canada have been in the habit for many years of meeting annually in conference, each board sending one or more delegates. The object of this conference has been to compare notes with regard to sanitary administration, to render the experience of all the boards available for the information and instruction of each, and to discuss such questions with regard to inter State and seaboard quarantine, and the mutual relations of the several boards, as have a wider scope than the interests of the individual commonwealths.

At the meeting of this conference, held in Cincinnati in 1888, the question of isolation hospitals was presented in an admirable paper by Dr. P. H. Bryce, Secretary of the Board of Health of the Province of Ontario. The title of his paper was, "The Duty of the Conference in urging the Erection of Isolation Hospitals for the treatment of Infectious Diseases (as scarlatina, diphtheria, etc., as well as smallpox) as a more economical and effective method than placarding and quarantining the houses where these diseases are present." This title appears to me to bring the subject before us in a very practical way. It is, in point of fact, essential that we should have isolation hospitals if we are to protect our communities from the ravages of the two affections mentioned, scarlatina and diphtheria, and to save the thousands of lives of little children which are sacrificed to them every year.

The only question is as to the form in which such hospitals shall be provided. Shall each house in which a case of one of these diseases occurs be made, for the time being, an isolation hospital, its inmates debarred from communication with the outer world, and subjected themselves to the risk of acquiring the disease for the entire period during which the patient is ill, with the added period of necessary quarantine after the patient has ceased to be an object of danger and the house has undergone disinfection? No one whose house has not thus been temporarily converted into an isolation hospital can appreciate the excessive annoyance, discomfort and loss which are thus entailed. Especially is this true with regard to those in moderate circumstances, such as mechanics or small tradesmen, to whom every day of loss of wages, or of business, is a matter of the most serious import. Experience in England, in New York and to a certain extent, in Philadelphia has amply demonstrated that the spread of these diseases in families is very much greater when the home is converted into an isolation hospital than when the member of the family first attacked is removed to a properly arranged and fully equipped isolation hospital. It need scarcely be said that no general hospital is now willing to receive infectious diseases, so that this first plan of converting homes into isolation hospitals must be continued, or other isolation hospitals must be provided.

The alternative plan is, therefore, to establish, not only in every city but also throughout the rural districts, hospitals to which those suffering from con-

tagious diseases, of whatever kind, may be properly removed as soon as the diagnosis is made. In a city of the large population and immense area of Philadelphia, for instance, one such hospital is not sufficient. There should be at least four, so arranged as to be comparatively easy of access from the different quarters of the city. These hospitals should not be magnificent structures several stories in height with elaborate architectural adornment, but should be constructed of wood, on what is known as the pavilion plan, and but one story in height. All of the expenditure should be devoted to the internal arrangement and equipment. In consequence of the horror which is inspired by smallpox, it would unquestionably be better that that disease should be treated in an entirely distinct hospital, and at a different location from the others. The other two should be treated in separate pavilions, but might be under a common administration. Separate ambulances should also be provided for the different diseases.

The advantage to the family in which such disease occurs can not be overestimated. At the time of the removal of the patient, the house can be inspected and disinfected, and the family, while not quarantined, can be kept under observation till the period of incubation is passed, and the wage earners, after a thorough first disinfection, be allowed to attend to their daily duties. In this way the interference with attendance of children on school will be very greatly diminished. The plan is in the highest sense both humanitarian and economical. As remarked by Dr. Bryce: "It is, in many instances, absolutely impossible for the mother of a large family to nurse, for instance, a case of diphtheria, and attend to the many other household duties. It is indeed cruel to permit a poor family to be, with an almost certainty, afflicted in all its susceptible members with a disease so fatal, and it is unjust and absurd to expect a wage earner to be prevented from earning the necessities of life, while, with almost absolute certainty, house quarantine will extend the area and period of sickness, inflicting as well as an unnecessarily large doctor's bill, a tolerably certain undertaker's bill in addition."

The paper by Dr. Bryce was generally discussed and his suggestions met with universal approval, so far as the desirability of the step proposed was concerned, the only question being with regard to its practicability in small towns and sparsely settled districts. The subject was referred to a committee which reported as follows:

"1. That the principle of the establishment of isolation hospitals, as a preferable method to placarding houses and quarantining families, has been fully confirmed, both by general experience and the experience of members of the conference.

"2. That the practical difficulties: 1, of expense of establishment; 2, of the removal of persons suffering from dangerous infectious diseases thereto are not so serious in practice as at first sight would appear, since the simple character of the isolated building required in many cases for handling first cases, and the discrimination which ought to be exercised by medical health officers in the removal of persons, will be found to largely remove what in many cases appeared insuperable difficulties.

"3. That it is most desirable that the position which all our State and provincial boards should take, is that of urging from the standpoints of duty and economy, their local boards to establish places of isolation for those cases of diphtheria, etc., which in their opinion will be dangerous to the household and to the community.

"4. That contemporaneously with education along the above lines, State and provincial boards ought to press for

such legislation as will place them and their local boards in a position to enforce such isolation as the circumstances may demand."

There is no question in my own mind that the existence of such hospitals, provided with every means which modern science can suggest for the proper treatment of such cases, not only comfortably but tastefully furnished, would be at once appreciated by the community, and that families in good circumstances would be anxious to avail themselves of such opportunities, and to pay well for the privilege, so that such establishments would not only pay for themselves but might be a profitable investment. The mother of the family or the elder sister could go with the patient, so that a little child would not be compelled to suffer the pangs of bereavement, and the home would thus cease to be an isolation hospital, with a placard on the front door stating the fact. As soon as proper disinfection had been performed, the father of the family could go out to business as usual, and the social life of the house could proceed without interruption.

All the discomforts, anxieties, vexation and perplexities accompanying the presence of a case of infectious disease in the house would thus be avoided. Not only would it be a means of protection to the other members of the family, but the chances for the patient himself would be greatly improved. I say this advisedly, and desire to give my reason for this belief. During the past year smallpox has prevailed in Harrisburg, the capital of Pennsylvania. At the earnest solicitation of the Secretary of the State Board of Health, the city council of Harrisburg erected a small isolation hospital, and after that building was in readiness to receive occupants every case was at once removed to it. Extreme care had been taken in the ventilation of the wards of the building. All the used-up and infected air of the building was drawn out by means of artificial exhaustion, and passed through a furnace designed for the destruction of the excreta and garbage of the institution. Warm fresh air was constantly introduced. The amount of fresh air thus furnished was greatly in excess of that with which the patients were provided in their own homes. The consequence was, as I have been assured by the chairman of the sanitary committee, who had the general charge and management of the epidemic, that soon after admission the temperature of the patients fell, the nervous irritability diminished, and as a rule they soon fell into a quiet sleep; in cases in which wild delirium had been present on entering, they awoke from this slumber refreshed and calm. The experience of Harrisburg in this matter is valuable as regards the necessary expense of such a building. Their hospital will accommodate with ease forty patients; it is one story high, seventy-six feet in length and thirty-six in width. Its ventilation, as I have said, is very perfect, and its cremation furnace is so effective that not a particle, either of infected material or of infected air can possibly escape from the building. I believe that it could with safety be placed in a populous neighborhood. The entire cost was only \$3,000.

Whether pay patients should be received in separate wards, separate pavilions or in entirely distinct establishments from charity cases is a mere question of detail. It might be quite possible to have distinct wards or distinct pavilions in the

same inclosure for such cases, as is now the custom in general hospitals. But, as one great object would be to make such refuges so attractive that compulsory removal would be unnecessary, it might be well to have entirely separate institutions. If this latter plan were adopted, however, it should be a *sine qua non* that the hospital should be under the direct supervision of the local health authorities, and that every detail of administration should be in accordance with their regulations. In this way alone could safety to the community be insured. This need not interfere, however, with the attendance of the family physician on his own case in the hospital. This would be essential to making the movement a popular one, and would go very far toward recommending it to the patient and his family. The relief to the physician himself from the anxiety which he always feels with regard to other members of the family would be very great. At the same time the facilities which would be provided him for the protection and disinfection of his own clothing and person would be such that he would be much less apprehensive of carrying the infection to other families. The methods of personal precaution insisted on in such a hospital, under the immediate supervision of the health authorities, would also be of very considerable educational value to the profession.

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ADVANTAGES TO A COMMUNITY OF A HOSPITAL FOR CONTAGIOUS DISEASES.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. L. LEAL, A.M., M.D.

PATERSON, N. J.

Having had occasion recently to secure some information upon the subject of contagious disease hospitals, I communicated with the authorities of a large number of cities in this country, inquiring what facilities they possessed for the care and isolation of their cases of communicable disease. These inquiries were addressed to cities of the largest size as well as to those of not more than 25,000 inhabitants. The result, considering the advanced state of sanitary science, as well as the general interest regarding the public health which is now aroused, was most astonishing. I found very few cities making any claim to proper equipment for the handling of these diseases. The majority of them possess some sort of a pest house in which a stray case of smallpox, typhus or yellow fever, or cholera could be thrust and hidden away; but do not make the slightest provision for the care of those suffering from the ordinary endemic diseases of this class, or for the protection of the public from such sufferers. A certain small proportion of these cities possess, or contain, general hospitals which have wards or detached pavilions for the care of these cases, but in all of them the facilities are not adequate for the purpose; said wards or pavilions being used mostly for those unfortunates literally thrown upon the care of the city, or of the hospital, and for whom some provision had to be made. Charity and humanity are the ends in view and not the protection of the public health.

Now, in considering the condition of affairs here shown we must conclude, either that the advantages

of contagious disease hospitals are not thoroughly appreciated by the health authorities of the majority of these cities, or else that public opinion is not yet educated to the point of granting their demands for this most necessary sanitary equipment. The fault lies probably with the public, and the remedy will prove to be its further education in its needs in this direction. This education and enlightenment will come through the influence of such bodies as this, and the individual efforts of the men who compose them. It is comparatively a few years ago when general hospitals were rare outside of large cities. Now, a town of from five thousand to ten thousand inhabitants without its hospital is a rarity. The public appreciates their necessity and prides itself on their maintenance. They are local monuments to charity and humanity. The contagious disease hospital, on the other hand, is a bulwark against disease, a protection to every citizen, his family and his home. So, as selfishness is ingrained in mankind, and self-preservation is the first law of nature, it but needs the necessary intelligence and knowledge on the part of the citizen to place the contagious disease hospital upon a level of importance at least equal to the police station or the fire engine house.

Now, as to the character of such an institution. It should be a hospital in every sense of the word, and not a pest house. The pest house has outlived its usefulness and should be relegated to the past. Its location should be carefully selected both with reference to the safety of the community from contagion and with reference to the moral effect upon the patients and the community. It should be constructed and managed upon the most modern and scientific principles. The various buildings and departments should be so located and constructed as to secure the safety of patients suffering from one disease, from all danger of infection by another. Furniture should be simple, and floor walls and ceilings should be of such a character as to permit of thorough flushing and disinfection. Medical attendance, nursing and general management of the institution should receive at least as much attention as in the ordinary first-class general hospital. The advantages to a community of such an institution will easily far more than counterbalance the labor and expense involved. In the first place, it will provide proper care for homeless persons, those taken ill in hotels, boarding-houses and institutions, and such care can be given without danger to the public health. In the second place, with an institution of the above character, it would not be long before public sentiment would be educated to the point that the majority of patients suffering with communicable disease would be willing to go, and their friends to send them, to the hospital. Not only on account of the better care which they would there receive, but also on account of the danger to others due to their proximity, as well as to the pecuniary loss due to the public apprehension and the restrictive measures now in use by most health authorities. It would be then but a step further and the public would demand that these cases be removed, whether willing or not, for the sake of the public good. When that point is reached it seems to me that we will be a long way on the road toward the control and almost practical suppression of this class of diseases.

It has been proved that by prompt removal and isolation of persons suffering with smallpox, typhus,

yellow fever and cholera, communities have been saved from what would certainly have proved epidemics of those diseases. Then why would we not secure practically a like result by similar action in the cases of other diseases of this class? Scarlet fever and diphtheria are far more dangerous to the people of this country than any one of the diseases enumerated above. Why, then, so much excitement and so much exertion over the suppression of smallpox, cholera and typhus, while scarlet fever and diphtheria are always with us, and their presence and their ravages taken as a matter of course? Simply because our familiarity with these diseases has bred contempt. It is well known that the Mexican regards smallpox and the Hindoo cholera, in about the same light that we do scarlet fever and diphtheria. I believe that there is more danger to one of our communities from a case of scarlet fever or diphtheria than there is from a case of smallpox, typhus or cholera, and that at least as active measures should be taken for their suppression. Now almost the first thing done is to remove a case of typhus, cholera or smallpox to a place of some kind to get it away from the community, so that its presence may not be a menace to it. Owing largely to this method of procedure, these diseases have become a comparative rarity in well ordered communities. Certainly, this is strong presumptive evidence that we could secure practically similar results by the same procedure in the case of those more common diseases of the same class. To be sure, these diseases are now endemic with us and there exists such general infection that it would be difficult to overcome it. Still I firmly believe that with a proper institution for the purpose, and the prompt removal thither and proper isolation of the cases, together with the sanitary measures now in common use, that this general infection could be overcome and these diseases controlled practically as well as are the others mentioned. In the third place, from an economic point of view such a hospital would be an advantage to any community. An outbreak of communicable disease in the family of an ordinary working man is usually a very serious matter even in a financial way. There will be the usual extraordinary expenses attending illness of any kind, and beside there is usually loss of work for those members of the family through whom the income is received, due either to the restrictive measures employed by the authorities, or through the fear of employer and fellow-employees. Should the disease spread from one to another of the family, a great deal of time and its rewards will be thus lost, and in many cases the family never recovers from the effects. From being a self-supporting, spending member of the community, the working man is often obliged to call for public aid in his trouble. His community therefore loses not only the aid given him, but also what he should have earned and spent during that time. If, now, there were proper hospital facilities, the first case being at once removed from the premises, the chances are that the disease would not spread to other members of the family, and proper precautions having been taken, there would be no fear on the part of employer and public, and therefore no cessation of revenue and consequent financial difficulties. I am confident that a careful investigation on these lines in any community of size, will show a loss far beyond the expense of maintaining a hospital. We are certainly

justified, then, in claiming that a proper hospital, properly used, will furnish patients with better care, will tend to protect the general public from infection, and will save the community financially far more than its cost.

SIMPLE CATARACT EXTRACTION AND SOME THOUGHTS ON PROLAPSUS OF THE IRIS.

Read at the meeting of the Chicago Medical Society, June 5, 1895.

BY BOERNE BETTMAN, M.D.

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Since the introduction of Daviel's flap operation for cataract in 1748, numerous methods for the extraction of opaque lenses have been introduced, modified and abandoned. The innovation of antiseptics was followed by the rejection of Graefe's modified linear extraction and the re-introduction of the corneal flap. Most of the leading oculists the world over, now make the corneal incision either within the corneo-scleral margin or at the limbus. The important question which has interested oculists with reference to cataract extraction since 1888 is whether to do the simple extraction or the combined operation. The war has been waged fierce and hot. The literature on the subject is extensive. The annals devote separate chapters to the discussion of the two methods. After these years of probation some authorities who first advocated simple extraction have returned to that first love and do an iridectomy. Foremost among these stands Stellwag von Carion. Such reliable and skilled observers as Knapp, De Wecker, Schweiger, Hirschberg, Noyes, Gruening, Galewski, Panas, Gayet and others affirm that simple extraction without iridectomy is the ideal cataract operation. Fuchs, Argyl-Robertson, Swanzy and Von Hippel have always advocated the combined method. In order to appreciate what gave rise to these diverse opinions it may be well to learn that the *causus belli* was the danger arising from prolapsus of the iris. The advocates of iridectomy rightly claim that the above mentioned mishap can not occur when a piece of the iris is removed. The upholders of simple extraction, on the other hand, assert that prolapsus of the iris does not frequently follow, and when it does, it is not a serious complication and can be readily overcome in many cases by snipping it off. Again, they maintain that iridectomy exposes the eye to many dangers which simple extraction obviates.

The advantages and disadvantages have been summarized by many writers. I will quote the opinion of a few only. Knapp¹ enumerates the advantages of the simple extraction as follows:

1. It preserves the natural appearance of the eye.
2. The acuteness of the vision, other things being equal, is greater.
3. Eccentric vision and "orientation" (correct localization of objects in the visual field) are much better, adding a great deal to the comfort and safety of the patient.
4. Parts in direct connection with the ciliary body, such as shreds of the capsule and iris, are not so liable to be locked up in the wound, and thus transmit morbid conditions to the most vulnerable part of the eye—the ciliary body.

¹ Annual of Medical Science, Sajous, vol. III., B. p. 51, 1888.

5. It may not necessitate so many after-operations. As disadvantages, may be mentioned:

1. The technique of the operation is more difficult in all its parts. (a), the section must be larger to let the lens pass through an aperture, the size of which is diminished by the iris lying in it; it must be more accurate to secure coaptation, and it must be more rapidly performed in order to prevent the iris from falling before the knife. (b), the opening of the capsule requires a deeper introduction of the cystotome into the anterior chamber. (c), the expulsion of the lens is more difficult; and (d), the cleansing of the pupillary area is much more troublesome than in the combined extraction.

2. Prolapsus of iris and posterior synechiae are more numerous.

3. It requires a quieter and more manageable patient during and after the operation than is needed in the combined extraction.

4. It is not applicable to all patients; whereas, combined extraction can be used as a general method.

Bull's² conclusions and those of Schweigger³ are very similar to those already referred to. Further observations and experience have demonstrated that they are tenable at the present day. It is not my intention to discuss this subject at all, being fully satisfied that simple extraction in selected cases is, to use the words of Dr. Knapp, "an operation of the highest order." During the last four years I have done the simple extraction exclusively in all cases where no contra-indication existed. In the early part of my experience, I placed the upper part of my corneal section between 1 and 2 mm. within the corneo-scleral margin, completing the incision by turning the knife at right angles to the corneal surface and cutting out vertically. In every case I instilled eserine up to six months ago, to contract the pupil and forestall prolapsus of the iris. In some, adhesions formed between the iris and edge of the corneal wound which, as far as I know, did not cause any subsequent worse results than elongating the pupil. In only four of the cases operated upon up to the present date did a prolapsus of the iris occur. In two only was I obliged to snip it off. The two others disappeared after two or three weeks, leaving a clear corneal scar with adhesion of the iris to the posterior surface of the cornea.

After reading De Wecker's⁴ article on "*La Suppression Partielle De l'emploi Des Collyres*," in which he calls attention to the uselessness of eserine in preventing prolapsus of the iris, and to the dangers of sepsis resulting from the employment of eye drops which rarely are germ proof, I abandoned its use. The results became correspondingly better, synechiae became rare, the great majority of eyes showing perfectly round, regular pupils. I also placed the corneal incision nearer the periphery within the corneo-scleral boundary. These changes in the technique of the operation improved my results. Thus the two imaginary safeguards in avoiding prolapse of the iris were found to be without foundation. I had supposed that the upper corneal flap, if I may so call it, acted as a support to the iris and prevented its incarceration in the corneal wound. During my recent sojourn in New York, I noticed that neither Gruening, Knapp, nor Noyes evidenced any fear of

prolapsus of the iris, the former dilating the pupil before and after extraction with a 10 per cent. solution of cocain, the others with atropin. Gruening affirms that the cocain reduces the intra-ocular tension. Accacio da Gama⁵ recommended the employment of atropin in simple extraction in 1890. I desire to report tonight my last cataract operations in which the incision was made in the extreme periphery of the cornea and atropin was employed to dilate the pupil before and after the extraction. The results obtained, with one exception, may be regarded as ideal.

Case 1.—John Mueller, aged 57. Mature senile cataract of right eye. Perception and projection good. March 2, atropin instilled into right eye two hours before operation. Incision made in limbus. Lens easily removed. Instillation of atropin; both eyes bandaged. Patient allowed to walk to his room. Bandage removed on third day. Wound healed, pupil round. Bandage removed on each succeeding day and atropin instilled. Left eye remained free after fourth day; right eye after sixth day. Patient out of bed on fourth day. Eyes protected by shade after tenth day.

Case 2.—Mike Walsh, age unknown. Diagnosis: mature senile cataract of right eye. Perception and projection good. Simple extraction March 4. Pupil dilated by atropin. Corneal incision in limbus. Lens readily removed. Atropin instilled, eyes bandaged, patient walked to his room. Two days later bandage taken off and eye found in excellent condition. Pupil round and dilated. Patient out of bed next day, without bandage on sixth day, given liberty of house, protected by shade.

Case 3.—John Sapp, aged 64. Diagnosis: mature senile cataract of left eye. Immature right eye. Perception and projection good. March 9, simple extraction done with left hand. Pupil did not react well to cocain mydriatic. My assistant had forgotten to employ atropin instead. Lens extracted with difficulty through contracted pupil. Edge of iris was slightly nicked by the voluminous lens being forced through pupil. Atropin instilled, eyes bandaged. Recovery uneventful. Pupil round, regular and free. After-treatment the same as in above cases.

Case 4.—John Hobert, age 42. Mature senile cataract left eye. Perception and projection good. Opacities of cornea due to chronic trachoma. March 26, simple extraction with left hand, atropin mydriasis. Bandage changed daily after third day; atropin instilled. Recovery normal. Result perfect.

Case 5.—A. G. Thomas, age 62. Mature senile cataract right eye. Perception and projection good. April 6, pupil under influence of atropin, simple extraction. After-treatment routine one. Result perfect. Patient kept quiet in bed two days; allowed to leave room on seventh day with shade.

Case 6.—Peter McNamee. Mature senile cataract left eye. Perception and projection good. Operation April 19, atropin mydriasis. Simple extraction with left hand. Uneventful recovery. No unpleasant reaction. Routine after-treatment. Perfect result. Pupil round and clear.

Case 7.—A. G. Thomas. Mature senile cataract left eye. May 2, simple extraction; atropin employed before and after operation. After-treatment as in above cases. Result perfect. In lower pupillary field, opaque capsule.

Case 8.—Lydia D., aged 52. Insane epileptic brought from Elgin Insane Asylum. Mature senile cataract left eye. Right eye had been operated one year ago, combined operation with good results. May 11 atropin instilled forty-eight hours before operation. Simple extraction done with left hand. On the second day patient pulled the bandage from the eye. It was re-bandaged by a patient. On dressing the eye May 13, I found a small prolapsus of the iris. The eye was otherwise normal in appearance. The right was exposed, the left re-bandaged every day and atropin instilled. The prolapsus fully disappeared after ten days' bandaging. On June 1 she was discharged. The pupil is oval, the upper part of the iris being incarcerated in the perfectly smooth cicatrix. Her vision is good.

Cases 9 and 10.—John W. F. Mueller, aged 50. Mature cataract both eyes. Lower one-third of left cornea covered by a dense scar. Right pupil dilated by atropin and lens extracted early in March. Simple extraction. Bandage removed two days later. Wound healed, pupil dilated and round. Left eye remained free after third day. Perfect

² Bull, *Sajous Annual*, 1890, B., 62.

³ Schweigger, *Sajous Annual*, 1888.

⁴ *Annales d'Oculistique*, June, 1894, p. 101.

⁵ Accacio da Gama, Nov. 16, 1890.

recovery; allowed to walk about house at expiration of one week. Left eye operated with left hand May 16. Simple extraction. Result perfect.

Case 11.—Mrs. K., aged 62. Right eye, combined operation four years ago. Left eye, senile mature cataract. May 27, after instilling atropin four times during the day, I did a simple extraction with left hand. Bandage removed two days later. Eye slightly injected; wound healed; pupil dilated and regular; small quantity of opaque lens substance in pupillary field. This absorbed in time. Right eye left unbandaged after third day; left eye after seventh. Recovery rapid; result excellent.

In every one of the above cases, a wrinkling of the lens capsule ensued which impaired the vision. In some, I made a secondary capsulotomy which materially improved the vision. The others will be subjected to the same operative procedure within the next few weeks. My experience with atropin in simple cataract extraction is limited to the above cases, and being meager will not permit of any very general deductions. I can not refrain, however, from giving vent to some views regarding the occurrence of prolapsus of the iris and how best to avoid it. It is a well-known fact that this complication is due directly to opening of the corneal wound and indirectly to the escape of the aqueous humor which flushes the iris between the lips of the gaping wound. The pressure exerted by the aqueous in the anterior chamber upon the cornea is naturally the same over its entire posterior surface, but the upper part of this membrane, owing to its severed condition, naturally offers less resistance than its remaining part. If the pupil is contracted by eserine, the appearance of the iris must necessarily be forced out of position by the aqueous humor in the posterior chamber. If the iris were a rigid membrane, the contents of the posterior chamber would flow through the pupil into the anterior chamber and then through the re-opened corneal wound. But as the rainbow membrane is a delicate relaxed tissue, we can readily comprehend that the aqueous humor back of it in flowing out from the eye carries the iris before it, forcing it out of the eye, thus producing a hernia of the iris. Another factor which favors prolapsus is the contractile power of the sclerotic. In the normal eye this tunic is kept comparatively tense by the pressure exerted from within by the aqueous and vitreous humors. When the eye is opened the place formerly occupied by the drained off aqueous, is filled by the other ocular contents, which are propelled forward through a partial collapse or contraction of the sclerotic. If the sclerotic were composed of some firm and unyielding material, as bone, the anterior and posterior chambers might be evacuated without endangering to a great extent the position of the iris, especially if the pupil were dilated. The above mode of reasoning has been fully elucidated by Fuchs in his classical treatise on "Ophthalmology." If this line of argument is conceded to rest on fully established truths, several logical sequences result. Narrowing of the pupil by eserine increases the danger of large prolapsus of the iris, this tissue offering in its contracted state a larger surface for the aqueous back of it to force outward, than if it were widely dilated. In the latter case, a larger quantity of aqueous would find direct outlet through the pupil, and less iris surface act as resisting medium. The only valid reason for employing eserine at all would hold good if its use were based upon its property of reducing intra-ocular tension.

The first thought to present itself to an operator,

in trying to avoid prolapsus and still preserve the iris intact, is to make the corneal incision near the pupillary margin. The pressure from behind on the cornea is now more equally divided, or rather the resistance offered the aqueous humor is more uniform, the upper flaps being almost as firm as the lower ones. Such an operation was actually devised by Liebreich. The interference to vision by the subsequent corneal scar, the production of astigmatism, due to irregular curvature of the cornea, and the frequent occurrence of anterior synechia make this method undesirable. Therefore several operators favored a more peripheral incision, one within 1 and 2 mm. of the limbus. This is the cut I have heretofore practiced, as stated before. I still regard it as a desirable procedure. The upper corneal flap is from $1\frac{1}{2}$ to 2 mm. high. It offers a support to the iris and when a prolapsus does occur it can not be as large as when the incision is made in the corneo-scleral margin. Another method of decreasing the chances of prolapsus is that advocated by Galezowski and Fuchs—sphincterotomy. It consists in cutting out a small piece of the pupillary margin of the iris. It is asserted that an easier delivery of the lens is thus permitted and less resistance offered the aqueous in the posterior chamber. The importance given to iris hernia in this paper might lead one to suppose that it is of frequent occurrence. This is not so, as reference to statistics will verify.

Esson reported eight cases of incarceration of the iris in sixty operations.

Albrandt, in a series of 232 operations, done by Scholler, noted prolapsus twenty times.

Knapp,⁶ in 509 simple extractions, 42 cases of prolapsus (8.2 per cent.). In the majority of cases it was slight and either disappeared spontaneously or cicatrized without danger to the eye.

E. Greiff⁷ reports 450 cases operated by Schweigger, of Berlin, prolapsus thirty-five times (7.9 per cent.); nine were small and required no further attention; twenty-seven (6 per cent.) were amputated. One hundred and thirty cases (corneal incision above), prolapsus twenty-three times = 8.5 per cent.

Knapp⁸ in 300 simple extractions met with prolapsus and incarceration of iris eight times. The latest statistics by the same author, presented at the Eighth International Congress, held at Edinburg, August 7 to 11, 1894, show 35 cases (10.3 per cent. of prolapsus, incarceration, or adhesions of the iris in 548 operations.

To what, however, must we attribute the hernia iridis? The location of the corneal section does not appear to have a great bearing, the percentage of prolapse not being materially influenced by either method. During the last four years I have encountered but four cases of prolapsus. One occurred in an excessively nervous patient, who retched and vomited frequently during the twenty-four hours subsequent to the extraction. Two took place in patients who left their bed contrary to orders twelve hours after the operation. The fourth, the one reported above, must be attributed to the violence and unruliness of the insane woman. Two were snipped off, and two disappeared after a week's bandaging. In my opinion, the subsequent treatment and behavior of the patient is largely responsible for it. Bearing in mind that the intra-ocular tension after the extrac-

⁶ Transactions of the Amer. Ophthal. Soc., twenty-seventh meeting, p. 80.

⁷ Archiv f. Augenheilkunde, XXII, p. 186.

⁸ Archiv f. Augenheilkunde, XXII, p. 335.

tion is relatively greater than it was before the cornea was incised, we must endeavor by counter-pressure and immobility of the eye to hasten the re-adhesion and firmness of the corneal wound; in one word, to restore as rapidly as possible the equilibrium between external and internal pressure. Great differences of opinion exist regarding the after-treatment. Chisholm stands at the head of a faction who oppose bandages and restraint of all kinds. He simply fastens the lids of the operated eye by gold-beater's skin or a piece of adhesive plaster, leaves the other eye open and gives the patient, protected only by dark glasses, the freedom of the ward. Others, again, permit the bandaged patient to walk from the operating room to his bed and there remain quietly for two days. Some operators do not remove the first dressing until forty-eight hours elapse; others operate on the patient in bed so as to avoid any possible strain attributed to locomotion and undressing. I heartily agree with the innovators of the idea that patients should be free from the restraint which was formerly placed upon them, but it appears to me some go to the opposite extreme. When I was Professor Becker's assistant in Heidelberg, fifteen years ago, our cataract cases were indeed subjected to a most trying ordeal. During the first four or five days they were expected to lie prone on the back. Notwithstanding the impossibility of the occurrence of prolapsus, owing to the iridectomy done in every case, on the third or fourth day they were allowed to assume a half upright position, being supported by a back rest. At the end of a week one eye was unbandaged and the patient allowed to sit in a chair in a dark room. It required another week to accustom the operated eye to the light, which entered through a partially drawn Venetian blind. During the third week the patient was given the freedom of the hospital, the eye protected by smoked glasses. The middle course, not too much freedom and not too much restraint, I regard more in keeping with the demands of circumstances we are called upon to meet. The upper half of the cornea has been severed. This must re-unite. Any untoward movement of the eye or of the body which will tend to disturb the close adaptation of the flap, either on account of mechanical insult or increase of intra-ocular pressure, must be carefully avoided. This can best be accomplished by guarding the patient from such mishaps.

I do not intend to take up more of your time by entering into a detailed discussion of the various methods of after-treatment, but will, in conclusion, mention the method I invariably enforce. I always operate in the operating room, the patient reclining either in a chair or on an operating table. After extracting the cataract, both eyes are covered by pieces of clean linen dipped in boric acid. Over this are placed two thicknesses of thin cotton discs. The whole is kept in position either by a two inch broad gauze bandage, or more often by one made of starched mosquito bar netting. This latter material must not be starched too much, otherwise it will after drying, exert too much pressure on the eyes. The fine netting in commercial use will answer the purpose. After being sterilized it is dipped in boric acid and applied. The patient is led to his room, and such clothes as have not been previously removed are now taken off. The parting instructions are, "Remain quietly on your back, or on the non-operated side for

twelve hours." An aperient having been given the night before, the desire to evacuate the bowels will not arise until the third day. The bandage and wet cloths dry after a few hours and conform to the shape of the head and other parts they cover, thus exercising a uniform and gentle counter-pressure and rendering the eyes immobile. When the bandage is cut away it retains the form of the parts like a plaster-of-Paris dressing. Only fluid diet is allowed the first forty-eight hours. After twelve hours the patient is supported in a partially upright position by a back-rest. The eye is dressed for the first time on the third day unless subjective symptoms require an earlier inspection. After removal of the bandage (cut with scissors), the edges of the lids are washed with boric acid and the eye inspected. Boric acid and atropin are dropped between the lids and the eye re-bandaged. This method of dressing the eye is repeated daily until the fifth day, when the eye is left open, the non-operated eye having been freed already on the third day after the operation. On the third day the patient leaves the bed and sits in a comfortable chair. On the seventh he leaves his room. This is my routine practice in the general run of cases. Strict adherence to the above method, which contemplates rapid union of the corneal wound, by moderate quiet of the patient and immobility of the eyes, appears to me to be responsible for the few cases (four) of prolapsus which have occurred in my practice. The presence of a well trained nurse helps greatly in reaching the desired end.

Permit me, in conclusion, briefly to review the main features of this paper. My object in reporting the eleven cases operated under atropin and with a periphery incision and in referring to other methods in vogue, is to demonstrate that good results are obtained, no matter where the corneal incision is placed; neither does the employment or disuse of eserine, atropin and cocaine affect the occurrence of prolapsed iris. The most important factor in an ideal outcome is the after-treatment, the observance of methods which will counteract intra-ocular tension and thus rapidly lead to reunion and firmness of the cornea.

CLINICAL MICROSCOPY.

Read by title before the Tri-State Medical Society at St. Louis, April 2 1895.

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In presenting a paper on the subject of scientific medicine and the microscope, I have no discoveries to reveal, nor shall I attempt to review the progress in the science of medicine brought about through the revelations of the microscope; but rather will I direct your attention to its clinical value. With this in view, we will omit detailed reference to the important facts revealed by studying the minute anatomy of the different organs in both their normal and diseased conditions. It is axiomatic that the more we know of the structure, both macroscopic and microscopic, of organs healthy or diseased, the more capable are we to understand the physiologic and pathologic processes which occur in those organs or tissues; and so we will not dwell on those points. Moreover a large part of such knowledge has been acquired through study of the post-mortem specimen.

But to-day I desire to emphasize the growing im-

portance of the microscope in the clinic, or at the bedside, as an aid and sometimes as the all-essential factor in establishing an early and positive diagnosis and prognosis.

With the recent discoveries in chemistry, microscopy, and bacteriology, scientific medicine has probably advanced as much in the last few decades as in all previous time. The art of medicine is being replaced by the science of medicine. Not more than a generation ago, the successful practitioner must needs have had very extended observation of disease in order to weigh one symptom with another, and judge between them properly. Distinctive pathognomonic symptoms were not known so well as now. Diagnoses were more a matter of judgment, and naturally, other things being equal, the one who guessed the longest was the best guesser.

But at present, with a great many diseases, conditions have changed. Thorough laboratory courses may answer for several years of practice. Instead of looking for a combination of symptoms, we look for one distinctive symptom; and whereas the old practitioner, in many cases, after much observing and deliberation, could give only a probable diagnosis, to-day, the young physician well drilled in chemistry, microscopy and bacteriology is able in many of the same cases to give an immediate and positive diagnosis and a more correct prognosis. The artist is giving way to the scientist, conjecture and judgment to confidence and knowledge.

The diseases which often can be positively diagnosed by a microscopic examination of the blood, and sometimes only by such an examination are: leukemia, pseudo-leukemia, oligo-cythemia, pernicious anemia, simple leucocytosis, chlorosis, anthrax, miliary tuberculosis, glanders, typhoid fever, tetanus, relapsing fever and malaria, with its different tertian, quartan and atypical types; and those diseases caused by the animal parasites: distoma hematobium, and filaria sanguinis hominis.

To review a little, we find that oligo-cythemia is characterized by a decreased number of the red blood corpuscles without change in the number of the white. In health 1 cu. mm. of blood contains according to Viorodt, four to five million red blood corpuscles. In oligo-cythemia, the number has been known to be decreased to 360,000 for the same volume. Probably the best means of determining the number for clinical use in diagnosis and in estimating the effect of therapeutic measures is the microscope, together with the Thoma-Zeiss counting apparatus. The amount of contained hemoglobin can be most accurately determined with Fleischl's hemometer.

The condition oligo-cythemia is present in simple anemia, chlorosis and pernicious anemia. In the simple anemia there is merely a decrease in the number of the red corpuscles with a normal amount of hemoglobin for each corpuscle. In chlorosis there is, beside the decrease in the number of the red corpuscles, also a decreased amount of hemoglobin in each corpuscle. While in pernicious anemia, a disease which is always fatal, there is, beside the lessened number of red blood corpuscles and of their contained hemoglobin, the additional factor of poikilocytosis, *i. e.*, a marked irregularity in their size and shape, with relative increase of the amount of hemoglobin.

Leucocytosis, on the other hand, is a condition characterized by an increase in the number of the

blood's white corpuscles, which in health range from four thousand to ten thousand per cu. mm.

A much more serious condition, which is generally fatal, and the diagnosis of which is therefore valuable, mainly for the prognosis, is leukemia, or leucocythemia, characterized by a great increase of the number of the white corpuscles, a decrease of the number of the red and of their relative hemoglobin contents, associated with a marked increase of lymphoid tissue in the body. But pseudo-leukemia or Hodgkin's disease shows the increase of lymphoid tissue but not of the leucocytes.

Of the infectious diseases whose germs are sometimes found in the blood, those of anthrax, relapsing fever, and malaria may be recognized by microscopic examination of fresh blood; but in glanders, typhoid, tetanus and general miliary tuberculosis, cover-glass preparations of the blood must be made and stained before examined.

Given a suspected case of anthrax, anthrax edema, anthrax carbuncle, malignant pustule or woolsorter's disease, as the affection is variously called, an early diagnosis from acute phlegmonous inflammation and malignant edema is important, especially when the seat of origin is in the skin, for an early, and therefore thorough excision of the part may prevent general infection which latter when it occurs is generally fatal.

The diseases likely to be confounded with relapsing fever or its synonyms, bilious typhoid, famine fever, mild yellow fever, seven days fever, bilious relapsing fever, are atypical cases of malaria, sepsis, miliary tuberculosis, etc. But probably in none of the infectious diseases is the exciting cause more readily demonstrated in the blood than is the spirillum Obermeier in the blood of those suffering from relapsing fever. In acute general miliary tuberculosis, always a fatal disease, the diagnosis not infrequently is difficult in the extreme. Typhoid fever, septicemia, pyemia, chronic local tuberculosis of the kidneys, complicated by uremia, non-tubercular meningitis, capillary bronchitis, and general carcinomatous or sarcomatous metastases are all similar in many points. The finding of bacillus tuberculosis in the blood, cover-glass preparations of which are made and stained in the same way as from sputum settles the question, both as to diagnosis and the inevitable prognosis.

The blood of typhoid patients is but rarely found to contain Eberth's bacillus, especially in the early stages of the disease, being found much earlier in the fecal evacuations. However, its demonstration in the blood would speak positively for the diagnosis and indicate a very serious condition of the patient.

Glanders seldom attacks the human species, but when it does the demonstration of the Rotz bacillus or bacillus Mallei is best done by staining the cover-glass preparation according to Löffler's method. When the disease is purely local it may be confounded with syphilis or tuberculosis, but diagnosed and treated properly may be cured; however, when the germs have entered the circulation, a fatal ending is only a question of time.

Tetanus, although not a frequent disease in this climate, yet occasionally appearing as a wound disease, the discovery of the bacillus in the blood bids fair to assume considerable practical importance by reason of the discovery by Tizzoni and Cattani in the blood serum of an immune animal, of the tetanus antitoxin, analogous to Behring's diphtheria antitoxin.

In malarial affections we distinguish three distinct types of the disease: tertian, quartan, and irregular, and each is known to be accompanied by different forms of the plasmodium malarie.

In the tertian type, which is the most common, the plasmodium or hemamœba malarie requires two days for the growth of a generation, each attack of chill and fever marking the advent of a new generation and the parent is seen divided into fifteen to twenty segments.

In the quartan type, the parasite requires three days for its complete development and its progeny is six to twelve.

The atypical cases where the paroxysm is quite irregular, or even approaches the type of a remittent or continuous fever, or takes the form designated as chronic malarial poisoning, or malarial cachexia, is characterized most frequently by the half moon or sickle-shaped plasmodium of Laveran.

The pure intermittent quotidian is caused by three generations of the quartan type, each maturing on separate days.

Ordinarily, the pure tertian type, with the attack every other day, offers no great difficulty in diagnosis; but in the atypical forms already mentioned, a positive diagnosis is often long delayed and not infrequently impossible without the aid of the microscope.

From sputum and secretions and excretions of the oral cavity we recognize: parasitic stomatitis, tuberculosis pulmonalis, diphtheria or membranous croup, actinomycosis and croupous pneumonia.

In the examination of sputum for pulmonary tuberculosis, and of tonsillar or faucial exudates for the Klebs-Löffler bacillus of diphtheria, the microscope scores two of its greatest triumphs, the practical value of which is so well known that I shall not here dwell on them.

By examination of fecal discharge we may diagnose: cholera, typhoid fever, intestinal tuberculosis, and various animal parasites causing more or less of acute enteritis and the varieties under the subkingdom vermes as tænia, trichinæ, etc.

In microscopic examination of urine, much positive knowledge is obtained with reference to disease of genito-urinary organs, especially in differential diagnosis between simple hematuria, acute nephritis, chronic nephritis, contracted kidney and amyloid kidney, passive congestion of kidney and nephritic infarcts.

The form of predominating crystals in urinary sediment may reveal the nature of any existing calculi. Not infrequently, different tumors of the urinary tract, as papilloma, epithelioma and sarcoma shed small portions of their substance which are voided in the urine and whose nature can then be revealed best by the microscope.

Tuberculosis of the urinary tract can often be positively diagnosed only by cover-glass preparations of urinary sediments; and the seat of the ulcer, whether in the bladder, ureter or kidney, can often be determined by the predominance in the sediment of certain characteristic forms of epithelium desquamated by the ulcerous process.

Differentiation between a simple non-infective and gonorrheal urethritis is possible in all cases by the proper microscopic and bacteriologic methods, and in some cases where all other methods would fail. Prostatorrhea, spermatorrhea and male sterility are also questions for the microscope to determine.

Finally, the finding in the urine of actinomycosis, ecchinococci, distoma hematobium, filarial sanguinis hominis and ascarides would explain otherwise very puzzling cases.

Of the cutaneous parasites, we recognize trichophyton tonsurans of ringworm, achorion Schoenlinii, of forms of ascoptes hominis of scabies, acarus folliculorum, beside the varieties of pediculi.

Then in different varieties of abscess, or purulent exudates, we can often appeal with advantage to the microscope to determine whether it is caused by the common pyogenic germs, or the bacillus tuberculosis or, less frequently, by anthrax, lepra or tetanus bacilli, or by echinococci or actinomycosis.

Another very important field for microscopy is in the recognition and differential diagnosis of benign and malignant tumors, especially in parts suitable for operation; and in many cases, as has so frequently been stated already in this paper, the microscope offers the only means of making a positive diagnosis early enough to allow of effective treatment.

Then in the domain of medical jurisprudence, where facts are demanded and conjecture is not allowed, the microscope plays an important rôle in the recognition of blood, hair, spermatozoa, etc.

In many of the conditions and diseases referred to, diagnosis can often be made with great probability, and even positively, by noting a combination of symptoms and observing the course of the disease, or by excluding the possibility of other diseases in the case. But such methods are always unsatisfactory and often dangerous in their delay. For some one or more of the combination of symptoms may remain absent or be slow in manifesting itself, the patient may die before the course of the disease is run, and diagnosis by simple exclusion is likewise a slow and unsatisfactory method. It is saying what the disease is not, rather than what it is.

But the progress of medicine, as a science, demands and is achieving early and positive diagnoses. The single and distinctive pathognomonic symptom is being sought and found. The essential and exciting cause (without which the disease would not exist, no matter how many predisposing factors were operating) is being recognized, and the way better paved for the train of therapeutic measures to follow.

The hospital, with its clinical and bedside teaching, has always been and always will be essential in proper medical training. Laboratories are becoming so, more and more every day. They are making the clinics more available and practical; and those colleges with limited clinical facilities can not establish themselves as thorough and practical institutions without equipping and maintaining good laboratories, and with such they can become eminently practical and scientific, for they can then, and not till then, use their clinical material to the best advantage.

CONCLUSIONS.

1. Medicine in many points is fast becoming a practical science.
2. Microscopy and other laboratory methods are doing a great deal toward establishing the science of medicine.
3. Thorough drill of the student in laboratory methods may answer for several years of general practice.
4. Positive diagnoses and more correct prognoses are possible in a goodly number of diseases only by

the microscope, and general practitioners not having had thorough training in this instrument of precision should, at least for the benefit of their patients, avail themselves of it, or call on the services of an expert in that line.

5. Medical colleges with limited clinical facilities may make their teaching eminently scientific and practical, by establishing and conducting good laboratories and thus get the best good from their clinics.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

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(Continued from page 326.)

In my opinion to Meckel belongs the chief credit of the coalescence theory (1817) and Müller in 1830 simply confirmed his views and enlightened the world as to the origin and development of the great omentum. Yet it is not necessary to believe that even such celebrated men as Meckel and Müller could

and duodenum. Hence one of Müller's errors is pointed out and corrected. Again, Müller noted that at first the mesogastrium arises in the mid-dorsal line, but with the change of the position of the stomach it becomes shifted toward the left. This is also an error of Müller, for the insertion of the mesogaster is always in the mid-dorsal line. Any one can prove that the mesogaster is always in the mid-dorsal line by opening up an adult cat, when it will be found that the mesogaster has never varied from the mid-dorsal line. In adult man, it appears that the mesogaster is not in the middle line, but that is owing to a displacement of the serous membrane toward the left or, as the coalescence theorists would have it, the left blade of the mesogaster has coalesced with the dorsal parietal peritoneum. Hence, it is plain to observe two errors of Müller. Again he asserts that the coalescence (*verklebung*) between the anterior blade of the great omentum and the upper blade of the transverse mesocolon can be easily divided in embryos of the third and fourth month. Whether this be an error or not, I will say that I never found this condition of re-dividing or re-sep-

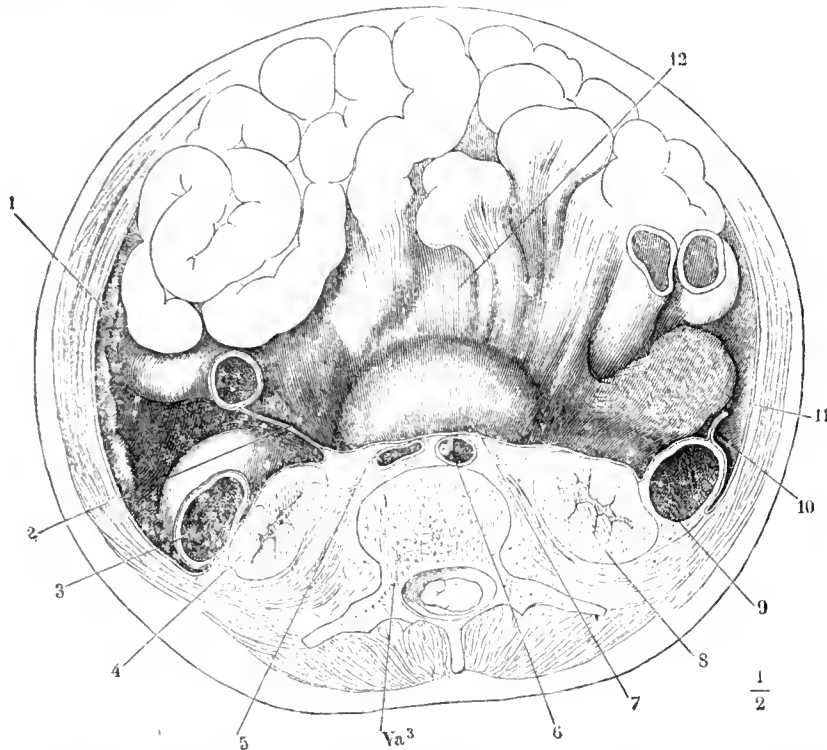


Fig. 39 (after Henle, 1873) represents a horizontal section of the abdomen between the third and fourth lumbar vertebrae. The upper section, the small intestines, are spread out forward. 1, border and under surface of the liver; 2, section of the mesentery; 3, colon dextrum; 4, right kidney; 5, vena cava; 6, aorta; 7, the lower transverse portion of the duodenum; 8, left kidney; 9, colon sinistrum; 10, appendix epiploicus of same; 11, parietal layer of peritoneum; 12, under surface of the mesentery. Observe that Henle, the greatest of modern anatomists, draws in the sketch no mesocolon, right or left.

not make mistakes. I have read with care and pleasure Müller's article on the "Origin of the Great Omentum," written in German in 1830. I find that even Müller could labor under errors. For example, Müller states that the mesogaster ceases at the point where the duodenum begins. Any one can easily disprove this statement by opening a human embryo at six weeks or, still better, a dog or cat, whence in all three cases it will be plain and easy to see that the mesogaster extends all the way down the duodenum to the junction with the ileum. The mesogaster includes the mesentery of the stomach

arating the coalesced membranes possible in any embryo of any age. Since we have found several palpable errors in Müller's noted essay of 1830, is it not possible that he was in error (and his followers) when he announced the confirmation of Meckel's theory of coalescence of the anterior blade of the great omentum with the upper blade of the transverse mesocolon? It must be admitted, however, that when a very accurate and keen investigator like Toldt of Vienna, lends his voice and pen to aid in supporting the theory of coalescence, it demands prudence and caution in opposing it. Respectful attention to

the arguments which make its "rock base" are called for.

In regard to the theory of displacement of the peritoneum in producing acquired mesenteries much may be said. I was led to the theory of displacement by my labors on the dog's peritoneum and viscera. It was by watching the beginning of the rotation of the intestinal loop as may be well observed in the dog, cat and human embryos which led me to the view of displacement of serous surfaces instead of their destruction in the formation of new or acquired supports. The convincing impression of displacement of serous membranes may be acquired to perfection, by observing how the left end of the great bowel moves up or pushes up the serous layer on the left surface of the duodenal mesentery. It leaves intact the membrana mesenterii propria, but raises its serous endothelial layer as this blind end of the bowel moves onward and downward in its travels. The process is beautifully observed in the slight rotation of the bowel found in early embryos or in the adult cat and dog. Yet it is not so easy of interpretation.

As supports to the theory of displacement we may say:

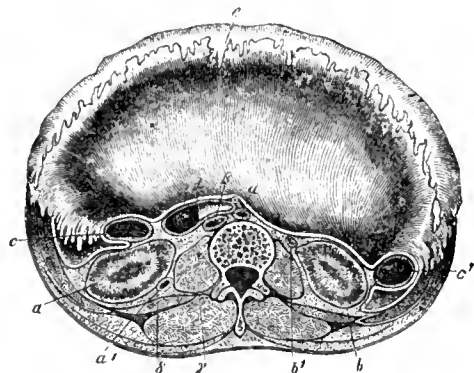


Fig. 40 (after Abey, 1871) represents a cross section of the abdominal cavity at the root of the colon transversum. Adult, one-fifth natural size. The upper surface. *a*, right, and *b*, left kidney; *a1* and *b1*, the ureters; *c*, cross section of ascending colon, and *c1*, of the descending colon; *d*, duodenum; *e*, transverse colon; *B*, vena cava and aorta. Notice in the figure how this Swiss anatomist sketches no mesocolon, right or left, in the drawing. *s*, quadratus muscle. The peritoneal line in the figure is drawn white.

1. Coalescence of any epithelial surface is an unusual matter and even rare (without inflammation).

2. The serous endothelial layer rests on a loose bed of soft, pliable connective tissue which endows the real peritoneal layer with an extensive gliding power. I have practiced in cadavers to see how far one could shove the endothelial layer on the subperitoneal tissue and was surprised to see how far the upper layer would shift on the lower. The endothelial layer will glide extensively on the subserous tissue. In the dead, it is easy in many parts to shove the serous layer over an inch on the subserous. Hence, by slow forcing, the serous endothelial layer can be easily and extensively displaced and the slow traveling of the cecum would give ample time to displace the right serous layer of the mesoduodenum, and sufficient time to displace and drag out the serous peritoneal pouch which exists between the anterior blade of the mesogaster and the upper blade of the transverse mesocolon. It appears more reasonable to suppose the above recessus peritonei becomes obliterated by coalescence and consequent destruction of the endothelium

3. As an actual fact in favor of the displacement theory, I can only find two distinct peritoneal blades in the ligamentum gastro-colicum and only two distinct blades in the transverse mesocolon. The four layer affair of the mesocolon is no doubt an interpolation made to help out and fit the coalescence theory of Meckel.

4. It does not appear to me to be reasonable to consider the serous endothelia as not genuine, as simply connective tissue cells, ready at any moment to "physiologic coalescence," and at a chance obliterate a man's peritoneal cavity. Wherein lies the intelligence of these non-genuine endothelial connective tissue cells to refrain from obliterating the serous abdominal cavity? Why do they simply act in the great omentum and sigmoid? Is it heredity or life's inscrutable method of progress?

Finally, I mention here two points which I have carefully examined. The first is a certain white line found most distinctly on the left side of the sigmoid flexure. This line is interpreted by Toldt to be the evidence of coalescence of the left blade of the left mesocolon with the layer of peritoneum on the dorsal wall. The facts in the case appear to me to be insufficient to establish the theory. However, the white line can be definitely observed, it is the inter-

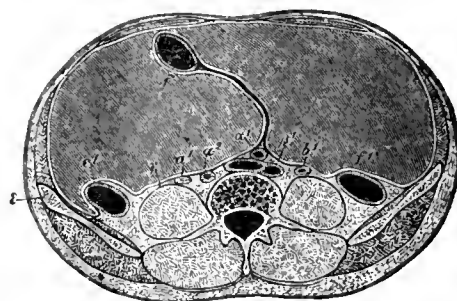


Fig. 41 (after Abey, 1871) represents a cross section of the body in the region of the iliac crests, just high enough to strike a full section of the mesenterium or the small intestine. A part of the iliac crests are cut among *a* as shown in the figure. Adults one-fifth natural size, lower surface. *c1*, descending colon of small intestine; *f1*, lower end of ascending colon; quadratus muscle. *a1* and *b1*, ureters; *a2*, *b2*, common iliac arteries. *B1* vena cava showing its septum of division preparing to divide into the two iliac veins. Observe no peritoneal coverings drawn on the posterior surfaces of its vertical colons. The peritoneal line in the figure is sketched white. The section occurs below it—both kidneys, so that only the ureters appear in the figure slightly differently located.

pretation of its existence which we await. It seems to me the line is evidence of displacement just as much as coalescence. I have often noted that when peritoneum turns from one surface to another, *e. g.*, at the duodenal flexure it may show a white line.

Again, I have frequently found in the dorsal peritoneum of both sides, but most frequently on the left side, small depression or pockets of peritoneum which would admit the point of a pencil or an object up to the size of the thumb. These pouches are lined with peritoneum, serous endothelium. Toldt again interprets these retroperitoneal pouches as evidence of progressive coalescence. I interpret them exactly opposite, as being simply the product of a local peritonitis. This local peritonitis may have originated by a gut lying on the place for some time and allowing its microbes or products to pass through the wall and infect the peritoneum locally. This is apt to occur as the dorsal peritoneum is immovable and could not get away from any infected bowel. The above two points are placed outside of the systematic argument as I consider the interpretation of them as not yet settled. No adequate explanation of the great length of the omentum has appeared.

THE LESSER OMENTAL CAVITY.

Lesser sac or bag of the peritoneum; cavity of the great omentum; cul-de-sac, or diverticle of the peritoneum; bursa omentalis; baccus peritonei; retroverticularis.

The lesser omentum is formed by elongation of the mesogaster toward the left side. The sac is at first situated behind the stomach, but later extends between the stomach and colon down in front of the small intestines, as far as the pelvis. At first the lesser omental sac is a mere depression in the right surface of the mesogaster, with development and elongation of the mesogaster, the depression in its wall deepens until the circumference of the depression contracts into a neck, the hiatus Winslowii. The atrophying liver drags the neck of the sac, Winslow's foramen to the right of the median line by means of the ligamentum hepato-duodenale. The posterior wall of the lesser omental cavity is the two-bladed mesogaster and the ascending double layered omentum and the upper layer of the transverse mesocolon. The anterior wall of the cavity is the posterior wall of the stomach above and below the two converged serous layers from the stomach descending to the pelvis, whence the layers return on themselves to the transverse colon, which by dividing, they embrace, and again converge to form the transverse mesocolon and then pass to the posterior abdominal wall. The left end is closed in by the blades of the mesogaster while the right end converges to a small neck, orificum epiploön. The lesser omental cavity is almost perfectly observed in a child of the first year or in a cat or dog of the first year. Even in early adult life the lateral edges begin to coalesce from local peritonitis.

To trace the exact lining of the adult lesser omental sac, begin at the transverse fissure of the liver and pass along the under surface of the lesser omental sac (see figure), to the small curvature of the stomach, thence along the posterior surface of the stomach to its greater curvature. Now, pass along the posterior surface of the posterior blade of the great omentum to where it turns upon itself in the pelvis and follow it upward to the transverse colon, thence to the dorsal wall along the upper blade of the transverse mesocolon. The single upper mesocolic blade now turns upward and ascends over the pancreas, thence along the dorsal wall as far as the coronary ligament of the liver, whence it returns to the transverse fissure of the liver where we started. To trace the left wall of the sac is very easy by beginning at the right side of the right blade of the mesogaster and passing to the left to the spleen and ligamentum gastro-lienale, thence back to the greater curvature of the stomach. The right end of the sac is constructed to a small neck, foramen primum bursa omentalis, omenti minoris, lessening the size of the sac. The shape of sac is that of a collapsed grain-bag with its neck constricted. With care it may be blown up, by forcing air through Winslow's foramen.

The size of the sac is perhaps one-quarter of the size of the skin surface of the body, as the peritoneal surface is probably equal to the skin surface. The walls of the lesser sac are composed of double blades of peritoneum, except where the posterior surface of the stomach and upper surface of the transverse colon intervenes, where only a single layer of peritoneum exists. A slight piece of spleen forms also

an exception. If one introduces the finger into the neck of this sac, Winslow's orifice, in young subjects, it will pass first into an ante-room which contains Spiegel's lobe. This space is smooth, closed in front by the pars flaccida of the lesser omentum and is about the size of the fist in an adult. If now the finger be pushed further on it will pass through a second and larger foramen, foramen bursa omentalis majoris (Huschke's foramen) whence the finger enters into a wide space, a pendulous bag, smooth and moist on its surface. The bag extends to the left side and to the pelvis.

On opening the lesser omental bag at a point between the stomach and colon, we observe a sleek shining peritoneum lining the whole sac. The inside of the sac extends to the left costal wall in the ligamentum phrenico-colicum. It extends to the right as far as the flexura coli hepatis and also passes on down the ascending colon to a various extent. This right part of the great omentum is known as omentum Halleri.

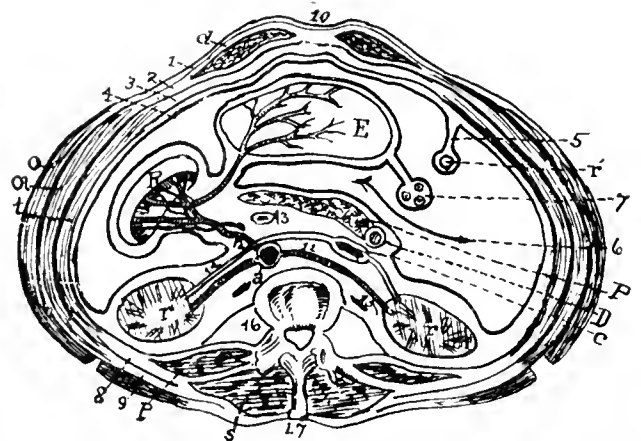


Fig. 42 (after Debierre 1890, modified) represents a cross section at the 1st lumbar vertebra to show the disposition of the peritoneum. The line of the peritoneum the artist has drawn in heavy black. r, kidney; R, spleen; E, stomach; rl, round ligament of liver; D, duodenum in association with the pancreas P; c, vena cava; a, aorta; 3, transversalis fascia; 4, parietal peritoneum; 5, filiform ligament of liver; 6, hiatus of Winslow; 7, right border of gastro-hepatic omentum containing portal vein, hepatic duct and hepatic artery; 11, venal arteries going out of aorta; a, 12, splenic artery; 13, splenic vein; 14, venal vein; 15, pillars of diaphragm; 16, psoas. The diaphragm does not show the spleen uncovered by peritoneum on the posterior border as my dissections induce me to think is a normal condition. It is also uncovered at the hilus to transmit sustaining structures.

In the lesser omental cavity, just to the left of the septum bursa omentalis, I have found varying folds and peritoneal projections due to muscular action of the left crus of the diaphragm inducing local peritonitis. These projections are so frequent in adults as to call for mention. The lesser omental cavity is divided into two compartments (in some I noted three compartments). The division is caused by a fold of peritoneum projected into the sac by the gastric artery and to some extent by the gastric vein. The fold is one to two inches high and distinct in every body which I have examined. The fold reaches to the upper border of the pancreas and is called the ligamentum gastro-pancreaticum (Huschke). As this fold divides the lesser omental cavity into departments it may be called the septum bursa omentalis. The fold or septum separates the visceral part (Spiegel's lobe) of the lesser omental sac from the non-visceral or empty part. The right portion of the sac called the bursa omenti minoris contains Spiegel's lobe of the liver and its anterior wall is mainly the pars flaccida or middle portion of the gastro-

hepatic omentum. The main portion of the lesser omental sac is the bursa omenti majoris. It lies on the left side behind the stomach. The bursa omenti minoris communicates with the bursa omenti majoris by means of the foramen omenti majoris or what I have termed Huschke's foramen. The foramen omenti minoris is Winslow's foramen. The aperture between the two sacs of the lesser omental cavity varies according to the size of the peritoneal duplicature thrown up by the gastric artery.

(To be continued.)

SELECTIONS.

Suppuration from the Use of Catgut.—Lauenstein, of Hamburg, has found very frequently in catgut, purchased as "sterile," bacteria capable of development and therefore advises circumspection. Kocher, years ago, showed the danger of infection from catgut, and refers to silk as alone capable of trustworthy disinfection. In his operations for goitre he has obtained first intention much oftener with silk than catgut.—*Wiener Klinische Rundschau*, July 14, 1895.

Contributions to the Histogeny of Carcinoma. (*Virchow's Archiv.*)—It is well recognized that at the start the connective tissue takes on an active increase of its cells, the so-called cell infiltration. The writer attributes a greater significance to this proliferative process. He maintains that absence of cell infiltration at the beginning prevents the formation of cancer. Observations were made on cancer of the skin, but the conclusions apply also to primary cancer of glandular organs and the cylindrical celled: 1, the development of carcinoma of the skin starts with active proliferation of the connective tissue, which produces a sub-epithelial stratum of cell infiltration of varying thickness. 2, at the same time the epithelium is thickened, but does not yet extend beyond its lower boundary; on the contrary the connective tissue penetrates the epithelial layer, causing the appearance of a tap-like process of epithelium entering the connective tissue. 3, by this means the individual cells of this epithelial process are being continually separated from one another, until at last one or several are entirely isolated. This gives the idea of metastasis of epithelium in the connective tissue. 4, from these isolated epithelial cells is started the real development of cancer, since the cells increase in numbers and penetrate deeper into the connective tissue, particularly in the direction of least resistance, that is, into the lymph spaces so that the elements of connective tissue, filaments and cells become inclosed.—*Centralblatt für Gynäkologie*, No. VI, Feb. 9, 1895.

Subcutaneous Use of Arsenic.—Dr. Kernig reports thirty-five cases from the Obuchow Woman's Hospital. The internal use of arsenic was inadmissible on account of the condition of the digestive tract (diarrhea, etc.). Some of these were severe cases of anemia, cancer, tubercle, joined with gastro-intestinal catarrh, in which a large number of injections, 20 to 150, were used. In another group there was temporary disturbance of digestion and only six to twelve injections were used, until the internal administration could be begun. In many cases a favorable effect was at once produced, and as other means had been generally tried without effect, Dr. Kernig felt warranted in attributing the result to the arsenic. At first he used 1 part of Fowler's solution with 2 of water, and a half of a Pravaz syringe full at a dose; later, after the example of Professor Sacharjin, of Moscow, Fowler's solution undiluted. The solution must be clear. Seldom did the injection cause pain, and only once an abscess. His

usual dose was 4 drops a day. No effect was produced on the intestines and no cutaneous eruption.—*St. Petersburger Medicinische Wochenschrift*, July 13, 1895.

Prophylaxis of Tuberculosis and Its Results.—After Cornet had proved that tubercle bacilli were not so ubiquitous as was before generally believed, but that they only existed when sputa were left to dry and so effect an entrance into the air passages of other individuals, prophylaxis against the bacilli seemed demanded. As early as 1886, he recommended united efforts to check the unrestricted expectoration. Cornet's efforts met with success in Prussia and later in Hamburg, but not in other German states or Austria. Although the time is yet too short for statistics, Cornet feels prompted to advance some figures, on account of the remissness of the people in carrying out prophylactic measures. In the Prussian penal institutions, the figures for tuberculosis since 1887 have fallen considerably, while in Bavaria they have remained about the same; the same holds true for the lunatic asylums. If one considers the whole population, there is in Prussia a greater decline in the mortality from tuberculosis, also in Hamburg, in the last five years since the introduction of prophylactic measures. It is manifest that in Prussia alone, from 1889 to 1893, the mortality list from tuberculosis was 70,000 less than was to be expected from the average of previous years. Virchow doubts if dependence can be placed upon these figures, owing to the shortness of the period.—*Wiener Klinische Rundschau*, July 14, 1895.

Operation for Abscess of Lung Following Rupture of Lung.—Maydl reports the case of a coachman, 29 years old, who fell under a carriage and sustained a fracture of the sixth rib in the right mid-axilla. He was found almost in collapse, the sputum was a bloody froth and there were blood and air in the thoracic cavity. Subcutaneous emphysema extended over the whole trunk and even the neck and face were greatly swollen. It was believed the fractured rib had penetrated the lung, so the ends were freely exposed and 12 cm. excised. Two liters of fluid blood were evacuated through the opening, but no point of rupture of the lung could be made out by the hand in the pleural cavity. Later, it was made clear that the rupture existed posteriorly at the angle of the scapula. Two drainage tubes were left in the opening, but the following day these were removed and the wound was closed. No infection resulted and there was not even a serous effusion. The wound healed by first intention in a few days. The small amount of air and blood in the pleural cavity was absorbed, and the patient improved rapidly. But after fourteen days a dullness appeared in the back at the angle of the scapula, and after two weeks more there were signs of a large cavity in the lung. The sputum was purulent, abundant, and contained numerous streptococci. The patient's strength rapidly diminished. Need of relief on account of the abscess was urgent, and a month after the first operation it was undertaken. Maydl resected a rib over the area of dullness and since the two layers of the pleura had become adherent, a Paquelin cautery was pressed through a layer of lung tissue, some centimeters thick, and opened a cavity, as large as a child's head, filled with fetid fluid. From the cavity masses of gangrenous lung tissue were drawn. The largest of these was over 1 dm. long, 4 cm. broad. Pulmonary edema followed on two occasions and a catarrhal pneumonia of the sound lung. At the time of publication the patient had been for some time without rise of temperature and was walking about. The wound was granulating rapidly, and the cavity was slowly diminishing. Maydl warns against irrigating such cavities with solutions of thymol and recommends the physiologic salt solution or boric acid.—*Wiener Klinische Rundschau*, June 23, 1895.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00

SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, SEPTEMBER 7, 1895.

THE PATHOLOGY OF EXOPHTHALMIC GOITRE.

The pathology of BASEDOW-GRAVES' disease, or exophthalmic goitre is one of the questions that is just at present to the fore in neurologic medicine, and has been the subject of one or two rather noteworthy papers in recent periodical literature. Formerly the generally prevalent notion in regard to it, as far as there could be said to be any definite theory, was that it was a disorder of the sympathetic system and the vagus, probably connected with some lesion, functional or organic, of the centers in the medulla. This view, held in varying degrees of indefiniteness may be said to have predominated up to a comparatively recent date. Within a few years, however, the thyroidean theory of the affection has come into vogue and may be said to be perhaps the one that is most popular at the present time; it is that the disease is the result of an auto-intoxication from disordered action of the thyroid gland, manifesting itself by symptoms due to nervous affections, or infections, of the bulbar vasomotor centers.

It will be seen that the toxic theory carries the pathology a little farther back toward a primal cause, which fact alone is strongly in its favor with the majority, and is in accord with a tendency at the present time to refer many heretofore misty pathologies to auto-intoxications. Whether this toxic action is due to hyper- or hypo-functioning or to the derangement or alteration of the thyroid secretion, is still a question, though the weight of opinion among those who adopt the theory is probably in favor of a hyperthyroidization of the system.

That this is the last word, however, as regards the

etiologic pathology of GRAVES' disease, no one can positively claim with our present knowledge. The thyroidean theory is, moreover, not universally accepted in its entirety; for example, PUTNAM, of Boston, in a very able paper (*Boston Medical and Surgical Journal*, August 8), considers it a "degenerative neurosis" dependent on original weakness or disharmony of the nerve elements and holds that its symptoms form a coherent group, "characteristic of strong emotion of the nature of expectant fear . . . Although often excited by emotion, this segmented group of activities may be called out in various other ways. The prolonged existence, for example, of either one of the symptoms may after a time call out the rest." In this way, DR. PUTNAM explains how emotional excitement may give rise to the disorder, while he admits that thyroid hypersecretion may also have its part in augmenting the nervous erythism in a predisposed person.

DR. PUTNAM's theory has in its support the well known emotional origin of many cases of this affection, and also the other fact that its one constant symptom, the one that first appears and, as pointed out by BRISSAUD, the one around which may be ranged all the others, tachycardia, is also one that is directly and almost constantly connected with emotional disturbances. It is not difficult to suppose that the psychical disturbances of emotion may, in their action on the cell elements of the nerve centers, cause derangements of distant organs which in turn may react and render permanent in some degree the original morbid condition. The intimate connections of the higher nerve centers of which we really know so little, but conjecture so much, is here strongly suggested. We need not reject the thyroidean theory absolutely; the facts so far as known seem to point very strongly to the implication of the thyroid in many cases, and we may therefore attribute to it a certain rôle in the keeping up at least of the disease. But there are equally valid arguments in favor of a prior nervous influence in the etiology of the disorder. Whether after this, the pathology is to be considered as that of hyper- or hypothyroidization or of simple alteration of the thyroid secretion, or that in its normal quantity and quality, it fails in its necessary function of counteracting some other morbid process or secretion, is a question which, as DR. PUTNAM says, we must wait for more light before venturing to decide. The theory of the participation of the thyroid gland, however, is a marked advance in the pathology of the affection, even though the exact part it takes may be still in doubt, and the original *primum movens* in its etiology is yet to some extent an open question.

The effect of the theory on the therapeutics of the disease has been marked, but it also indicates the uncertainty as to the exact nature of the thyroid participation. Results are claimed both from extrir-

pation of the gland and from thyroid feeding, as well as from ingestion of thymus, considered as anti-thyroid in its action. It can not therefore be said to have developed as yet any absolutely scientific and unempirical method for all cases.

The alleviation of the disease by the cardiac tonics is still a constant experience of practitioners and indicates that we are not yet ready to altogether reject the other symptomatic treatment.

CHOLERA IN THE PACIFIC.

A ripple of excitement has been created in sanitary circles by the news of cholera in the Sandwich Islands, its spread in Russia, China, and Japan, and its invasion of Corea, to say nothing of the reported cases at Grimsby in England. As early as July 25 last, Passed Assistant Surgeon WILLIAM G. STIMPSON, U. S. M.-H. S., was led to treat the British steamship *Antwerp City*, as a cholera-infected vessel on her arrival at Port Townsend, Wash., from Hiogo, Japan; but the port authorities of San Francisco seem to have been "caught napping" by the steamer *Belgie* last week, which vessel obtained free pratique through gross misrepresentation of the events of her voyage. It remains to be seen what action will be taken with her officers should she again enter the Golden Gate.

There is, probably, no serious ground for apprehension in the present situation; but the JOURNAL can not refrain from warning against a too implicit reliance on quarantine restrictions to protect this country against an invasion of the disease. Both the Atlantic and the Pacific seaboards are now threatened, and the ease with which the passengers of the *Belgie* passed through the San Francisco quarantine, from a vessel which is now known to have had three cholera deaths on board during her voyage from China, shows again what an elaborate system of leakage the quarantine of the period may prove to be.

We must repeat our lesson of a few weeks since; we may not be able to shut out cholera from our shores by quarantine; but we can and should make our environment so wholesome and cleanly as that it shall be fatal to the cholera germ as well as to the germs of all other filth diseases. And in this connection it is well to remind sanitary and civic authorities that wherever typhoid fever exists and flourishes, there also may Asiatic cholera exist and flourish.

There is a warning in this for many of our American cities. Pittsburg, for example, where typhoid is again epidemic, and in a multitude of smaller places in which the disease is now prevailing with more than its usual autumnal increase. The aspiring western metropolis, Chicago, is by no means beyond the danger line in this respect; the almost constant presence of the disgustingly suggestive *coli communis* in its public water supply is pregnant with meaning

to the sanitarian, and the city is absolutely without any sort of hospital provision in case of any epidemic but one of smallpox. Even if the new isolation hospital were ready for use—which it will not be for many months—it would be wholly inadequate for the needs of nearly one hundred and ninety square miles of territory. There should be a supply of the small portable hospitals provided at once—hospitals capable of receiving eight patients each, complete in themselves and ready to be set up in any epidemic center in an hour's notice. When a thing of this sort is needed, it is needed at once. Epidemic diseases don't usually wait to give warning and allow time for preparation. Chicago's Health Department should take immediate action in this matter—not especially with reference to Asiatic cholera, but to the epidemic diseases in general.

THE INSANITY OF CONDUCT.

In the discussion of a paper read before the British Medical Association at its recent meeting, DR. CHARLES MERCIER laid down the following four propositions which have an important bearing as regards the medico-legal relations of mental disorder: 1, that there are cases in which insanity is evinced by conduct and can not be established from mental disorder alone; 2, that there are cases in which disorder of the mind exists without insanity; 3, that therefore insanity is not essentially a disorder of the mind nor ought insanity and unsoundness of mind to be used as convertible terms; 4, that our conception of insanity is not complete until it is understood to include as a necessary and integral element, disorder of conduct.

While the limitations of the term "mind," as here used may be questioned, it seems well to state these propositions as including a valuable truth that has not yet penetrated to any extent the intricacies of the legal intellect. Conduct is simply a concrete manifestation of mental action, and therefore when absolutely irrational, though assisted with apparently perfect and even brilliant intellection may be a very clear evidence of insanity, entirely apart from delusions or other common symptoms of mental disease. Purposed and elaborated actions are evidence of the functioning of the intellectual organs of the brain as much as motion is of that of the motor centers, and when they are disordered and irregular in their type, they mean mental disorder as truly as do incoherent or irrational speech; indeed far more than the latter, which is a possibility with the perfect retention of the judgment and control of conduct that are the essential elements of responsibility and sanity. These may be deficient or absolutely lacking with the most perfect and brilliant intellection, and the condition be only revealed by irrational acts. That which is self-evident to an

alienist and psychologist seems to be one of the most difficult of all truths in its practical application.

A man may make himself a public and private nuisance, a laughing stock to the rabble, and even very dangerous in his eccentricities to himself and others; provided he can talk rationally before the court all the evidence is swept aside as worthless, as compared with that which is under the eyes or perhaps we should say the ears, of the legal experts. Even if committed to an asylum, especially if he possess legal knowledge or have officious legal friends, it is impossible to hold him, notwithstanding the fact that his insanity is essentially one from which society most needs protection. DR. RAY gives a very striking account of a case of insanity of conduct of this kind; our knowledge of it is, therefore, not a recent acquisition; instances are indeed of not infrequent occurrence, but its legal status is as yet undefined and its settlement is one of the social needs of our day. This, however, can only be effected by a general psychologic enlightenment of the legal profession, not perhaps a result to be hoped for in the very near future.

THE "NEW AILMENT" (SCHNEIDERITIS) OF LONDONERS.

According to the *Sanitary Record* for July 26, the condition of the streets of London, brought about in part by the prolonged dry weather, and in part by the kind of materials used for street paving, have caused not a little irritative trouble which for convenience has been termed the "new ailment." The *Record* also, in this same connection, calls aloud for more water in cities, especially in London; the supply of water in that city has never yet been as lavish as it should be, and not at all in keeping with its many other civic improvements. London has not enough drinking fountains for the public, and no very definite legislation compulsory as to the laying down of water pipes for rented properties. In other words, London has shown itself backward in procuring a sanitarily lavish supply of sweet pure water.

The *Sanitary Record* says:

"The question of the best kind of material for the pavements of the London streets is not unlikely to be again agitated, if there be truth in the view that what is called the 'new ailment' is due to the deleterious action of the *débris* that accumulates on the wooden pavement now in general use. The mucous membrane of the nose, which is the part chiefly affected in the ailment, becomes inflamed and thickened, and the blood vessels that ramify through this membrane become turgid, with the consequence that bleeding is set up on very slight provocation.

"The immediate occasion of the outbreak has apparently been the prolonged dry weather, that has proved injurious to many things beside the mucous membrane of the nose; and it is believed that the affection is due to the innumerable minute particles of straw and other organic substances that naturally ac-

cumulate when there has been no sufficient flushing of the pavements by rain or otherwise. Now that the weather has changed, we may hope to hear no more of this trouble; but its presence is one more illustration, on the negative side, of *the extreme value of rain as a hygienic agent*. It may not always be pleasant, but it is health-bringing.

"Water is best." The truth of that old Greek adage is continually receiving fresh illustrations. But it has not yet taken a firm hold of all the members of the community—even of all sanitary authorities. For complaints have still from time to time to be made regarding the *inadequate supply* of water furnished for the wants of the people; for *drinking*—which is a kind of flushing of the human body—for *bathing*, for *washing*, and for the essential purposes of *drainage*. And the specific complaint is being made, we observe, that in the administration of the Public Health Acts, the clauses that refer to the matter of water supply are interpreted without due regard to the public welfare.

"Every owner shall provide a water supply at or near. There is a delightful elasticity, it will be observed, in this word 'near,' which enables it to lend itself very readily to various interpretations. And it is complained that in the interpretation of the word some sanitary authorities have been neglectful of their duty, in not insisting that a supply shall be furnished even when it is reasonably required. Cost must, of course, be considered. It is not to be expected that, whatever may be the expense, water is to be introduced wherever it may be thought needful. But individuals and communities alike can not easily learn any wholesomer lesson than that wise expenditure in such matters is the truest economy."

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The meeting of the Mississippi Valley Medical Association at Detroit was characterized by unusual harmony and the papers presented were above the average. PROFESSOR PEPPER'S Address in Medicine which we shall have the pleasure of presenting to our readers in full next week, was a masterly eulogium of DANIEL DRAKE, and a faithful portrayal of the marvelous changes that have taken place in the great Interior Valley since the time of DRAKE.

The popular author, the grandeur of the theme, the audience comprising the descendants of those hardy pioneers who have made the valley what it is to-day, and the historic city in which the meeting was held all conspired to make it an occasion long to be remembered in the civic annals of Detroit and the whole valley.

The other addresses were excellent, notably the address of PRESIDENT WISHARD and the address of PROFESSOR MCGRAW which we publish in this issue.

The Committee of Arrangements, under the admirable management of DR. H. O. WALKER, left nothing undone that could add to the international reputation of Detroit as the hospitality center of the communities living on the Great Lakes.

The election of DR. H. O. WALKER to the Presidency was a public testimony to his high standing in the

Association, and is an honor which he has worthily won.

The selection of Minneapolis as the next place of meeting was wise, and gives assurance in advance, if any were needed, of the prospective success of next year's meeting.

CORRESPONDENCE.

A Philological Problem from Philadelphia.

PHILADELPHIA, PA., Aug. 15, 1895.

To the Editor:—In one of the latest numbers of the JOURNAL is an extract from the *Deutsche Medicinische Wochenschrift* on "The New Anatomic Nomenclature," and the number also contains an editorial commendation of the idea. In reading the extract I note that, "it was resolved that the terms should be in one language, that is, Latin designations only. . . . The names shall be Latin, and etymologically correct."

That promises well, but when I look at the examples given by the JOURNAL, I find the first one given to be "osteologia," a pure Greek word, with nothing Latin about it! Liddell and Scott define *ὀστέολογια* as "the science which treats of bones," "Splanchnologia" and "angiologia" are also Greek, from *σπλάγχχον* viscera, and *ἀγγεῖον* a blood vessel, respectively, and these are not the only examples.

I do not wish to be considered a captious critic, but isn't it rather singular that a nomenclature which professes to contain only Latin terms, and those etymologically correct, should bristle with so many pure Greek words?

Very truly yours, D. W. NEAL, M.D.

ANSWER:—We do not dispute the Greek origin of the words mentioned, but they are transferred words, and used in Latin with entire propriety. Osteologia is given in Foster's Medical Dictionary as a Latin word. Leverett's Latin Lexicon gives osteologia as the Latin synonym for the English word, osteology. So also does Wm. Young in his Latin English Dictionary. Nearly all scientific words used by the Latin writers were transferred bodily.

A Question of Ethics.

ORAN, Mo., Aug. 8, 1895.

To the Editor:—Will you kindly answer the following question in your next issue:

Is it unprofessional or not, to divide your fees with "Granny women?" I have a colleague who gives his assistant midwife \$1 while he takes \$9 for his obstetrical fee. I told him that it was the business of the patron to pay the fees of both physician and nurse, and that when a physician divided his fees with would-be midwives it looked very much like "drumming" for practice. Please answer and oblige.

Very respectfully yours, W. P. HOWLE, M.D.

ANSWER:—The dividing the fee in an obstetrical case with the nurse or other attendant is in the nature of drumming for practice, or the acceptance by the physician of a percentage from an apothecary. No self-respecting physician should indulge in such methods.

A Staunch Defender.

ATLANTA, GA.

To the Editor:—The sanious exudation from a gangrenous ulcer does not indicate more clearly its true character, than does the utter disregard of correct principle show the reviewership of the communication in your number of August 24, headed, "The Code, Once More," and signed "Amicus Veritatis."

It should have had for a caption, "No Code," and for signature, "Vox Asini." Respectfully, VIRTUS.

BOOK NOTICES.

The Cell, Outlines of General Anatomy and Physiology.—By DR. OSCAR HERTWIG, Professor Extraordinarius of Anatomy and Comparative Anatomy, Director of the II Anatomical Institute of the University of Berlin. Translated by M. CAMPBELL and edited by Dr. HENRY JOHNSTONE CAMPBELL, of London. With 168 illustrations, 8 vo., cloth, pp. 368. Price, \$3. London: Swan, Sonnenschein & Co. New York: MacMillan & Co. 1895.

The author has in this book not only prepared a supplement to his work on embryology, but has endeavored to fix the scientific standpoint at present occupied by the doctrines of cell and tissue formation.

Much in the book is necessarily theoretical, and may yet be changed by the advance of science, for as the author well says: "The cell is a marvelously complicated organism, a small universe, into the construction of which we can only laboriously penetrate by means of microscopic, chemico-physical and experimental methods of inquiry."

"In many respects," says our author, "the cell theory is the center around which the biologic research of the present time revolves," and while he admits with Max Schultze that "the protoplasm of plants and animals and the sarcode of the lowest organisms are identical," and that the term "cell" is incorrect, he yet retains it under the definition that the "cell is a little mass of protoplasm, which contains in its interior a specially formed portion, the nucleus." The chemico-physical and morphologic properties of the cell are first described, and then the vital properties are treated of. These include: 1, Contractility; 2, Irritability; 3, Metabolism; 4, Reproduction. The work concludes with a chapter on "the cell as the elementary germ of an organism," and "theories of heredity." This book, then, is seen to deal with one of the most important of all the fundamental problems of biology, and we can commend it to the readers of the JOURNAL as embodying in entertaining and easily understood language, the most advanced theories concerning the anatomy and physiology of that mass of protoplasm which we term a cell, and of its nucleus, which in the present state of knowledge we must regard as the true elemental organ of life.

Parvin's Science and Art of Obstetrics; the Science and Art of Obstetrics. By THEOPHILUS PARVIN, M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. New (3d) edition. In one very handsome octavo volume of 677 pages, with 267 engravings, and 2 colored plates. Cloth, \$4.25; leather, \$5.25. Philadelphia: Lea Brothers & Co., Publishers. 1895.

The publication of the new edition of Parvin's standard treatise emphasizes well the fact that it has for some years supplied the need for a new text-book from the great Philadelphia school. The University had Dewees and Hodge, and Jefferson had Meigs. The long sway held by Meigs at Jefferson and the great popularity of his text-book, based as it was on elegance of style, quaintness of expression, keen observation and natural eloquence, made it rather difficult for Professor Parvin, but it must be conceded that he well filled the vacancy. His scientific knowledge, his wide range of information and his vast acquaintance with general literature, enabled him to prepare a book that is not less entertaining from a literary standpoint than from a professional one. Much valuable historical matter finds a place in this volume.

Old members of the ASSOCIATION will recall with pleasure that Professor Parvin presided at the thirtieth annual meeting at Atlanta in 1879, and will rejoice to see that although more than a quarter of a century has elapsed, the venerable ex-President revises and largely re-writes a work which shows him still in the foreground in his chosen field of medical science.

Modern Medicine and Homeopathy. By JOHN B. ROBERTS, A.M., M.D. 16 mo., cloth, pp. 72. Price, 75 cents. Philadelphia: The Edwards & Docker Co. 1895.

It is with pleasure that we record the publication of the two essays of Professor Roberts in a form more convenient for preservation and reference than the Transactions of the Society in which they were read, or even our beloved JOURNAL in which one of them was previously printed. These essays, which are written in a spirit of friendliness to our erring brothers, have given rise to some controversy, on the ground that Dr. Roberts has to the homeopaths been

"To their virtues very kind,
To their faults a little blind."

but it is evidently in a purely philanthropic spirit that the essays were written, and they have very appropriately emanated from the City of Brotherly Love, and Dr. Roberts.

Those who wish to become acquainted with the peculiar tenets of the homeopathic sect, in their relations with modern medicine will do well to procure this little work—which, while giving the points in which "homeopathy" still adheres to the teachings of modern medicine, sets forth clearly and without abuse, the fallacies and distorted views held by some of the sectarians under consideration.

The Pocket Materia Medica and Therapeutics.—A Resumé of the Action and Doses of all Official and non-Official Drugs now in common use. By C. HENRI LEONARD, A.M., M.D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynecology in the Detroit College of Medicine; member of the AMERICAN MEDICAL ASSOCIATION, etc. Second edition, revised and enlarged. Cloth, large 16 mo., 367 pages, price, postpaid, \$1. Detroit: The Illustrated Medical Journal Co., Publishers. 1895.

The second edition of this popular therapeutic work has had sixty-seven pages added to it, beside typographical errors corrected, etc. A new and complete cross-index has been prepared, which renders the quick finding of a non-familiar drug possible. This is an important feature lacking in many ready-reference books. The metric doses have been given throughout and the book has been brought up to date. Its alphabetical arrangement makes it very convenient for reference.

PUBLIC HEALTH.

How to Prevent the Sale of Hurtful Cosmetics.—Notwithstanding all that has been published regarding the poisonous nature and injurious effects of the nostrums advertised to improve the complexion, still their sale goes bravely on. It is everywhere a difficult traffic to control, but the police of Berlin have hit upon an ingenious way of putting a stop to their sale, without invoking the law against the advertisers. They insert in all the papers of the city a notice stating that they have caused an analysis to be made of this or that preparation, and that its ingredients are so-and-so; and they also add the intrinsic value of the ingredients. In one celebrated preparation, they showed that a compound that cost 1 cent was sold for \$2.50 a bottle. They do not concern themselves with non-poisonous nostrums.

Seaboard Precautions as to Cholera.—The August issue of *Public Health* (London) quotes from the Annual Report of Dr. D. S. Davis, Health Officer of Bristol, England, his observations regarding the theory of maritime precautions for exposed cities against cholera. Dr. Davis' report for 1894 offers the following points germane to conditions existing in England:

"The aim of medical inspection, which has supplanted quarantine in England as a means of dealing with imported cholera, is briefly as follows:

"1. By medical inspection of persons arriving, to detect actual cases of cholera, and to secure proper isolation of patients in hospital, and disinfection of their belongings, and of the berths or places they may have infected.

"2. By the same medical inspection, to detect cases apparently sickening, and so to isolate and watch them.

"3. To notify forward to the sanitary authorities of the districts whither they are bound, the names and addresses of the rest of the crew and passengers, who are apparently well, but who may possibly have the disease in an undeveloped form. The responsibility of watching and caring for any cases which may develop after arrival at their destination devolves upon the respective sanitary authorities having charge of such districts.

"In short, medical inspection deals with actual and probable cases but can only notify forward possible cases. Herein it differs from quarantine, in that no cases except actual or threatened cases are detained at the port of arrival, nor is the vessel detained when a hospital is available, except a reasonable time for purposes of disinfection; and in that the responsibility of dealing with any cholera that may arise is shared not only by port districts, but by inland districts, to which some one of the cases allowed to go forward may take the disease. But such inland districts have the advantage of being forewarned, and any spread of the disease must be a measure of their own neglect.

"Fortunately, the incubation period of cholera is generally short (a few days only), so that a long distance ship with no recent cases on board involves, as a rule, little danger." This is in effect the American practice, and it has taken the British all these years to learn that although we still use the word "quarantine," we long ceased the practice of detention *per se*.

Heredity of Tuberculosis.—At a recent meeting of the *Société de Biologie*, of Paris, MM. Bar and Renon presented a communication concerning the results of their efforts to elucidate the question of direct transmissibility by the placenta of the bacillus of Koch from the mother to the fetus in the human species. M. Bar had, in five instances, obtained at the moment of birth a certain quantity of blood as it flowed out of the placental end of the umbilical vein, and injected it at once under the skin of the abdomen of guinea pigs. In three cases the results were negative—that is, the animals did not become tuberculous—but of the remaining two, one was that of a woman in the third stage of consumption, and whose expectoration contained the tubercle bacilli of Koch. She was delivered of a fetus that had died the day previous; the placenta did not present any apparent lesions. The blood flowing from the umbilical vein was injected into a guinea pig, which succumbed two months later from tuberculosis of the liver and spleen. No signs of tuberculosis were discovered in the organs of the fetus on necropsy. However, the pulp of the liver and lungs was injected into two more guinea pigs, both of which succumbed with all the signs of tuberculous infection, ulcer at the seat of inoculation, granulation of the liver and spleen, etc. In the second case, the mother had large pulmonary vomicae, but the expectoration had not been tested. The child died on the fortieth day from broncho-pneumonia. At the moment of birth the blood of the umbilical vein was injected into two guinea pigs. One of the animals lived, while the other succumbed, with a chancre of inoculation and a generalized visceral tuberculosis.

We note that some of our foreign exchanges profess to regard these results as conclusive of the heredity of tuberculosis—the Paris correspondent of the *Medical Press* of the 21st ult., for example, asserting that the authors have "discovered the bacillus in the blood of the fetal cord;" that the discovery "is, consequently, of the highest interest, confirming as it does clinical observations, and settling the question once and for all." At this distance from France it does not appear that MM. Bar and Renon have set up any such claim; on the contrary, there is no mention in the correspondent's account of the detection of the tubercle bacillus in anything but the sputum of one of the two women, and it is not definitely asserted that the other had tuberculosis at all—"pulmonary vomicae" are not always and necessarily tuberculous, although, of course, the majority are. The question of the heredity of tuberculosis may not be "settled once and for all" in this out-of-hand fashion. As thus far made known, the experiments cited are by no means conclusive, and they add absolutely nothing confirmatory of the observations of such students as Baumgarten, Birch-Hirschfeld, Hericourt and Richet, Whittredge Williams and others in this field, who have demonstrated the direct transmission of the bacilli from the mother to the fetus.

Churning the Milkmen.—The usual periodical agitation of the milk question is on in great force and vigor this season and it really seems as though some good results might accrue. The most comprehensive and thorough work has been that of the Special Analytical and Biological Commission of the *British Medical Journal* on the milk supply of London. The preliminary report of this Commission was published July 6, and the editorial review is given in the issue of August 24. The closing paragraph is as follows: "The moral of the whole matter is that producers and vendors must be compelled, within reasonable limits, accurately and fully to describe the articles which they supply to the public, and that the standard of composition for a natural product such as milk shall not be that of an abnormal fluid yielded by a diseased or improperly fed animal, but shall be the normal composition which, within certain well-ascertained limits, the mixed milk of healthy and properly fed cows is known to possess. 'Milk' does not mean 'thinned milk,' nor does it mean 'separated milk.' These, which are, of course, articles of commerce, should be described by their distinctive titles. Condensed milk means condensed whole milk, and if a preparation which has been obtained by condensing separated milk is called condensed milk, a distinct fraud is perpetrated upon the public. If sophistication, adulteration and the production of milk under insanitary conditions are to be suppressed or appreciably minimized, an awakened and vigorous public feeling on the matter is essential. It rests mainly with the medical profession to bring this about." Thus far Mr. Ernest Hart, and it pretty fully indicates the principal evils which beset the milk supply of most large cities—London as well as New York, Chicago equally with Philadelphia. But Dr. Gould, in the *Medical News*,¹ is not so sanguine that cow's milk, howsoever pure, will materially reduce the waste of infant life and asserts that, notwithstanding all the improvement that has been effected in the milk supply of cities, "hand-fed babes die in summer now as they did twenty years ago." He thinks that it would be well for medical men to direct their energies toward "bettering or rather increasing the number of human milkers instead of looking for substitutes." "If," he says, "the time and talent now expended in endeavoring to obtain a pure supply of cow's milk were directed to this other question, and the subject freely discussed in the lay press as well as in the medical journals, we would have a lessened infant death rate and the problem 'how and what to feed the baby' would not excite so much attention as it now does." Meanwhile, what the newspapers call the "crusade" against the milkmen is being vigorously pushed both in New York and Chicago and the lower courts of both cities are congested with the multitude of "milk cases." To show that there is need of some such action it is only necessary to cite one statement made by Dr. Gehrmann of the Chicago Municipal Laboratory. He says he has made no bacteriologic examination of Chicago milk without producing numerous colonies of the unspeakable bacillus coli. Mr. Sidney Rowland of the English Commission testifies to the same effect. This is damning proof of filth of the most disgusting sort in the dairies, the vessels and the water used and on the hands and persons of the milkers and handlers. But a municipality can not deal with these horribly insanitary conditions except in an indirect way. Six-sevenths of the London milk supply, as large a proportion of that of Chicago and a still greater proportion of the New York supply is furnished from territory beyond the jurisdiction of the several cities. Only the State can correct this basic evil and that by a rigid sanitary inspection of dairies and milk-producing plants through State Boards of Health and kindred agencies. Until this is done and the remedy is applied at the source and beginning of the evil the efforts of municipalities will continue to be ineffectual.

Reduction of Diphtheria Mortality.—At the recent meeting of the British Medical Association, during the discussion on the antitoxin treatment of diphtheria, statistics were presented from the hospitals of England, Scotland, Munich, Berlin and New York, showing a striking reduction of the mortality from diphtheria under the use of the antitoxin.

¹ The Milk Question, Aug. 31, 1895.

Dr. E. W. Goodall, Medical Superintendent of the Eastern Hospital, Homerton, presented the following results of 241 cases under his own care or observation between January 1 and June 30 of this year:

Treated with antitoxin:

Under 5	57 cases, of whom 17 died	29.8 per cent.
5 to 10	36 cases, of whom 6 died	16.6 per cent.
10 to 15	12 cases, of whom 1 died	8.3 per cent.
	105	24
		22.8

Treated without antitoxin:

Under 5	67 cases, of whom 30 died	44.7 per cent.
5 to 10	46 cases, of whom 14 died	30.4 per cent.
10 to 15	23 cases, of whom 1 died	4.3 per cent.
	136	45
		33.6

Prof. Dr. Von Ranke, of the University of Munich, between Sept. 24, 1895, and July 1, 1895, had 163 cases of primary diphtheria, with a mortality of 29=17.7 per cent. Of these there were 154 cases bacterially diagnosed as undoubted diphtheria, with a mortality of 18.8 per cent. The necessity of a prompt resort to the serum is shown in the following figures:

Of 19 cases treated on the first day	1 died	5.2 per cent.
Of 47 cases treated on the second day	4 died	8.5 per cent.
Of 39 cases treated on the third day	7 died	17.9 per cent.
Of 19 cases treated on the fourth day	3 died	15.8 per cent.
Of 9 cases treated on the fifth day	1 died	11.1 per cent.
Of 10 cases treated on the sixth day	4 died	40.0 per cent.
Of 15 cases treated on the seventh and later	7 died	46.6 per cent.

Mortality of patients according to age:

Under 12 months	5, all of whom died	100.0 per cent.
Under 2 years	24, of whom 9 died	37.5 per cent.
Under 3 years	25, of whom 3 died	12.0 per cent.
Under 4 years	32, of whom 4 died	12.5 per cent.
Under 5 years	17, of whom 2 died	11.8 per cent.
Under 6 years	20, of whom 2 died	10.0 per cent.
7 and over	39, of whom 3 died	7.7 per cent.

Mortality of primary diphtheria in former years:

1887	42.2 per cent.	1891	46.0 per cent.
1888	48.9 per cent.	1892	56.2 per cent.
1889	46.5 per cent.	1893	46.0 per cent.
1890	47.9 per cent.	1894	57.0 per cent.

Since beginning serum treatment 17.7 per cent.

The mortality has, therefore, been reduced considerably more than one-half from that of the best ante-serum year, and more than two-thirds from that of the worst. Prof. Dr. A. Baginsky, of the University of Berlin, reported that during the past year he had treated 525 cases of diphtheria with serum. Previous to the introduction of this form of treatment the mortality had, during four years, averaged 41 per cent. When the cases come to be examined in detail the improvement is even more striking.

Of cases	Previous Mortality.	Present Mortality.
	Per cent.	Per cent.
Under 2	63.30	25.20
2 to 4	52.85	17.12
4 to 6	37.90	17.24
6 to 8	27.41	11.39
8 to 10	19.35	5.11
10 to 12	15.07	10.00
12 to 13	13.00	0.13

As to the general condition of the patients, Dr. Baginsky considered that the serum treatment not only reduced the mortality, but that the general condition of the children was improved; that there was very much less danger from heart disease; that there were fewer cases of nephritis; that there was less danger of laryngeal stenosis—no case in his experience ever having had laryngeal obstruction unless this condition had already begun, and that intubation was always possible, whereas under the older treatment tracheotomy was very often necessary. Finally, Dr. Herman Biggs, Bacteriologist to the New York City Board of Health, stated that he had had under his charge between 400 and 500 cases of diphtheria which had been treated with antitoxin in their own homes. These had all been severe cases and the mortality had been slightly over 16 per cent. The mortality for the whole of New York, he added, had been reduced over 40 per cent. Dr. Biggs then dwelt upon the importance of the antitoxin in preventing the spread of the disease by rendering those who were exposed to the infection immune. In one hospital there had been 107 cases of diphtheria in 108 days; immunizing injections of the serum

were then resorted to with all the inmates—200 units of Behring's preparation being used in each case. During the next thirty days only one very mild case occurred; in the following thirty days another mild case occurred and then five more. Injections of 225 units were then used and there were no more cases. The same result was obtained in three other institutions and the value of the immunizing power of the antitoxin was conclusively demonstrated. The speaker concluded by saying that in over eight hundred subjects treated for the purpose of rendering them immune he had in no case observed any unfavorable symptom; in a few cases rashes, apparently urticarial in nature, had occurred on the eighth day, and in some there had been a temporary rise in temperature which, however, had in no case resisted treatment more than twelve hours.

Smallpox Epidemic in London.—The belief which was expressed about the middle of August that the epidemic manifestation of smallpox in London had reached its highest point, with 327 cases under treatment on the 10th of that month—proves to have been not well founded. A cable dispatch of the 3d inst. announces that the disease has been officially declared epidemic in the east districts, in which there were 482 cases under treatment on the 2d inst. This rapid increase of the disease during the summer season excites grave apprehension as to its possible extent during the approaching cold weather, and the Local Government Board is putting forth every effort for its suppression before winter. So far as can be ascertained the disease first manifested itself in Whitechapel, and the *British Medical Journal* of August 24, significantly adds, in this connection: "For some time past the Board of Guardians have not enforced the [vaccination] act, there being a majority of anti-vaccinationists on the Board."

SOCIETY NEWS.

Medico-Legal Congress.—Dr. Forbes Winslow, of London, sailed on August 24 from Southampton and will preside as chairman over the Department of Insanity and Mental Medicine at the Medico-Legal Congress, held at the United States Court Room, Post Office Building, New York, on September 4, 5 and 6. He will also read a paper at the same congress on "Suicide as an Epidemic." Dr. Winslow will make an extended visit in the United States.

American Association of Obstetricians and Gynecologists.—The eighth annual meeting of this flourishing society will be held in Chicago Sept. 24, 25 and 26, 1895. The following is the preliminary program:

President's annual address, J. Henry Carstens, Detroit.
 Relation of pelvic suppuration to structural changes that may occur in the Fallopian tubes, A. P. Clarke, Cambridge.
 Nephrorrhaphies, George Ben Johnston, Richmond.
 Detached fibroids, George H. Rohé, Catonsville.
 A clinical contribution to lateral displacements of the uterus, Edward J. Ill, Newark.
 Appendicitis, A. Vander Veer, Albany.
 Intermediate treatment of puerperal sepsis, A. B. Miller, Syracuse.
 Kraurosis vulvæ, a contribution to its pathology and therapeutics, H. W. Longyear, Detroit.
 Report of three recent cases in gall-bladder surgery, Edwin Ricketts, Cincinnati.
 Subject to be announced, H. E. Hayd, Buffalo.
 Intestinal obstruction following peritoneal operations, A. H. Cordier, Kansas City.
 Subject to be announced, S. Y. Howell, Buffalo.
 Cure of tubal distension without laparotomy, F. A. Glasgow, St. Louis.
 Subject to be announced, W. B. Dorsett, St. Louis.
 Subject to be announced, C. C. Frederick, Buffalo.
 Hysterectomy in bilateral diseases of the appendages, giving remote results, Florian Krug, New York.

Discussion: Vaginal hysterectomy *versus* Abdominal section for pus tubes. (a), title unannounced. (affirmative) X. O. Werder, Pittsburg; (b), when shall hysterectomy accompany bilateral removal of the appendages? Reuben Peterson, Grand Rapids; (c), pathologic and surgical contraindications of the vaginal route in dealing with puriform diseases of tubes and ovaries, Joseph Price, Philadelphia; (d), title unannounced. (affirmative) George H. Rohé, Catonsville.

Discussion: Eclampsia gravidarum. (a), Etiology, Frederick Blume, Allegheny; (b), Pathology, George F. Hulbert, St. Louis; (c), title to be announced, W. H. Taylor, Cincinnati; (d), Prophylaxis, H. W. Longyear, Detroit; (e), Puerperal convulsions *versus* Insanity, W. P. Manton, Detroit; (f), Treatment, J. M. Duff, Pittsburg; A. H. Wright, Toronto; Thomas Lothrop, Buffalo.

Exhibition of various types of rectal papillæ, R. T. Morris, New York.

Subject to be announced, E. Arnold Praeger, Los Angeles, Cal.

Ruptured interstitial pregnancy, L. H. Dunning, Indianapolis.

Has gynecology received just recognition as a specialty? M. B. Ward, Topeka.

Indications for operation in puerperal sepsis, L. S. McMurry, Louisville.

Pneumo-peritoneum, James F. W. Ross, Toronto.

Subject to be announced, J. B. Murphy, Chicago.

Subject to be announced, Charles A. L. Reed, Cincinnati.

Subject to be announced, M. Rosenwasser, Cleveland.

The regular program will be issued September 1.

J. HENRY CARSTENS, President.

WILLIAM WARREN POTTER, Secretary.

Section on State Medicine.—Minutes of the proceedings of the forty-sixth annual meeting of this Section of the AMERICAN MEDICAL ASSOCIATION held at Baltimore, Md., May 7 to 10, 1895. The first session convened in the north side stage room of the new Music Hall at 3 o'clock P.M., Tuesday, May 7, the chairman, Dr. L. H. Montgomery of Chicago, presiding and Dr. Charles H. Shepard of Brooklyn, N. Y., Secretary.

After registration: The next order of business Dr. James F. Hibberd was requested to occupy the chair pro tem, while the chairman read the Annual Address which was upon motion referred for publication.

The first paper was by Dr. Henry O. Marcy, entitled "Sanitation in Street Pavement." Discussed by Drs. A. L. Gihon, Jerome Cochran, G. P. Conn, C. F. Ulrich, B. A. Randall, J. A. Stewart, D. W. Cathell, R. Beverly Cole, W. C. Woodward and the author, and referred for publication.

The next paper read was by Dr. C. F. Ulrich, on "Physical Training in Childhood and Youth as a Preventive of Disease," which was upon motion of Dr. I. N. Quimby referred for publication.

Dr. B. Alexander Randall read the next paper on "Hygiene of the Eyes and Ears in Schools," referred for publication in the JOURNAL.

The following gentlemen were appointed members of the Business Committee to represent the Section during the meeting of the ASSOCIATION: Drs. George W. Stoner, J. J. Kinyoun and Dr. J. A. Stewart of Baltimore.

The paper "Anticipative Treatment of Disease, Organically, Functionally and Specifically," by Dr. W. G. A. Bonwill, read by title, which was followed by the reading of a paper entitled, "The Proper Relations of National, State, and Municipal Quarantine," by Dr. Jerome Cochran. Discussed by Drs. A. G. Field, Woodward, Ulrich, Rogers and the chairman and referred for publication in the JOURNAL.

Upon motion of Dr. Charles H. Shepard, seconded by a number of the members, the following suggestion embodied in the address of the chairman was unanimously adopted, and referred to the general session of the ASSOCIATION with the request that it be read there and similar action taken regarding the appropriation. As it is in reference to the proposed Department of Public Health, the suggestion is herewith transmitted in its entirety:

"That we advise and recommend to the ASSOCIATION in general session, ere its final adjournment, that the perpetuity of the special committee appointed by the ASSOCIATION in 1891 be continued. To memorialize Congress to establish another branch of the Federal Government, known as the Department of Public Health, with a medical secretary of same. That this committee be clothed with additional substantial authority, and with the request also from this Section that sufficient financial aid from the Treasury of the ASSOCIATION be appropriated, which should not be less than

\$1,000 for the ensuing two years to defray the necessary expenses of the committee."

After the appointment of the nominating committee, which consisted of Drs. G. P. Conn, C. F. Ulrich and A. G. Field, the Section adjourned until 9 o'clock A.M., Wednesday.

SECOND DAY—WEDNESDAY, MAY 8.

The first paper "Lighting the School Room" with illustrations, was read by Dr. Archelaus G. Field, and upon motion Dr. Field was permitted to re-read his paper before the Section in Ophthalmology if agreeable for him to do so. Otherwise the same was referred for publication.

"Depopulation of Civilized Nations" was the next paper announced to be read by Dr. James W. Cokenower. As the author was not present it was read by title.

The following papers were also read by title, in the absence of the authors: "Tuberculosis and its Prevention," by Dr. Charles E. Winslow, Los Angeles, Cal.; "Prevention of Tuberculosis by Feeding," by Dr. E. Cutter, New York, N. Y.; "Importance to a Municipality of a Contagious Disease Hospital," by Dr. J. T. Leal, Paterson, N. J.

The Secretary then read a paper by Dr. Benjamin Lee of Philadelphia, on the subject of "The Necessity for Increased Hospital Accommodations for the Treatment of Contagious Diseases in Large Cities." The Section then adjourned until 3 o'clock P.M.

Afternoon Session. Second day continued. The first business was the report of the Nominating Committee of officers of the Section for the ensuing year: Chairman, Charles H. Shepard, Brooklyn, N. Y.; Secretary, Albert L. Gihon, U.S.N., Washington, D. C.

Executive Committee: one year, Charles A. Lindsley, New Haven, Conn.; two years, George W. Stoner, Baltimore, Md.; three years, Liston H. Montgomery, Chicago, Ill. Upon motion, duly seconded, the report of the committee was unanimously adopted.

Reading and discussion of papers was then proceeded with. "The Bath in Modern Medicine," was the first topic considered, which paper was read by Dr. Charles H. Shepard and upon motion was referred for publication.

"A Practical Demonstration of the Natural Facilities for Water Contamination," by Dr. R. Harvey Reed, Columbus, Ohio, was read by title.

"Why Baltimore is a Healthy City," was read by Dr. D. W. Cathell. Discussed by Dr. James A. Stewart, ex-Commissioner of Health of Baltimore, and Secretary of the Maryland State Board of Health, Dr. Jerome Cochran, the chairman, and the author. This paper was referred for publication.

The next paper read was entitled, "The Use of Vaccine Serum in Variola," by Dr. Llewellyn Eliot, and was discussed by George M. Kober, Jos. J. Kinyoun and the writer. Upon motion, duly seconded, the paper was referred for publication in the JOURNAL.

The next paper announced on the program was read by title, namely, "Importance of State Government Control of Artificial Agencies that may be Productive of Noises," by Augustus P. Clarke, Cambridge, Mass.

"Reform in Medical Expert Testimony," was the title of an essay contributed by Dr. S. S. Herrick, of San Francisco, Cal., which was read by the Chairman, and upon motion, the same was referred for publication.

This was followed by Dr. Elmer Lee, who read a paper entitled "Prevention of Cholera," which was upon motion referred.

The succeeding paper, "The Gold in Garbage," by Dr. Douglas H. Stewart, of New York, N. Y., was, upon motion, passed, as neither the author nor the paper had been seen.

The same course was pursued regarding the paper that was next announced on the program "with no title," by Dr. Cressy A. Wilbur, of Lansing, Mich.

The subjoined list of papers were read by title and referred for publication, as the papers were on hand and the authors had been present during previous sessions:

"The Proprietary System," by Dr. F. E. Stewart, Detroit, Mich.

"How to make Practical Life Insurance Examinations," by Dr. John L. Davis, Cincinnati, Ohio.

"Observations on Hydrophobia and the Pasteur Treatment," by Dr. Antonio Lagorio, Chicago, Ill.

Dr. Granville P. Conn read a paper on "State Medicine v. Fads."

The Section then adjourned until 3 o'clock Thursday afternoon.

THIRD DAY—THURSDAY, MAY 9.

The Section convened at 3 o'clock. Increased interest was

manifest as it was known that a series of essays and papers were to be read by members of the American Medical Temperance Association, constituting what the chairman termed a Symposium on Alcohol.

This is the first time that the members of the A. M. T. A., as a body, had ever been invited to participate with any of the sections of the Association proper.

At 3:05 o'clock, Dr. N. S. Davis, President of the A. M. T. A., read an address, "Does Alcohol ever Act as Food, or as a Generator of any Natural Force in the Living Body?"

The discussion that ensued was participated in by Drs. I. N. Quimby and J. H. Kellogg. The address was, upon motion and seconded, referred for publication, as were all the other papers of the series that were read.

At 3:35 o'clock, Dr. Henry D. Didama read a paper with nearly the same title.

Dr. J. H. Kellogg read a paper on "The Influence of Alcohol upon Urinary Toxicity," discussed by Drs. I. N. Quimby and Elmer Lee.

Dr. I. N. Quimby's paper on the "Fatality of Surgical Operations," was announced, but Dr. Quimby was obliged to retire to keep an appointment elsewhere. The paper was read by title and referred for publication.

Drs. David Paulson and Howard F. Rand, of Battle Creek, Mich., were announced to read "A Report of a Series of Physiologic Tests, Showing the Effects of Alcohol in Moderate Doses upon the Nervous System." As neither author was present the report was passed.

Dr. W. H. Riley's paper "On the Treatment of Typhoid Fever without Alcohol," was read by title, as were also the succeeding papers, entitled "Six Cases of Typhoid Fever Successfully Treated without Alcohol," by Dr. Kate Lindsay, of Battle Creek, and "Alcohol in La Grippe," by Dr. Charles H. Shepard.

The paper announced to be read by Dr. George W. Burleigh, of California, having for its title "Influence of Alcohol on the Blood," was, upon motion, passed, as neither the author nor his paper were present.

Dr. F. W. Grosvenor, of Buffalo, N. Y., read a paper upon "Some of the Factors in the Solution of the Alcoholic Problem."

The succeeding three papers were read by title, namely: "Alcoholic Intolerance and Predispositions," by Dr. T. D. Crothers, Hartford, Conn.

"Alcoholic Anesthesia," by Dr. L. D. Mason, Brooklyn, N. Y.

"Acute Alcoholic Insanity, as Distinguished from Delirium Tremens," by Dr. John Morris, Baltimore, Md.

An instructive and interesting discussion ensued which was participated in by Drs. N. S. Davis, C. G. Comegys, A. P. Clarke and J. H. Kellogg.

The chairman, Dr. Montgomery, in conclusion, renewed his thanks to the members of the Section for what they have done toward contributing the unprecedented number of valuable essays and papers that have been presented at this meeting, and for personal courtesies extended to himself.

Dr. Jerome Cochran and G. P. Conn were appointed a committee to conduct Chairman-Elect Dr. Charles H. Shepard to the chair, who briefly responded for the new honor that had been conferred upon him, and inquired if there was any miscellaneous or unfinished business to be transacted. Dr. Montgomery announced that he had been informed by the Chairman of the Nominating Committee, that Dr. Gihon could not serve as Secretary of the Section, and as Dr. Gihon had informed the speaker personally of such fact, he moved that Dr. Elmer Lee, of Chicago, be elected Secretary of the Section for the coming year. Carried.

The Chairman then declared the Section adjourned *sine die*.

Since adjournment, Dr. Charles E. Winslow's paper, "Tuberculosis and its Prevention," has come into possession of the JOURNAL, and will appear in due time in the published Transactions.

NECROLOGY.

CHARLES F. J. LEHLBACH, M.D., of Newark, N. J., died August 14. He was 60 years old; was born in Baden-Baden, Germany, and came to America when 14 years old, settling in Newark. He received a classical education from his father, the Rev. Frederick Augustus Lehlbach, who had gained eminence in Germany by his writings. He was graduated from the College of Physicians and Surgeons, New York. In 1861 he enlisted as a private in the District of Columbia Volunteers, and afterward joined Battery B,

1st Pennsylvania Light Infantry. In 1863 he became assistant surgeon, serving till the close of the war, when he resumed practice in Newark. In 1867 he was made county physician. He leaves a wife and several adult children. One son is health officer of Newark.

JAMES W. MARTIN, M.D., of Lebanon, Ind., August 26.—Alfred G. Lebault, M.D., of Norfolk, Va., August 27, aged 84 years.—W. W. Cable, M.D., of Pittsburg, Pa., August 25, aged 71 years.—S. B. Finch, M.D., of Washington, D. C., August 26.—H. S. Costikyan, M.D., of Chicago, August 31, aged 53.—Fayette Montrose Weller, of Chicago, September 2, aged 40 years.—J. S. Clark, M.D., of Chicago, August 31, aged 74 years.—Asa Morgan, M.D., of Cedar Bayou, Tex., August 24, aged 67 years.—Frank Drake Stannard, M.D., of Chicago, September 1, aged 33 years.—O. W. Searing, M.D., of East Oakland, Cal., August 22, aged 65 years.—S. K. Towle, M.D., of Haverhill, Mass., August 16, aged 66 years.—N. P. Howard Sr., M.D., of Greenfield, Ind., August 25, aged 73.—R. L. Vaughn, M.D., of Chattanooga, Tenn., August 28.—R. P. Eckert, M.D., of Chicago, August 28.—Wiley Gordon, M.D., of Jacksonville, Ill., August 22.—D. P. Nuzum, M.D., of Elwood, Ind., August 23.—Frank Honnecker, M.D., of St. Louis, Mo., August 23, aged 25 years.

MISCELLANY.

Ten Thousand Unfit Dwellings.—It is stated that in Birmingham, England, there are not less than ten thousand houses that are unfit for human habitation, and yet are allowed to be occupied and even overcrowded.

Important Charitable Bequests.—The will of the late Sarah Gay, of Newburg, N. Y., gives, under certain conditions, the sum of \$10,000 to the St. Luke's Hospital of New York city, and a like amount to the Home for the Friendless.

Ovaries, Tubes and Uterus in a Hernial Sac.—In operating for the relief of a right inguinal hernia in a female infant, Mr. Leopold Hudson, surgeon to the Middlesex Hospital, London, found both ovaries, both Fallopian tubes and the uterus in the sac. The tubes were much congested from constriction at the neck; a director was passed in, the constriction divided, and the organs were replaced—the left ovary and tube being first returned, then the uterus, and lastly the right appendages. Many abnormal contents of hernial sacs have been recorded—a bladder, an ovary, etc., and once an ovary in a femoral hernia with the Fallopian tube constricted at the neck; but Mr. Hudson's case is probably unique.

More Bacteriology and Sanitation Should be Taught at West Point.—The *Independent* predicts that bacteriology must in the near future, be given a place in the curriculum of our national schools of warfare. It is stated that the superintendent at West Point has subjected himself to severe animadversion from opposing the introduction of a short course of instruction in hygiene and first aid to the injured. The reason for his opposition seems to be that no time for such a course can be spared from the courses of study already marked out and followed. The Board of Visitors for 1894 had, among others, the celebrated anatomist and surgeon, Dr. W. W. Keen, who was surprised to find that the entire instruction in hygiene and physiology consisted in six advance and five review lessons, with an occasional incidental allusion to such subjects as ventilation, choice of site for camps. The visitors thought that a little of the time now given to mineralogy and geology might be profitably devoted to a study of the structure and physiologic needs of the human frame; and certainly the military leader of the future will need to know much that belongs to bacteriology and sanitation, or he will fall out of step with his age.

Important Section of Kansas Crimes Act Invalid.—Section 15 of the Kansas Crimes Act, which provides that "every person

who shall administer to any woman, pregnant with a quick child, any medicine, drug or substance whatsoever, or shall use or employ any instrument or other means, with intent thereby to destroy such child, unless the same shall have been necessary to preserve the life of such mother, or shall have been advised by a physician to be necessary for that purpose, shall be guilty of manslaughter in the second degree," the Supreme Court of that State holds (*State v. Young*, decided June 8, 1895,) is inoperative and invalid, as it undertakes to establish a degree of felonious homicide where neither the death of the child nor the mother results from the acts committed, and where there may be no killing or homicide.

A New Title.—The *Kansas City World*, of August 27, contains the following amusing slip of the compositor:

"NEW MEDICAL SCHOOL."

"Proposes to put finishing touches upon medical education. The Kansas City Pyrotechnic Post-Graduate Medical School to-day filed articles of incorporation in the office of the county recorder. The incorporators are: Homer C. Crowell, five shares; George M. Gray, five shares; Jacob Block, five shares; George W. Grove, five shares; George Halley, one share, and Homer C. Crowell, as trustee, seventy-nine shares. The board of directors comprises Homer C. Crowell, Jacob Block and George Halley. The capital stock is \$2,000."

"Pyrotechnic" would be an appropriate designation for some schools, but probably not for this one.

A Hospital Broken Up by a Chinese Mob.—On August 6, the Mission Hospital at Fat-Shan was destroyed by Chinese rioters. The hospital, with other destroyed property, was owned by the English Wesleyan Church. The city where it was located is a large manufacturing center, fifteen miles west of the city of Canton. It has a population of 500,000, and is frequently spoken of as the "Birmingham" of China. Missionary work in its various forms has been carried on there for about thirty-five years. The London Mission has a flourishing work there, which is sustained by the Chinese church in Hongkong. The English Wesleyan Mission has chapels, school, hospital and residence for several missionary families there, a very prosperous mission. Their hospital, which has developed under the efficient management of Dr. Wenyon and his colleague, Dr. Macdonald, is one of the notable institutions in South China. Not only has the medical and surgical work done been of a very high character, but the hospital has, by judicious management, become practically self-supporting. It has been patronized by many of the wealthier people. Their pecuniary acknowledgments of benefits received, and the fees received by the physicians in charge for service rendered in answer to special calls, have sufficed to cover the current expenses of the hospital. It has demonstrated the fact that even Chinamen can appreciate superior talent and not only respect it, but desire it the more when they have to pay for it. The high standing of this hospital among the respectable residents of Fat-Shan has not saved it from the mob.

Another Prevaricator.—One Dr. R. B. Miller, who claims his residence at 170 Oakwood Boulevard, Chicago, and his reference, the Globe Savings Bank, Chicago, has published a four-page blanket sheet in which, with much bad spelling and bombast, he sets forth his utter contempt for the old hide-bound fogies who stick to the Code and prefer to grope in the dark rather than encourage such bright and shining lights as Miller, who to use his own language, "is pushing to the front, determined to conquer disease by any and all remedies known, or that they may discover." Miller's sheet says that "we are proud of our past achievements, having treated and cured thousands of cases in Illinois during the past five years, many of whom had been given up as hopeless and left to their fate to die in despair."

According to the register of the Illinois State Board of Health, Russell B. Miller registered as a physician and his license was issued Oct. 16, 1891. He has not yet completed

his five years, but at the rate he is "pushing to the front" he may complete the remainder of it in a summary fashion. This person announces himself as the "President of the AMERICAN MEDICAL ASSOCIATION of Chicago," which announcement evidently meant to catch the unwary, is one of the basest subterfuges. The State Board of Health should revoke the man's license without delay.

Wisconsin Has Provided a Cholera Contingent Fund.—The Wisconsin Legislature, at its last session, appropriated to the State Board of Health a sum not exceeding \$50,000 for the two years ending Feb. 1, 1897, which shall be a fund, which, by and with the advice and consent of the Governor, may be drawn upon by said board, and used by it in such manner as may seem to it necessary to prevent the introduction or spread of Asiatic cholera or other dangerous contagious disease in the State. Any member of the State Board of Health, except the Secretary, who is engaged in work for the prevention of cholera outside of the city in which such member resides, shall be allowed and paid for the time in which he is actually so engaged, such sum as the Governor may approve, not exceeding \$15 per day in addition to traveling and other necessary expenses.

Louisville Notes.

HEALTH OFFICER'S REPORT.—During the month there were 265 deaths, of which 143 were male, 200 white, 79 married and 138 natives of Louisville. The total is 42 less than August of last year. Consumption heads the list with 28; typhoid fever and organic heart disease, each 13; inanition, 14; meningitis, cerebral, 12. Eight of those dying were over 100 years of age. The annual death rate per 1,000, 15; white (164,261), 14; colored (35,739), 23.

G. A. R.—There was a well attended meeting held in the City Hall, of those doctors who are to serve in the coming Encampment. Dr. Geo. W. Griffiths, Vice-President of the Executive Committee, addressed those present, emphasizing the necessity of prompt organization.

BLOOM.—Dr. I. N. Bloom has been elected to the Chair of Genito-Urinary and Skin Diseases in the University of Louisville, Medical Department. Dr. John L. Howard will direct the workings of the bacteriologic laboratory in the same school.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended August 24, is as follows: death rate per 1,000 per annum, white, 20.40; colored, 28.69; total, 23.06. There was an improvement in the health of the city last week. According to the reports received at the Health Department, the deaths fell off 11 per cent. as compared with the last report. The death rate accordingly fell from 25.95 to 23.06. The improvement was mainly owing to the decrease in mortality among children under 5 years old. There was a notable absence of deaths from the dangerous contagious maladies, with the exception of those from diphtheria, from which there were three deaths while no new cases were reported.

SECRETARY MORTON'S HYGIENIC ORDER.—An important order, giving full protection to foreign consumers of American meat products, was issued last week by Secretary Morton. It will prevent the exportation of any beef that is not inspected, and will cause the exporters of horse meat so to mark the packages that the nature of the contents shall be apparent. The action is authorized by an act of March 3, 1891, amended March 2, last. The order follows:

"It is ordered that from and after Sept. 16, 1895, all beef offered for exportation, whether fresh, salted, canned, corned or packed, shall be accompanied by a certificate showing that the cattle from which it was produced were found free from disease, and the meat sound and wholesome, by an inspector of this department. And in order that it may be determined whether all beef exported has been so inspected and found to be sound and wholesome, it is further ordered that the meat of all other species of animals, which for any reason does not bear the inspection tags and stamps of this department, shall be packed in barrels, cases or other packages which are legibly marked in such manner as to clearly indicate the

species of animal from which the meat was produced. Meat which is not so marked, and which is not accompanied by a certificate of inspection will be classed as uninspected beef, and will not be allowed exportation.

"Notice is hereby given to exporters of meat, whether said meat is fresh, salted, corned, packed or otherwise prepared, and to owners and agents of vessels upon which said meat is exported, that no clearance can be given to any vessel having on board said meat until the provisions of this order are complied with.

J. STERLING MORTON, Secretary."

PHYSICIANS APPOINTED TO OFFICE.—The Commissioners have made an appointment to fill the vacancy caused by Dr. Austin O'Malley, medical sanitary inspector of the Health Department, whose resignation was formally accepted. Dr. John E. Walsh is appointed sanitary inspector, with a salary of \$1,200 per annum and an indefinite leave of absence without pay, pending his return to Washington. Dr. Walsh is at present in the Arctic regions with the Peary relief expedition. Dr. R. D. Boss has been appointed acting medical inspector, to serve until Dr. Walsh is ready to take charge of his new office. Dr. Edward M. Parker was appointed bacteriologist at a salary of \$400 per annum, vice O'Malley, appointment to take effect September 1. Dr. G. C. Clark has been appointed physician to the poor at \$30 per month, to fill the vacancy caused by the promotion of Dr. Boss. The appointment of Dr. Parker is a particularly fitting one. He is the assistant pathologist, and is in charge of the Bacteriologic Laboratory in the Central Dispensary and Emergency Hospital here, and has been assistant to Dr. Welch at the Johns Hopkins Hospital. The District Health Office is to be congratulated upon securing the services of Dr. Parker; the salary is, however, entirely too small to begin to compensate the Doctor for his valuable services.

GARBAGE LAW TO BE ENFORCED.—About fifty cases of violations of the garbage law by citizens were tried in the police court during the past week. The Health Department is not demanding the payment of fines, but simply requires compliance with the laws on the subject.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 21, 1895, to August 30, 1895.

1st Lieut. William W. Quinton, Assistant Surgeon, is relieved from duty at Fort Riley, Kansas, and ordered to Fort Logan, Colorado, for temporary duty at Fort Logan, Colorado, relieving Captain Louis A. La Garde, Asst. Surgeon. Captain La Garde, on being thus relieved, will proceed to Boston, Mass., and report for duty as Attending Surgeon and Examiner of Recruits.

Leave of absence, to date from August 21, and to include September 30, 1895, is granted Lieut.-Col. John S. Billings, Deputy Surgeon General, U. S. Army.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 31, 1895.

August 29. Surgeon J. E. Gardner, and P. A. Surgeon F. J. B. Cordeiro, to temporary duty as members of the medical board at the Naval Academy, September 5.

LETTERS RECEIVED.

Ahrend, D. H., Chicago, Ill.; Ammonal Chemical Co., New York, N. Y.; Bacon, Chas. S., Vienna, Austria; Berna, H. & Co., St. Louis, Mo.; Buckley, Jno. J., Missoula, Mont.; Brasas Publishing Co., New York, N. Y.

Cooper, O. O., Hinton, W. Va.; Columbia Chemical Co., Washington, D. C.; Cone, Andrew, New York, N. Y.

Forbes, S. F., Toledo, Ohio.

Gaston, J. McFadden, Atlanta, Ga.; Gilson, G. H., Shipman, Ill.;

Gibbs, F. M., Scranton, Pa.; Grigsby, W. E., Blandinsville, Ill.; Glycero-

Acid Phosphate Co., New York, N. Y.

Henry Pharmacal Co., Louisville, Ky.; Hanks, H. T., New York,

N. Y.; Hurley, J. M., San Bernardino, Cal.; Hummel, A. L. (3), New

York, N. Y.

Irvin, Alex., Curro, Texas.

Kern, W. B., Wood River, Neb.; Klebs, Edwin, Asheville, N. C.; Kel-

logg, J. H. (2), Battle Creek, Mich.

Loewenhertz, J., New York, N. Y.; Lehn & Fink, New York, N. Y.;

Lambert Pharmacal Co., St. Louis, Mo.

McGraw, I. A., Detroit, Mich.; Montgomery, E. E., Philadelphia, Pa.;

Miner, A. G., Niles, Ohio; Milliken, J. T. & Co., St. Louis, Mo.; Macey,

The Fred Co. (2), Grand Rapids, Mich.

New York Post-Graduate Medical School, New York, N. Y.

Oglesby, W. J., Krebs, I. T.

Pepper, Wm., Philadelphia, Pa.; Post-Graduate Medical School, Chi-

cago, Ill.; Phillips, Ellis, New Haven, Pa.; Powell, E., Chicago, Ill.

Robinson, R. F., Egan, S. D.; Rogers, N. D., New York, N. Y.

Sander, Enno, St. Louis, Mo.; Smart, Chas., U. S. A., Washington,

D. C.; Schimmel, M. S. (2), Baltimore, Md.; Steveus, C. L., Athens, Pa.;

Smith, E. R., Toledo, Iowa; Stork, H. W., Holland, Ind.; Scheffelin, W.,

H., New York, N. Y.

Webb, J. A., Providence, R. I.; Wahrer, C. F., Ft. Madison, Iowa;

Wiley, Z. K., Baltimore, Md.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, SEPTEMBER 14, 1895.

No. 11.

ADDRESS.

DANIEL DRAKE: OR THEN AND NOW.

The Address in Medicine delivered before the Mississippi Valley Medical Association, Detroit, Mich., Sept. 4, 1895.

BY WILLIAM PEPPER, M.D., (UNIV. OF PENNSYLVANIA.)
PHILADELPHIA.

Mr. President and Gentlemen, Members of the Mississippi Valley Medical Association:—As I left Jersey City and traveled in twenty-four hours to this beautiful city, the place of your meeting this year, it was impossible that my thoughts should not have turned to the strangely different journey, taken in his infancy over this same route, more than one hundred years ago, by one who was destined to play so prominent and so honorable a part in the life of the Mississippi Valley during the ensuing sixty-five years.

Dr. Daniel Drake, to whose life work I beg to invite your attention this evening, was born in New Jersey, of humble parentage, on Oct. 20, 1785; and in the latter part of the spring of 1788 his parents removed to Kentucky. Taking Daniel and his baby sister Elizabeth, and an unmarried sister of Mrs. Drake, with all their worldly goods, in one Jersey wagon, the journey was made over the Alleghenies to Fort Pitt; and then in a boat crowded with other families, and accompanied by similar boats for fear of Indians, to Maysville. More than sixty years afterward, Dr. Drake gave (in a series of reminiscent letters addressed to his children) an account of the toils and hardships and dangers endured by that pioneer family for the ensuing twelve years, until as a lad of 15 years of age, he was sent himself to study medicine under Dr. Goforth at Cincinnati. I can point to no work in which a more vivid and life-like picture is given of a primitive condition of society, and in which, at the same time, the author reveals with such frankness and fullness his own character and individuality. It is not surprising that all who knew Dr. Drake, at every stage of his life, should have concurred in unanimous testimony to the lofty and at the same time attractive qualities of his nature. It is a long time since I first began to study his works, and I think I may safely say I have read all that he ever wrote for publication, and nearly all of the many publications concerning him which appeared after his death. Whence it is that some gifted persons acquire their rare charm of literary style, it were idle to inquire. To Drake, it was the gift of nature, the power of expressing in pure and flowing and brilliant language the lofty ideals, the clear thoughts, the graceful fancies of his ardent nature and his powerful mind. His childhood was spent in the ceaseless labor of the farm; but through it all, Nature spoke to him as to a favorite son and opened his eyes to her infinite charms and inspired him with a love for herself which never lost its ardor. It was

this which sustained him through a long life, into which were crowded far more than an usual number of severe trials and disappointments, and kept his spirit to the end as fresh and buoyant and enthusiastic as a boy's. There came readily with this true love of nature those precious things of life—the power to appreciate purity and nobility in humanity; the power to form and to sustain lofty ideals; and the power to scorn petty groveling ways and to pursue the chosen higher path. This was eminently true of Drake. His character is known to us with a rare fullness, and yet there does not appear in it a single vice. He was ambitious; but his aims were never selfish or personal. His proper self-respect was untainted with vanity. His desire for office was to secure larger opportunities for public service. Money had no attraction for him, save to promote scientific investigation and to discharge his obligations. He was familiar with the pinching grip of poverty; he longed for the larger opportunities of study and action which wealth would give; at one time he entered almost recklessly into commercial operations which involved him in financial disaster; he accepted the load of debt with cheerful courage, and eventually paid every creditor in full. And yet he never allowed himself to pursue his profession as a mere money-making calling, but resolutely devoted a large part of his talents, time and strength to the advancement of education and science.

It may seem to you that it were more fitting, had an address upon the character and work of Daniel Drake been delivered in Cincinnati, with whose institutions his memory is most intimately associated. But when we consider that this is distinctly a gathering of the medical men of the Mississippi Valley, and when we reflect upon the colossal work which Drake achieved for the entire valley, and upon the splendid conception which he formed in the early days as to its future development and destiny, there can be no doubt that wherever this Association may meet, there should the memory of Drake be cherished.

The census of 1790, two years after his family came to Kentucky, gave the population of the United States as 3,929,214. Of the many States which now must be included in the great Central Valley, only Kentucky and Tennessee are there mentioned, with an aggregate population of 109,368, or 2.7 per cent. of the whole, and the center of population was twenty-three miles east of Baltimore; in 1800, the year in which he began to study medicine at the age of 15 in the town of Cincinnati, which did not then contain more than 500 inhabitants, the census gives the total population of the country as 5,308,483, and that of the Central Valley (comprising Tennessee, Ohio, Indiana and Mississippi) as 386,413, or 7.2 per cent. of the whole, and the center of population was eighteen miles west of Baltimore; while in 1895 the estimated population¹ of the coun-

try is 69,212,057, and the population of the great Central Valley, including eighteen States, is 29,614,304, or about 43 per cent., and the center of population is about Columbus, Ind., a westward movement of 525 miles in one hundred years. From an early age the tremendous magnitude of the physical and sociological features of the interior valley of North America, including the Canadian portion, impressed the imagination of Drake with overwhelming force. This vast stretch of territory beginning within the tropics and terminating within the Polar circle, and bounded laterally by the Appalachian Mountains on the East and on the West by the Rocky Mountains, embraces over 5,000,000 of miles—the northern part alone being rendered unavailable by the state of its surface and climate. Even that part belonging to the United States and which may be strictly called the Mississippi Valley amounts to 1,244,000 miles. To the clear vision of Drake, this valley presented itself as the last crucible into which living materials in great and diversified streams could be poured for amalgamation. The commingling of races upon a scale such as the world has never elsewhere witnessed could not fail in the end to give a new physiologic and psychologic development. No man could have less than Drake of the exuberant national spirit which made Elijah Pogram so great a terror to the effete civilizations of Europe. When Drake expressed his conviction that the vast homogeneous population which would eventually fill the interior valley of North America would present the last and greatest development of society, the opinion was based, not on the surpassing natural advantages of the territory, but upon his faith in the physical and social perfectibility of the race when it should attain its growth under conditions of civil and religious liberty. The contemplation of this great vision filled him with a passionate desire as a philanthropist and social reformer, that at the earliest day the foundations of education and of charity should be laid deep and strong there, so that the mighty tide of promiscuous immigration which was rising rapidly should have a saving element infused at once. Again he foresaw, as a natural philosopher, the immense importance of securing in the early days of the settlement of the valley, an accurate account of its topography, and of the climate, the flora and the fauna; and parallel with this, an account of the physical condition and habits of life of the pioneers. Lastly, as a medical philosopher, he recognized early the absolute necessity of a wide-spread enforcement of public and private hygiene; and of radical measures for the elevation of medical education.

When we consider the achievements of Drake in each of these three difficult fields of labor, we marvel at the courage, the ability and the unsparing ceaseless activity displayed.

Throughout his life he was intensely interested in public affairs. Intimately associated with many of the most eminent men of the country, he threw himself with ardor into the great political questions of the day, and in his speeches and writings evinced a pure and lofty patriotism. His repeated journeys up and down the Mississippi Valley had resulted in an equal love and respect for the North and the South. Later, in 1851, this expressed itself in a series of remarkable letters to Dr. John C. Warren of Boston, on the slavery ques-

tion, in which he insisted that a marked amelioration in the condition of the slaves had occurred under his own observation, and advocated the restriction of slavery to the States then holding slaves, and that emancipation should be coupled with colonization in Africa.

When only 30 years of age, he published a notable work, entitled, "A Picture of Cincinnati," which attracted wide-spread attention both in America and abroad; and in this he began to urge extensive internal improvements, and then made the first public suggestion of almost all the canals which have since been constructed in this region. In 1833 he advocated warmly, and acted as chairman of a special commission of three, to promote the construction of a railway which should connect the Ohio River at Cincinnati with the Atlantic at Charleston. It was not on commercial grounds he urged it, but because he believed it would tend to efface sectional hostility if the North and South should thus pledge themselves to common national interests. He was largely instrumental in founding the Free Library in Cincinnati. He organized the Cincinnati College, which according to his design was to embrace the features of a fully developed university, while its medical school and hospital in an especial sense owe their existence to him. The Museum of Science and Art was another of his creations. He labored hard for these institutions; he secured legislative grants in their favor; he personally solicited funds for their endowment and support. It is probably unnecessary to state that he was treated with injustice and ingratitude, for such is the almost inevitable reward of true benefactors. Such treatment never discouraged him. His ambition was for the cause and not for himself; and he never lost, until the very end, his enthusiasm for humanity and his zeal in the service of the community. Truly did the great and wise Gross speak of him as equally eminent as a patriot, a philanthropist and a medical author. The eloquent Charles D. Meigs, in delivering the biographical address on Drake at the College of Physicians of Philadelphia, spoke of him as "a man of great and merited reputation, which extended even to the outer boundaries of the republic of medical letters, while as a citizen he reflected honor on his country, so that his name is destined to be reverently pronounced wherever the medical biography and history of America shall hereafter become known."

But I must hasten to speak of the colossal work to which Drake devoted the greater part of his life. I have told you that from his earliest years the future importance of the great Central Valley of North America impressed itself indelibly upon him. He became a geologist and an archæologist in his study of the formations through which the Mississippi forced its way to the Gulf. His early familiarity with the forest and the fields led naturally to a profound study of botany, in which branch of science he became a high authority. He mastered the science of meteorology and enriched it by numerous accurate and original observations. He collected the materials upon which his descriptions and conclusions are based, by personal exploration of the entire valley from the Gulf to Lake Superior and from the Alleghenies to the Rockies, in the course of which he traveled over 30,000 miles. He visited hundreds of medical men along the valley, and actually instituted the earliest collective investigation with which I am acquainted,

¹ According to an estimate made for the World Almanac of 1895, by the Governors of the States and Territories.

by issuing series of circulars to all the physicians of that region, soliciting their coöperation in securing the data desired. It was over thirty years after the first announcement of the work that the first volume was published; the second volume did not appear until nearly two years after the death of the author in 1852.² Drake dedicated his work to the physicians of the Interior Valley of North America, and, with habitual modesty, styled it "An imperfect attempt to lay an extended foundation for a history of its diseases." A careful and critical perusal of the 1,700 pages of this monumental work will convince you that Drake was true to the principle announced in the preface, "that he who would observe correctly must have no theories either to maintain or destroy." As stated by him, the theory that the geological, hydrographical, topographical, climatic, social and physiologic conditions of communities must affect their medical histories; and that where different communities differ widely in one or several of these conditions, a corresponding diversity must appear in the respective histories of all the diseases which admit of modification from causes referable to those heads will not be disputed. It may readily be pushed to extremes; but the task which Drake assumed was to portray these conditions as they existed in the early part of the nineteenth century in this great valley, and then to furnish an accurate account of the diseases therein prevalent. Faithful to this duty, he ascended the streams to their mountain sources, or descended them to the sea at points exceedingly distant from each other. His masterly statement of the contrast between the medical relations of the Mississippi, the river of latitudes, and the St. Lawrence, the river of longitudes, may be referred to as an excellent example of his method.

The accumulation of facts is simply prodigious; the style is clear and admirably adapted; while the obvious sincerity of purpose and the philosophical breadth of view impress you with a sense of the permanent value of the work.³ It is easy in the light of our more accurate diagnosis and pathology to point to serious mistakes. The most important of these is the failure to admit the distinct individuality of typhoid fever, which had then recently been demonstrated by Gerhard and Pennock. Nevertheless the existence of severe outbreaks of typhoid at many points of the valley, and in different years, is clearly established by the excellent account furnished of the symptoms and course of the disease, and of the lesions found in fatal cases. These accounts should be referred to with care by those who are now meeting with typhoid fever in the same localities, but under widely different local conditions. How far there may

be actual variations in the disease as found in the Interior Valley, in the Atlantic States, and in Europe, is still open to discussion; and Drake's chapters are an important contribution to the study. The flora and fauna certainly present wide differences at different sections of the valley. It seems improbable that microorganisms should be exempt from the influence of climate and environment. It will not seem strange if shown that certain species of bacillus acquire at different latitudes, and in different soils, widely different degrees of growth and pathogenic virulence. There is considerable evidence in favor of the view that the bacillus communis coli, for instance, may from contact with certain organic matter, fecal or not, acquire the properties of the so-called bacillus of Eberth. Bacteriology is not ready as yet to dogmatize on such points. It is probable that we must take into account not only the susceptibility of the system (the soil) and the number of bacilli implanted (the dose of infection) but the virulence of the particular specimens of the bacillus present.

If I were to draw any inferences from Drake's description as to the relation between the typhoid he saw and that which we meet with to-day in the Middle Atlantic States, I should say that there were many more cases without eruption, while on the other hand grave nervous symptoms, hyperpyrexia, malarial complications and primary pneumonic lesions were unusually frequent.

Drake had arrived at a belief in the microbic nature of malaria, yellow fever and typhoid fever, as early as 1832, though of course his opinion was based purely on theoretical grounds. He states specifically that he had not seen the ingenious work of the elder John K. Mitchell until the year 1850; and hastens to make acknowledgment of the almost irresistible array of facts adduced by the latter distinguished author. He anticipated Woodward in the attempt to establish the existence of a *tertium quid* formed by the blending of typhoid and malarial infection. It seems to be an easy thing to fall into this mistake when one is dealing with typhoid and malarial fevers simultaneously on a large scale. The occurrence of a malarial complication of typhoid, and of a typhoid state in malarial fevers, is familiar; and it may be possible that the co-existence of the two microbes may so modify the blood and tissues as to influence the toxin and antitoxin developed and the consequent phenomena of the disease, but the accounts furnished by Drake, just as the later and more elaborate descriptions by Woodward, fail to convince that such modifications go far enough to constitute a specific difference which would justify the creation of another species of fever. Malaria, indeed, was the bane of the Interior Valley in those days; and I doubt if any one has enjoyed such opportunities as did Drake for studying all of its manifestations. Almost every page of his great work attests its prevalence; from the Gulf of Mexico up to the 47th degree of latitude (beyond which it became very rare); on the low and ill-drained lands near the rivers, and though in less virulent form throughout the bluff zone and back into the hilly regions; and over the Lake region, including extensive portions of New York State.⁴ Even at the elevation of 600 or 1,000 feet, malarial fevers were of frequent occurrence; and when extensive disturbance of the sur-

² I may call attention to the fact that the first 186 pages of the second volume are a reprint of the last 164 of the first volume. This was in all probability intentional on the part of the able editors, since it enabled the second volume to open at the beginning of the discussion of Febrile Diseases.

³ In regard to Drake's great work, the Standing Committee on Medical Literature of the AMERICAN MEDICAL ASSOCIATION reported at its third annual meeting, held in Cincinnati in May, 1890, concerning the first volume as follows:

"This volume, which contains nearly nine hundred pages, is taken up with the medical topography, the climate, the manners of the inhabitants, and the autumnal fevers of this vast region. Owing to the late period of its publication, the committee have been unable to examine the treatise thoroughly, and they might, therefore, be contented with a bare announcement of its existence. But they are reluctant to do so, since even a superficial inspection of the work has convinced them that it belongs to the very highest rank of our medical literature, and may very probably come to be regarded as the most valuable original work yet published in America. It is certainly unrivaled in the amount and variety of its materials; its style is perspicuous, correct and elevated; and it appears to have been elaborated with great industry and care. Its distinguished author has raised a durable monument to his own name, and to the medical reputation, not only of the great valley but of the greater Union."

⁴ The swamps of the Chautauqua (sic) Summit in New York at an elevation of 1,400 feet were innocuous.

face of the soil was made, virulent outbreaks were to be feared. The distinguished French traveler, Volney, wrote that in a journey of 250 miles from Cincinnati to Detroit, begun on Sept. 8, 1796, in a company of twenty-five persons, they did not encamp one night without one at least of the party being seized with a periodical fever. On arriving in Detroit only three of the party were in health, and on the ensuing day the Commander, Major Swan and himself, were seized with a malignant fever.

On the lower reaches of the valley there were places where malaria was so pernicious and the sanitary conditions so shocking that we can not criticise Dickens for the harrowing account he published in "Martin Chuzzlewit" in 1843. Drake describes a town which was projected under the name of Florida, but which may well have been the original of that most misnamed Eden to which young Martin and the faithful Mark Tapley were lured by the wiles of land agents. It was at the estuary of the Escambia River, where the silt brought down by that stream had generated a marsh several miles in width, while the pine lands, which usually conferred immunity, lay to the leeward. In 1766, sixteen French Protestant families, consisting of sixty persons, were sent at the expense of the English government to this deadly spot. When the hot months arrived, all but fourteen perished; and the survivors lingered only a few months longer with shattered constitutions. In spite of this, many years later, in 1832, a new town was laid off to be called Florida; and between twenty and thirty wooden houses were built and tenanted by as many families. Their history, says Drake, may be told in a few words. Year after year they were assailed by autumnal fevers of the most malignant character; the spot was at last called a graveyard; and being abandoned by those who survived, I found, on passing through in 1843, but two families remaining.

"Do you consider this a swamp, Sir?" inquired Chollop gravely of Mark Tapley at Eden.

"Why yes, Sir," returned Mark, "I haven't a doubt about it."

"The sentiment is quite European," said the Major, "and does not surprise me. What would your English millions say to such a swamp in England, Sir?"

"They would say it was an uncommon nasty one, I should think," said Mark, "and that they would rather be inoculated for fever in some other way."

"European," remarked Chollop, with sardonic pity. "Quite European."

It was just such swamps as that of Eden which abounded formerly in many of the counties of England, and the medical literature of England in the last century teemed with discussions of the resulting malaria. Just as drainage and cultivation have almost eradicated it there, so did Drake and every intelligent observer know that the same agencies would inevitably banish malaria in large degree from our great Interior Valley. How swiftly this good work would progress under the vast immigration of the ensuing fifty years, not even Drake in his most sanguine moments would have ventured to predict. Meanwhile, it was the great cause of mortality or infirmity of constitution, especially in the southern portions of the valley; and the medical practice of the entire region was powerfully influenced by the views entertained regarding its nature.

I am aware that some of Drake's contemporaries, possibly influenced by envy of his national fame and great authority, insinuated that he was a mere theorist and speculator, and a reckless practitioner. Dr. Gross, who had the best opportunities of knowing him and his practical ability, gave this testimony: "I have great confidence in his professional acumen. I saw enough of him in the sick chamber to satisfy me he had a most minute and thorough knowledge of disease and of the application of remedial agents. There was no one whom I would rather have trusted in my own cases, or in that of a member of my family." No additional testimony, however, is needed by any one who will carefully study his own writing. Everywhere is manifest the accurate observer, the clear-headed thinker, the practical man who can not be led by mere authority and who will not lapse into routine. The truth is that Drake was ahead of his time—at least of that time in his region—as much in his practice as he was in other things. When he first began the study of medicine with Dr. Goforth, of Cincinnati, at the age of 15 years, he showed so much ability that in four years he was admitted to partnership. He was thus engaged in practice, not only without a diploma but without ever having listened to a single lecture, for over a year, when he scraped together enough money to go to Philadelphia and take a course of lectures at the University of Pennsylvania. Before leaving Cincinnati, his instructor and partner presented him with an autograph diploma, setting forth Drake's ample attainments in all the branches of the profession. This was the sole pretense of a license to practice which he possessed until his second visit to Philadelphia, eleven years later, in 1816, when he received his diploma at a special Commencement held purposely for him on May 11, more than a month after the occurrence of the regular Commencement.⁵ He was powerfully impressed with the brilliancy of Rush's lectures. He had, even as a lad, conceived a high admiration for the genius of this great teacher from the study of his writings; but his practical sagacity led him to modify his doctrines in accordance with the results of his own observations, instead of carrying them blindly to an extreme length as was done by only too many. We can well understand the mortality that attended all fevers, when we read in Drake's reports of the practice of his contemporaries, that for the gastric complications many physicians gave calomel in doses of a scruple or a drachm at short intervals; that even doses of half an ounce, or an ounce and a half several times a day were far from rare; that these doses were sometimes given to load down the irritable stomach and by their actual weight to prevent vomiting; that multitudes believed that when they did not obtain bilious discharges by ounce doses, it was because they were too timid in its administration; that in some cases even so much as a pound or a pound and a half were administered to a single patient. He quotes from the letter

⁵ A full explanation of this singular and highly complimentary occurrence is given in Dr. Meigs' interesting biographical notice of Drake (Trans. Coll. Phys. of Phila., 1893) in the form of a letter from Dr. Joseph Carson, the Dean of the Medical Faculty of the University. It appears that Dr. Drake submitted his thesis, at the close of the session, and left the city with the understanding that he should be notified in time to be examined and to receive his degree. The letter did not reach him and he returned to Philadelphia the day after Commencement. "Under these circumstances the Professors, considering the high literary accomplishments of Mr. Drake, the value of his late publication, his present eminence and future promise . . . examined him on April 30 and recommended him to the Board of Trustees for the special mandamus which was granted at the Commencement held as has been stated."

of a physician in Louisiana who wrote with playful hyperbole that in a recent epidemic, "he had drawn enough blood to float, and had given enough calomel to freight, the steamer *General Jackson*." Against this drastic and murderous practice, Drake exerted all his influence. He urged the external use of cool water in fevers to reduce excessive temperature; he rapidly came to advocate an expectant method of treatment conjoined with scrupulous attention to all hygienic details, because he found all special methods unsatisfactory. When we look around us to-day and witness the eminent schools of medical science in those Central States; the numerous distinguished practitioners, teachers and authors; the original publications of high scientific and practical value, we are amazed at the speed with which the medical profession here has advanced to a position of well organized and commanding strength. It is easy for you to-day to advocate prolongation and elevation of medical studies; to insist upon the adoption of rational methods of treatment; to secure substantial aid in the prosecution of scientific investigation. Let us never despise the day of little things. All the more should we honor those who were the pioneers in this wonderful march of progress; and who held aloft the standard of scientific truth and professional dignity under the most difficult conditions. Well do I remember the feeling words in which my revered friend, the late Samuel Freeman Miller (whose services in the cause of constitutional liberty rendered during so many critical years as Associate Justice of the United States Supreme Court place him in the rank with the immortal Marshal), spoke to me of the causes which led him to abandon medical practice and begin the study of law. He graduated at the Medical Department of Transylvania University, in 1838; but soon found the difference between the theory as taught and the practice as established in Kentucky so glaring, and the difficulty of securing a chance for more rational measures so insuperable that he was wretchedly unhappy. Drake felt these difficulties keenly, but his enthusiasm carried him through. When he was only 21 years of age he used cold affusions in a case of fever; the friends protested, and Drake called in consultation an old and respectable physician who highly approved the affusions, but said it was too hazardous to a physician's reputation and therefore should not be employed. "This advice," continued Drake, "contained something which we are all sufficiently predisposed to lay hold of. I accordingly adopted it, and have had repeated occasions for dissatisfaction ever since. The event of some severe cases of fever in the summer of 1812 determined me to revert to the disinterested and magnanimous views and motives of youth, and also to prescribe and enforce, in all dangerous cases, anything which I believed necessary, the antipathies of the sick and the obloquy of the intermeddling notwithstanding." I am sure that every one of us has been forced to face the same temptation; and it is well for us if we have shown the righteous determination of Drake. It is certainly not the least of Brandt's claims to our gratitude that while others before him had recognized the advantages of hydrotherapy in fevers, he alone insisted upon it so strenuously and repeatedly and with such impressive marshalling of facts, that at last a reluctant world was compelled to give heed.

I may not now enter into any extended discussion of this ever interesting question. My object has been

to show that Drake was a leader in this respect also. He appreciated the external use of cold water in fevers, in the phlegmasia, and as a means of rousing reaction in collapse. He quotes from the practice of a number of his correspondents to show that hydrotherapy made some headway in his time. The difficulties attending its thorough introduction into private practice have always been too great, however, for the average man to overcome; and all of us know that only of recent years and under the teaching of Brandt, of Jurgensen, of Liebermeister has it secured general adoption. In fact, even at the present day, this curious anomaly exists, that in nearly all hospitals thorough hydrotherapy is used in fevers, and in many of them the rigid Brandt method is applied as an unvarying, and therefore unphilosophical routine; while in private practice I fear there are comparatively few medical men who insist upon cool bathing, even when it is urgently indicated. If any rigid routine treatment of typhoid fever is to be used, the statistics leave no room for doubt that the Brandt method has yielded a larger percentage of recoveries than any other. The problem is still unsolved, however, whether the restriction of this method to certain groups of cases, and the employment of other methods in cases of different type, may not still further reduce the mortality. To this conclusion I believe we shall come at last. It is the opinion which some of the ablest clinicians are reaching. When we meet with such figures as the following, which give the results of the strict Brandt method in typhoid fever in the German Hospital of Philadelphia for five years, and show during 1890-91-92, 292 cases with 16 deaths, or a mortality of 5.5 per cent., while during 1893-94 there were 152 cases with 24 deaths, or over 15 per cent. mortality, it is difficult to avoid the conclusion that some of those who died might have fared better under another mode of treatment. We may be assured that hydrotherapy, like every other powerful remedy at our disposal, must be used with strict regard to the peculiarities of each case; and that extended observation will show it can not be employed in a rigid routine method in any disease, and especially in so complex a disease as typhoid fever, with the attainment of the best results practicable. I am convinced, for instance, that it is a grievous mistake to omit the use, in conjunction with hydrotherapy, of some suitable remedy adapted to the state of the affected mucous membrane, and to the septic condition of the intestinal canal. I doubt not that others have learned to use various remedies for this purpose with good results; as for myself, I must state that for so many years I have used nitrate of silver in every case of typhoid fever under my care, and with such apparent benefit, that I greatly prefer it to all other intestinal antiseptics; and, indeed, as you well know, it possesses extremely high antiseptic power, in addition to its remarkable local action on the mucous membrane.

I wish I might dwell at length on the admirable instruction of Drake as to the hygienic treatment of fevers; but this was but natural in one who saw more clearly than any one of his time, so far as I know, the supreme importance of hygiene both in preventive and remedial medicine.

Each age has its Jeremiahs, who lament the degeneracy of the time. It is probable that Nordau, who is the latest, is also the most learned and ingenious of these apostles of pessimism. But it is easy to

make out a strong case by collecting data which support a certain view and excluding all which are opposed. His book, which has had the vogue of a popular novel, will be scarcely more long-lived or influential. It is a poor business to oppose mere assertion to elaborate argument, as I am doing; but I have such deep and unchanging faith in the improvement, physical, intellectual and moral, of the race, that I can not let pass unchallenged what seem to me the specious and unsubstantial arguments of the pessimists. Thirty years ago many people were comfortably settled in their conviction that the attempt to establish on this continent an enduring, vigorous, native-born race was doomed to failure. The American climate was to prove too much for us; and those who survived the climate were to succumb to the enervating effects of luxury, or to fall in the deadly struggle for the almighty dollar. We can afford to laugh at these predictions now, when we see the splendid physique of the men and women of the rising generations; when we see the triumphant advance of our industrial and commercial position; when we see the development of a vigorous literary, scientific and artistic activity; when we see a progress in the wise and enlightened use of wealth which extorts the admiration of the world; and when we see our beloved institutions standing the stress of every storm and adapting themselves more and more marvelously to the growth of a community of 70,000,000 peaceful and prosperous freemen.

But in Drake's day the peculiarities of the climate were little heeded; the dress, especially of women and children, was usually unsuitable; athletic exercises were almost unknown; the excessive use of spirits and of tobacco was conspicuously frequent. Many of the early settlers brought with them the habits of life acquired in comparatively equable climates; it is needless to say they suffered from the sudden and violent changes here. Drake called attention to the obvious fact that the great Central Valley, lying between one of the hottest and one of the coldest seas of the globe, must forever be subject to sudden vicissitudes and wide extremes of temperature. He cited as examples of such extremes a yearly range of 117 at Cincinnati; of 126 at Montreal; of 134 at St. Louis. We have learned not only that these changes can be anticipated, but that with intelligent care their effects can be readily tolerated.

The most depressing feature of those early days is the fact that so little physical exercise was taken by young people of either sex. Says Drake: "A walk of a single mile is regarded as an enterprise to be remembered with self-complacency; and if, under necessity, extended to twice that distance, a hardship to be recounted for the purpose of exciting sympathy." If hard labor and exposure generate a few diseases, want of exercise and recreation is the remote cause of a far greater number; and the above account of the attitude of our people toward exercise before the era of athletic sports opened was applicable to the entire continent. To this lamentable absence of proper physical training, and to the effect of a climate which renders this training preëminently necessary to increase our resisting power, there were added the evil results of yet another national peculiarity, the universal prevalence of bad cookery and neglected mastication. Drake says: "The practice of rapid eating is universal among us; that it prevails everywhere, though not adopted by every indi-

vidual; the food is imperfectly masticated, and too much is taken." You will all remember Dickens' excruciatingly funny account of the dinner at Mrs. Pawkins' boarding house in New York, where dyspeptic individuals bolted their food in wedges, feeding not themselves but broods of nightmares, who were continually standing at livery within them; where the fowls disappeared as rapidly as if every bird had had the use of its wings and had flown in desperation down a human throat; where the sharpest pickles vanished, whole cucumbers at once, like sugar plums, and no man winked his eye; and spare men, with lank and rigid cheeks, came out unsatisfied from the destruction of heavy dishes, and glared with watchful eye upon the pastry. Allowing for the exaggeration pardonable in the courteous visitor who accepts our hospitality in order to write his book of travel at our expense, there was much unpalatable truth in the account. It did not need the prevalent malaria, inevitable in a new and fertile country, nor the damp, ill-ventilated dwellings that were only too frequent, to explain the prevalence of catarrh and anemia and defective nutrition, where such grave faults of personal hygiene were ignorantly practiced by the great majority. The same lesson has been learned here as in all parts of the world, that it is easy to overestimate the influence of climate, and that strict attention to the details of hygiene will insure a gradual attainment of high physical vigor even under adverse conditions. We have seen malaria diminish steadily and rapidly, and we shall see the prevalence of catarrh, with its vile habit of expectoration and its defective articulation, become a thing of the past, just as we are witnessing the replacement of the anemic light-weights of former generations by the most vigorous lads and lasses in the world. It has been my good fortune to be able for over thirty years to study on a large scale the physical and mental and moral conditions of the young people of America. I have no fear of contradiction on the part of any competing authority when I assert that these conditions have all changed decidedly for the better, and I venture the opinion that the improvement has corresponded to, and has been largely dependent upon, the specially conspicuous advance in their health.

No one of Drake's claims to the gratitude of posterity seems to me greater than that which is based upon his services to hygiene. When all around him were indifferent to it, he was unswerving in its advocacy. In one of his latest utterances, an address before the Medical Library Association of Cincinnati, in 1852, he thus bemoans the premature death of a large proportion of his medical contemporaries—then as now, often among the violators of the laws of health: "It is truly a sad thing that in the United States the progress of civilization and science shall so violate the laws of health as to shorten the lives of those who are laboring to promote it. I beseech you, gentlemen, to turn your minds to the correction of the errors of hygiene and education which lead to this melancholy result."

If space permitted, it would be well to show how rational and judicious were his views on the subject of phthisis, then already recognized as the scourge most to be dreaded in this country. The relation between the frequency of phthisis and ill-drained soil and damp and poorly ventilated buildings, subsequently worked out for Massachusetts by Dr. H. I.

Bowditch in a masterly manner, was clear to him; he recognized its infectiousness; he had learned that the main hope of averting its development or of checking its progress is to be found in careful hygiene; and he advocated strongly that phthisical patients should seek a residence in dry, cool and elevated regions.

In estimating the influence which Drake exerted upon contemporary thought on these great questions, we must remember the exceptional opportunities he enjoyed for reaching the ear of the public, as well as of the profession. For many years his house was more resorted to by distinguished visitors than any other in the cities where he resided. He was the chosen orator on nearly all important public occasions—whether in the cause of temperance, of charity, of education, or of large public improvements. He founded the first medical journal in the interior valley in 1822. He was one of the founders of the Cincinnati College of Teachers, and some of his ablest addresses were delivered before that body. Somewhat after the example of the distinguished Caspar Wistar, of Philadelphia, he encouraged meetings of a literary and scientific character at his house on a stated evening of each week. But undoubtedly the work into which Drake threw himself with the greatest ardor, next to the preparation of his *magnum opus* on the "Diseases of the Interior Valley," was that of medical education.

Of his merits as a teacher, it suffices to quote Professor Gross' assertion: "Of all the medical teachers I have ever heard, he was the most forcible and eloquent." And as to the appreciation in which he was held throughout America, it will surely suffice to state that beginning with his first call to a professorship at Lexington, Ky., at the age of 31 years, he received no less than thirteen calls to professional chairs, and he actually occupied nine separate chairs in five distinct institutions. These institutions were Transylvania College, in Lexington, Ky., where he held two different chairs at different times; the Medical College of Ohio, of which he was the founder in 1819, and where he was elected a professor no less than three times; the Jefferson Medical College, at Philadelphia, where he filled the chair of the institutes and practice for one year; the Medical Department of Cincinnati College, which he organized in 1835; and the Medical Institute of Louisville, Ky., with which he was connected at two separate periods. Naturally, these frequent changes have seemed to require explanation; nor is the explanation difficult to furnish. It was certainly not from any lack of ability nor from any want of popularity with medical students. Gross, who was his colleague in two distinct faculties, declares that when he came to the Jefferson College he was the most popular professor in the institution long before the close of the session. Eloquence such as his, ready and off-hand, had not fallen from the lips of any teacher since the days of Rush. It may be asserted that each and every institution with which Drake was so connected enjoyed exceptional prosperity while he was in the faculty, and in most instances there was a marked reduction in the size of the classes immediately consequent upon his withdrawal. I have no doubt myself that his conduct was governed by lofty motives, and that each step was dictated by his intense desire to elevate the standard of medical education in the great interior valley, to the interest of which he had dedicated

his entire life and powers. Professor Meigs, who knew the facts, states explicitly that Dr. Drake accepted the chair of medicine in the Jefferson College with the express understanding that he should hold it for only one season, when he intended to return to Cincinnati to establish a Medical Department of the Miami University. He was essentially a leader and a pioneer. Of the other medical schools with which he was connected, he was either in whole or in part the founder and organizer. In all he strove earnestly for the adoption of a higher standard and for stricter methods than were approved. In each case he promptly sacrificed his personal feelings and interests, so soon as it appeared that the conditions were not favorable to honest and thorough education. No more uncompromising foe existed to ignorance and to dishonesty, and shams of all sorts. Persevering study, unswerving application, steady, hard work, had done great things for himself; he believed in them for all. He was an eloquent advocate of the public school system, and urged that compulsory education in certain branches (including physiology and anatomy) is in strict accordance with the spirit of our Constitution, and the most certain means of perpetuating them.

In 1832 he issued a little volume of practical essays on medical education—which I would gladly see reprinted and placed to-day in the hands of every medical man in the country. It is literally true that not one of the evils from which the profession has so sorely suffered since is overlooked, and not one of the remedial measures which we have striven to secure and apply is not brought forward and advocated. He points out with the unsparing finger of truth, the defects in the preparatory education of a majority of medical men. He denounces the wrong done by the reckless competition of needlessly numerous medical schools, wholly unendowed, and conducted far too largely in the personal interests of their faculties. He insists with caustic force upon the flagrant inadequacy of the curriculum then required, which covered two sessions of a little over four months in successive years, or even in a single year; and asserts that even three years of actual study with longer sessions is too short; that four years should be rendered indispensable, and that the regular course should be supplemented by summer lectures on auxiliary sciences. He demands that the didactic element in teaching shall be subordinated to such practical training as will develop the power of accurate observation. And finally he insists "that medical schools shall be placed under the supervision of the law, and thus rendered amenable to the sovereign power of the State; and further, that medical professorships shall be regarded as public offices, which are to be filled or made vacant for no other motive than the general good."

It is thus I would present to your consideration this noble-minded man, filled with the enthusiasm of genius and of devotion to humanity, and consecrated to the true interests of society and of medical science. He was decades ahead of his time. It must have been bitter to him to note that in the ensuing twenty years, from 1832 to 1852, the date of his death, there were no fewer than fifty-three medical schools organized in the United States. It would have been more bitter to him to know that the degradation of medical education was to continue unabated until even the possession of an American diploma should

become an opprobrium in foreign lands. But it is not necessary, thank Heaven, to fight over again the battle for higher medical education. It is true that the morbid process of multiplying medical schools has gone forward even more virulently than before; between 1853 and 1872 inclusive, sixty-one were organized; and from 1873 to 1890, only seventeen years, no fewer than 114 medical schools were established. The proportion of medical schools to population in other countries has varied little since the tables I published in 1876.⁶ Russia has 1 school to 14,000,000 people; Brazil 1 to 7,000,000; Austria and France each average 1 to between 5,000,000 or 6,000,000; Germany and Great Britain 1 to 250,000; but the United States, which in 1876 had 1 medical school to every 477,392 of her population, can now boast that in 1890 the ratio has risen to 1 in every 440,151. But, nevertheless, the battle for higher medical education has been fought and won. The profession has set the seal of lasting approbation upon those great schools which have had the courage to enforce the needed reforms; to exact a serious preparatory examination; to lengthen the period of collegiate studies to four full years; to insist upon careful grading of the courses, and upon ample practical instruction of each student both at the bedside and in laboratories; and to establish salaries for the professors so as to lessen their pecuniary interest in the size of their classes. Professional opinion has also demanded, with the cordial concurrence of the leading schools, that State Boards of Examiners shall exist in every State, so that the questionable custom shall cease of having the qualifications of candidates for the license to practice decided solely by the men who have taught them, and who are interested in their success. Not only has the profession contributed its indispensable and invincible support to the great pioneer schools in this movement, but the public has shown its appreciation by beginning to contribute to their endowment and by insuring ready and brilliant success to their graduates. The callow brood of half-fledged schools, with poor equipment and meager clinical facilities, must accept the useful but less ambitious duty of providing preparatory training in the non-practical branches to fit students for entering the stronger institutions for their advanced work and final degree.

This law of development is already so manifest that we may cease to distress ourselves about the continuing low standard of many of our weak schools. Let us address ourselves all the more courageously to the great objects so clearly in sight; to the further strengthening of the strong schools until in endowment and equipment and facilities they not only equal but surpass, if possible, the greatest schools of Europe; to strengthening the hands of the State Boards so that their examination shall actually demand a thorough and adequate education; to insistence upon such legislation in each State as shall stop the issue of charters save to creditable persons who shall give evidence of actual resources sufficient to establish the proposed school upon a strong and permanent basis. Let us go one step further and demand, in the name of the vast interests devolving upon the medical profession, of the assured advances already made in hygiene and medicine, of the absolute necessity for concerted and authoritative action in dealing with the problems which now confront us, and

which affect the happiness and prosperity and safety and life of every inhabitant of this country—let us demand, and let us persist in our united enforcement of the demand, that there shall be granted national recognition of preventive medicine, with a proper representation in the government at Washington.

What joy unalloyed would such a meeting as this have given Drake! To see his most glowing dreams more than realized; to see such a gathering representative of the entire country, in his beloved valley—drawn there not by its great natural attractions, not by the splendid prosperity of its cities, Detroit, Cincinnati, Louisville, St. Louis, Chicago, and a score of others; but chiefly by brotherly affection for her medical men and by admiration of her great schools which have so bravely and so successfully fought in the vanguard for the elevation of medical education and for the dignity and purity of the profession.

The great Mississippi waterway, which extends over four thousand miles, instead of dividing, united, and helps to weld into one, the great States between which it runs. From the mountains and highlands within its drainage area, it is now, as for ages past, carrying down to the Gulf, solid material at the rate of hundreds of millions of tons annually.⁷ The leveling down of the mountains is serving to fill up the Gulf, so that the delta of the Mississippi may in time extend to Yucatan. With equal certainty is the flood tide of human life pouring into and through this valley, doing its mission. Ancient barriers of class prejudice and race hatred melt down; the East is blended with the West, and the North with the South. To-day we plan for an extension of our medical relations far to the southward, until they shall meet our brethren of the South American Republics. Already we have effected the organization of the Pan-American Medical Congress which is the final expression of the consolidation of the profession of the entire continent. Our sister Republic of Mexico extends a cordial invitation to us to attend the second Congress in her capital in 1897. As chairman, *ex-officio*, of the Executive Committee of the Congress, I have the honor to announce this gratifying and courteous act. I am confident that all of us feel that the spirit of the times, the genius of this great region, the inevitable law of our national evolution, lead us strongly in that direction, and impose on us the duty of doing our full share to render that important meeting as brilliant a success as we have made of this delightful occasion.

ORIGINAL ARTICLES.

THE BATH IN MODERN MEDICINE.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The advance of modern medicine in the prevention of disease is gratifying to all whose studies have been in that direction. Preventive medicine touches the keynote of medical science, and its possibilities reach to the perfection of mental and physical manhood. It is in this line of medical research that the greatest good to the greatest number is to come. As mankind are enlightened they will seek necessarily,

⁷ Estimated at 362,000,000 tons a year, sufficient to make a square mile of new land, allowing for its having to fill up the Gulf to a depth of eighty yards.

more, and more, those who can teach them to observe mental and physical laws, that thereby they may secure a sound mind in a sound body; and, inasmuch as the onward march of sanitary science will bring about a condition in which the mere healer of diseases will be in less and less demand, a broader field will be found for the constantly increasing supply of graduated physicians in such work as instructors, lecturers, health inspectors, etc.

It is a hopeful sign that the study of medicine is to-day more concerned with the origin of disease than the verification of symptoms. By electroscopic explorations the physician is now provided with accurate methods of searching out disease, and to the microscope he is indebted for many important discoveries that have advanced the science of medicine to the plane of demonstration; that has given the germ theory of disease the importance it deserves, and contributed to the mitigation of human misery, as well as to the mastery of disease.

The living nature of contagious disease is beyond question, and it has been demonstrated that in the body of an individual thus attacked, there exist microbes capable of implanting themselves and multiplying in the tissues of a person predisposed to that disease.

The fermentations produced by the action of the microbes are toxic, and beside this there are soluble ferments which assist in the production of local lesions by breaking up living cells. The toxicity of intestinal matter is recognized as a poisonous product elaborated by these microbes. If by any reason their elimination is delayed or prevented, poisoning of the system necessarily follows from their absorption.

The human organism is a receptacle and a laboratory of poisons. Those that are formed by the disintegration of the tissues and those which are formed in the digestive tube are carried into the blood. Therefore as we know the blood is the necessary medium between the place of their formation and their elimination, man's only escape from them is by the cutaneous, renal, intestinal, and pulmonary excretories. There is no other relief for any of the organs, and safety lies only in their normal action.

The liver protects from poisoning, by arresting on their way, before they pass into the general circulation, the poisons brought from the intestine by the portal vein, in order to neutralize or throw them back into the intestine. Then the excretory system expels the poisons which are in the circulation. It is claimed by some authorities that at least seven poisonous substances are thrown off through the urine, and all come from the blood, and that the man would die if his blood were to contain ten times as much poison as it does in its normal condition. If the skin or other eliminatory organ acts imperfectly, the patient is poisoned by the retention of the normal products, and if the kidneys perform the work of depuration insufficiently, the urine ceases to be toxic because of the retention of these impurities in the system. Man receives poisons in his food, creates them by disassimilation and forms them in his secretions, and toxic elaborations are carried on by the normal microbes which constantly inhabit the alimentary canal.

The nature of the alkaloid formed by whatever bacterium may present in the system is largely dependent upon the condition of the individual. The

nature of the soil alters the character of the micro-organisms that flourish upon it.

If the whole digestive system was made a matter of careful consideration, its relations to every organ in the body intelligently understood, its needs and normal wants alone administered to, the prevalence of disease would be largely abated.

Disturbances of nutrition are responsible for many illnesses of an acute character, as well as the larger number of chronic diseases. The reaction of a disturbed nervous system induces temporary disturbance of nutrition. Fatigue from overwork or pleasure exposes the system to disease that in a normal condition would be entirely avoided. The first appearance of disease implies an essential deterioration of the organism. An imperfect action of the digestive organs may be inherited, but is more often produced by abnormal conditions. Many diseases that are marked by prominent nerve symptoms are but the first signs of poisoning due to defective nutrition. Man is as surely poisoned by the abnormal action of any function as by breathing mephitic gases or swallowing poisonous substances. Therefore the most important object in the treatment of disease is to secure some method whereby the system may be relieved of these poisons, and the earlier in the case this can be undertaken, the more simple the problem, and the easier of solution.

The fact that so many people are continually overloading their systems with excess of food is too apparent. Even though the stomach may be so weak as to pass on the offending substance, to be taken care of by the lungs, the kidney or the bowels, this excess is nevertheless foreign to the needs of the system. It becomes a poison, and is sure to cause what we call disease, the particular form depending upon the idiosyncrasy of the individual. That is why simple treatment so often relieves such a variety of diseases.

If disease, as we maintain, is naught but a vital effort for the purification and repair of the body, then whatever agency best promotes the work of elimination, at once secures this most desirable result.

The skin may be placed first on the list of eliminating organs, for the reason that it is the largest, enveloping all others, and that a larger proportion of the *débris* of the system is thrown off through the skin than by any other organ. After protecting the system by simply existing, its main function is elimination. Inasmuch as the kidneys, and in fact every organ of the body, are dependent for the perfect performance of their functions upon the character of the blood, as well as upon the circulation, none can be more important than the skin, because of this very depurating power. It is a most important fact, that a more powerful drain can be made upon the system through the skin, than by any other organ, and this without disturbing the harmonious working of any function.

The action of heat upon the blood internally, while passing through the capillaries of the lungs, and also upon the capillaries of the outside skin, is most salutary in destroying the virus of whatever disease may be present. There is no more powerful disinfectant than hot air, and a report recently made to the British Medical Association, demonstrates what hygienists and sanitarians have long contended for, that sunlight and fresh air prove of more avail

in the disinfection of tuberculosis than any other measures, and hot air is but the liberation of stored up sunlight.

While bacteriologists are not fully agreed as to the precise manner, or the agencies by which the blood carries on the warfare against disease producing bacteria, the weight of evidence favors the theory that the white corpuscles are the common defenders and scavengers, but all must agree that with a pure condition of the blood and a perfect circulation, its bactericidal power will be at its highest activity, and that this form of immunity is of all others the most desirable.

Thanks to the therapeutics which the body constantly exercises upon itself, man lives. The course to be pursued in the general therapeutics of self-poisoning is to prevent the poisons from being formed, to oppose their penetration into the system, and if they have been absorbed, to try to destroy them, or to stimulate the action of the liver, which is a physiologic destroyer of poisons, and further, to encourage the elimination of poisons by the skin, the lungs, the intestines, and the kidneys. Of one thing we may be certain, in the treatment of auto-infection, that if there is vitality enough to neutralize or throw off the poison, it will be done more readily and more thoroughly by relying upon and assisting the natural emunctories than by introducing other poisons to neutralize the first. Particularly is this true in regard to what are called tonics or stimulants. Whatever excitement they may arouse is so quickly exhausted and is derived at such a great expense of vitality as to make their use of more than doubtful utility.

In most diseases the active poison is the natural one, resulting from the more intense disassimilation, or from more rapid cell destruction, setting at liberty imperfectly oxidized material.

The use of vaccine, tuberculin, antitoxin, and even animal extracts, has been found to be attended with disadvantages. The most desirable in the list of artificial remedies seems to have some drawback, and though the search has been long and diligent, success in finding a panacea is as far off to-day as it was one hundred years ago. The mere list of fads that have had their day, to be laid aside for new ones, would fill volumes.

But there is one direction in which we can work with assurance of success, and that is in the matter of personal equation. By purifying and fortifying the body, we enable it to cope with the most virulent diseases. Unless this can be accomplished, sanitary science will have labored in vain.

The sickening and deceitful flood of nostrum advertisements can be overcome, and the community protected, only by disseminating the fundamental truths of sanitary science, and facts regarding hygiene, and its application to human needs. Physical health is necessary to perfect mental health, and as health is governed by certain well defined and easily understood laws, it follows that it is a moral obligation on every one, of sufficient capacity, to become acquainted with these laws and live in obedience to them. The amount of ignorance on these subjects is appalling, and calls for an unlimited amount of self-sacrificing work by every physician who considers the public good of more importance than mere personal gain. It is certainly better for the medical man to lead in this matter, than to leave

it to the charlatan, or to wait for the outside pressure of an enlightened public opinion that is sure to come.

While the practice of to-day is in accord with the most advanced thought, and certainly is a great improvement upon the sanguinary era when patients were bled to exhaustion, or when they went to their death in a state of intoxication, the time must come when many of the practices now in vogue will be superseded by a still more enlightened and scientific treatment.

An abundant use of pure air always produces a quickened activity of all the vital forces. Suitable exercises are certain to quicken the circulation and bring therewith corresponding benefits. The judicious use of water, both hot and cold, is universally attended with benefit to the whole system, and there is a charm about bathing that commends itself to the good sense of every individual, were it only for the feeling of purity which it engenders, but when there is added to that the reality of protecting the body from attacks of disease, as well as relieving it of discomfort and pain, then the use of the bath enters the realm of prophylactics and remedial agents. There are many kinds of baths, from the sponge, the river and the sea bath, up to the hot air or Turkish bath, and all have their place, though some are more capable of being utilized in a general way, and made more useful than others.

The natural elements, air and water, are indispensable to the existence of life, and when modified by another natural element, heat, they become the most powerful, most salutary and unfailing agents yet discovered for the preservation of life, and the alleviation of those numerous derangements to which life is exposed. This is no new principle or novel theory; on the contrary, it has been known, though at times imperfectly practiced, for thousands of years, throughout the globe, and is to-day, in spite of discouragement, receiving scientific and practical development.

All religious institutions were based upon the ceremonial of cleanliness. Baptism and bath are synonymous terms. The ancient history of Egypt, of Africa, of East India, China, Japan and Persia, all give ample testimony to the efficacy of the bath in the treatment of disease. Ancient Britain also gives abundant evidence of the same result. As early as the sixteenth century, publications were issued advocating the use of cold bathing in disease, and one authority of the seventeenth century says: "No part of physic is more ancient than cold bathing."

Suetonius relates that Cæsar Augustus recovered from a dangerous illness, after his other physicians had pronounced his case desperate, under the simple hydropathic treatment of his freedman-physician, Antonius Musa, who had been his domestic slave, and who had studied medicine while in the condition of servitude. He appears to have understood the curative properties of cold and hot bathing in relation to particular diseases, and to have been well acquainted with the efficacy of diet and regimen, which he also employed in the case of the Emperor. This event wrought a great change in the public sentiment regarding practitioners of medicine. Musa was rewarded profusely. He received a large sum of money, was exempted from all public taxes, was given the freedom of Rome, allowed to wear a gold ring, and his statue was placed next to that of Esculapius. In further honor of him, the professors of physic were

then, for the first time, admitted to the immunities of Roman citizenship.

That thermal springs which are found in every quarter of the globe, first suggested hot bathing, is shown by the fact that all of them have been utilized for that purpose, from remote antiquity, and by all people, from the rude untutored savage to the most civilized nations.

Heat is at once the simplest and the most powerful of all the agencies of nature. It is the heat from which is derived the most important part of the beneficial effects of warm bathing, and the superiority of air, in comparison with water, as the medium of a bath, is evident, for the reason that water can not be used for communicating heat to the body at a temperature much beyond 100 degrees, whereas air can be utilized for ordinary bathing at from 140 to 175 degrees, and for the remedial purposes much higher. It is this perfect command of temperature which the hot air bath places at the disposal of the scientific and skilled physician that constitutes its superlative merit.

The existence of the bath during thousands of years in every part of the world, gives abundant proof of its value, and it will be seen readily, that when the bath has been used as a curative in disease, the one great object in view has been to bring into play the action of air, water, and heat on the human body so as to excite perspiration.

From the fact that the form of treatment secured by the Turkish bath unites all the elements, making it a perfect combination of air, water, and different degrees of temperature, comes our belief and assertion that this form of bathing is bound to supersede all others, as being more complete and useful in every respect, and is eventually and inevitably to be recognized as the most potent agent in the physician's armamentarium. It is a process which will in a few minutes secure a general diaphoresis, bring the circulation to the extremities, equalize the arterial action, soothe disordered nerves, while it allays spasm immediately. It is obvious that such action would be of great service in every case of internal congestion, and in obviating diseases of the liver and kidneys. In the treatment of diseases of the joints, its efficacy is remarkable, also in all classes of cutaneous diseases. In bronchial or laryngeal inflammation the surface affected is instantaneously reached, and instances of gradual relief from chronic disorder, particularly gout and rheumatism, might be multiplied without end. At the same time it is an incomparable luxury, and most valuable as a means of training in health. In all diseases it is a remedy or palliative.

It is only necessary that the properties of the Turkish bath should be really understood to insure its adoption by an intelligent public. Its simplicity and natural action place it in antagonism to all empiricism. This bath stands alone on its merits, a great and acknowledged power. It will remain to diminish the pains and penalties that afflict the large majority of our fellow creatures, and to increase the good things that fortune showers upon us. It is at once the perfection and glory of all baths.

81 Columbia Heights.

WHY BALTIMORE IS A HEALTHY CITY.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY D. W. CATHELL, M.D.

BALTIMORE, MD.

Baltimore lies in latitude $39^{\circ} 18'$, longitude $76^{\circ} 36'$. It is situated on the Patapsco River, one of the tributaries of the great Chesapeake Bay, which divides the State of Maryland into two portions—eastern and western, the city of Baltimore being on the western portion, about fourteen miles from the junction of Patapsco River with the bay. We have an excellent and large harbor for our shipping.

Baltimore covers an area of thirty-one and one-half square miles, and like Rome, may be said to lie on seven hills. Its soil is both healthy and favorable for building. The city has 99,987 houses, with an appraised value, including the ground, of \$274,000,000. Its population, as ascertained by the police census of 1894, is 496,315, of whom 422,568 are white and 73,747 are colored. It has 780 miles of paved streets, with 234 miles of rapid transit street railways, running 785 cars, some cable, some electric, each car being provided with a fender in front for the protection of life and limb, and all stop to take on or let off passengers at the near side of the streets, instead of crossing the street before doing so, and each must come to a full stop before crossing any intersecting railway. By these rules our street railway accidents are reduced to a minimum, and in addition to business, car-riding for pleasure is a source of both recreation and health to our people.

Our city has an inexhaustible supply of excellent water, chiefly from the Gunpowder River, kept in eight separate storage reservoirs, which have a total capacity of 2,274,000,000 gallons, the daily consumption of water being 45,000,000 gallons, while the daily capacity of supply is 300,000,000. This is one of our chief sources of health.

The rich and diversified soil, the swarming waters, and the teeming forests about Baltimore furnish an unsurpassed abundance and variety of food. Added to these, we have an unequalled climate for permanent residence, for neither the cold of our winters nor the heat of our summers continues long enough to entail deleterious effects on the general health. Our snows end with March and our autumn frosts begin with November.

Baltimore is chiefly surface drained, and although it has about thirty-five miles of underground sewers, the function of most of these sewers is to carry off storm water from certain localities.

The city has no slums, and comparatively few tenement houses, although, like all large cities, there are many thickly populated neighborhoods where many poor people live too closely huddled.

The mean temperature for 1894 was 55.9 degrees; the highest temperature of summer was 98 degrees F.; the lowest in winter was 7 above zero. Our average annual rainfall is 44 inches; the number of days on which rain and snow fell in 1894 was 134, and strange to say, the greatest monthly precipitation was in May, $7\frac{1}{2}$ inches, and the least was in March, $1\frac{1}{4}$ inches.

The total mortality in the city of Baltimore for the year 1894 was 9,486, of which number 7,242 were white persons and 2,244 colored, being a marked decrease in comparison with the five preceding years,

INJECTION OF HERNIE.—Luton has recently reported (*Revue Mensuelle des Maladies de l'enfance*) that he has many times cured infantile hernia by injection of 1 gram of a solution of sodium phosphate and sodium sulphate.

notwithstanding a decided increase in population. Our death rate for 1894 was 20.84 per 1,000, but if the death rate per 1,000 were computed as in other cities, upon an estimated population, instead of the U. S. census of 1890, it would show a rate of only 19.04 per 1,000 for the whole population, which would make Baltimore rank high among the very healthiest cities in the world.

Among the 9,486 deaths there were 1,085 deaths of persons above 70 years of age.

Taking the different periods of life separately, there were:

Under 1 year	2,616
Between 1 and 2 years	669
" 2 " 5 "	476
" 5 " 10 "	255
" 10 " 15 "	143
" 15 " 20 "	316
" 20 " 30 "	778
" 30 " 40 "	780
" 40 " 50 "	735
" 50 " 60 "	801
" 60 " 70 "	832
" 70 " 80 "	701
" 80 " 90 "	322
" 90 " 100 "	59
" 100 " 110 "	8

The ratio of deaths of children under 5 years of age to the total mortality was 39.5. In addition, there were 721 still-births during the year.

The death rate among our colored population is always greater than that of the whites. This I attribute chiefly to their few opportunities for advancement, compared with those of the whites, coupled with their meagre comforts, limited opportunities and relative lack of knowledge of sanitary laws. Thus, in 1894:

The annual death rate per 1,000 white population was	18.85
The annual death rate per 1,000 colored population was	31.60

Among the chief causes of death in 1894 we find:

Consumption	1,106
Pneumonia	790
Cholera infantum	440
Disease of heart	438
Cancer	264
Bright's disease	226
Typhoid fever	222
Diphtheria	198
Diarrhea	144
Influenza	132
Whooping cough	112
Accidents	109
Bronchitis	90
Scarlet fever	85
Childbed	82
Dysentery	72

The number of deaths in public institutions was:

Baltimore city jail	2
Penitentiary	15
Hospitals and asylums	976
Deaths reported by coroners, including inquests	770

During the year there were 777 interments in the two public cemeteries, Eastern and Western, at the public expense.

A comparison of the mortality in Baltimore for the past five years shows the following decreasing ratio:

	Ratio per 1,000
1890	22.41
1891	22.13
1892	21.77
1893	20.99
1894	20.84

The vital statistics of our race tell us that the average duration of human life is about thirty-seven years. Up to 1875 there were no reliable vital statistics kept in Baltimore; and I am ashamed to tell you that even now, almost at the dawn of the twentieth century, we have no complete record of the births; but of the 174,923 deaths that occurred in Baltimore, during the twenty years ending Dec. 31, 1894, we find the following large number of aged decedents:

Between 40 and 50 years of age	12,651
" 50 " 60 " " "	12,752
" 60 " 70 " " "	12,800
" 70 " 80 " " "	10,779
" 80 " 90 " " "	4,972
" 90 " 100 " " "	759
" 100 " 110 " " "	95
Above 110 years of age	13

Nature has done a bountiful share for Baltimore, and man has done much to aid her, and of this her physicians have done their full share. We have about four hundred and fifty regular practitioners in the city, beside quite a sprinkling of irregulars of all shades and colors. We now have laws regulating medical practice, which bid fair to be of great benefit to the community. Beside the great Johns Hopkins Hospital, we have scattered through the city and suburbs, the Hebrew Hospital, Bay View Asylum, Mount Hope Retreat, Spring Grove Asylum, Wilson Sanitarium, Samuel Ready Home, Maryland Blind Asylum and numerous other and well-managed hospitals and homes; some for the sick, some for the insane, and all for humanity, and each of these is doing its full share toward making Baltimore a healthy city.

In addition to all these, we have various sanitariums, retreats and homes for sick children, free excursions for the poor, asylums, etc., which I might describe and praise too, if time permitted, but if prevention is better than cure, then these institutions all unite to do a power of good.

Among other medical features, we have five regular medical colleges that send forth a total of about five hundred graduates yearly.

We have lovely suburbs, which teem with the summer homes of our wealthy citizens and the cottages of our middle classes; and our woods and parks, river and bay swarm with excursionists and picnickers during warm weather.

Within our city limits we have 861 acres of public parks, divided among Druid Hill Park, Clifton Park, Patterson Park, Riverside Park, Harlem Square, Lafayette Square, Union Square and a dozen others, each acting as a resting and breathing place for our people and each adds its share to Baltimore's healthfulness.

We are told by all travellers, that our Druid Hill Park is one of the most beautiful natural parks in the world.

We also have several hundred ever-flowing public drinking fountains scattered here and there about the city, which are a great source of comfort and health, to both man and beast, especially during the summer months.

We have a well organized and highly efficient Health Department. A brief synopsis will show the important duties and responsibilities devolving on these, our custodians of public health, in 1894. It has a permanent corps of twenty-two vaccine physicians, whose number is increased when emergency

requires. During 1894 they made 48,475 calls, and vaccinated 42,042 persons. Vaccination is compulsory, and no unvaccinated child is allowed to attend the public schools of Baltimore. This is another of our sources of health.

Our food inspectors inspect all food products, condemning any and all that are unfit for use. During 1894 they condemned 67,322 pounds of various kinds of meat and 1,449 pounds of poultry, thus sparing our olfactories and guarding our health.

Our milk inspectors examine milk, and spill into the streets all that shows by the lactometer a less specific gravity than 129, at 60 degrees F., or is proven by microscopic examination to be adulterated or dirty; and for these causes during the year 1894, 6,679 gallons were condemned and spilled. Our milk supply for the year consisted of about 8,000,000 gallons of milk and cream, brought to us by twelve railroads and seventy country wagons, added to that gotten from the 1,126 cows kept in the city.

We have an inspector of plumbing and drain work, whose duties and importance to the public health are obvious to all medical men; 3,595 inspections were made during the year.

We also have an inspector of buildings, whose duties require him to see that all new buildings are erected with regard to safety to life and limb, and every dwelling house erected, however small, is compelled by law to contain a bath-tub—another decided source of cleanliness and health.

There are two inspectors of covered gutters and sewer inlets, who make daily visits of inspection, cleaning and disinfecting wherever and whenever necessary. Thirty-six tons of carbolate of lime were used by the Health Department in 1894. Their value to the public health makes it money well spent.

Our coroners, five in number, are all physicians, and in addition we have two post-mortem medical examiners, who made seventy-three post-mortem examinations for the authorities during the year.

We also have a public morgue, to which 163 bodies were sent—127 white and 36 colored; 140 of these were males and 23 were females. Eighty-one of these were subsequently claimed and buried by their friends.

Baltimore has now a new and efficient quarantine hospital, with a disinfecting plant, equal if not superior to any in the country. This hospital is on the river, a few miles below the city, and is in charge of a quarantine physician and his assistants. Five hundred and three vessels were boarded and inspected during the year 1894, and twenty-four patients with infectious diseases were treated in the hospital. During the year, 7,692 unsanitary mattresses from emigrant steamships were destroyed in this port. Baltimore is the only American port in which they are totally destroyed.

The city has twelve sanitary inspectors, who examined and abated 20,582 nuisances during the year, and had 286 vacant lots drained and filled. It is also their duty to examine into all cases of contagious diseases: diphtheria, scarlet fever, croup, measles, smallpox, etc., and to disinfect the premises after recovery. In 1894, 1,977 cases were reported by the attending physicians, who are compelled by the laws to report every case. The importance of these rules in maintaining public health could scarcely be overestimated.

There were issued by the Health Department dur-

ing 1894, 59,923 notices and orders to place premises in more sanitary condition, and 74,874 permits to clean privies were given; and every year on the approach of warm weather all persons are compelled to place premises and privies in a sanitary condition.

In regard to night soil, 90,721 air-tight cart loads, equal to 18,144,200 gallons of liquid material, and 268,466 loads of garbage and ashes, were removed from the city in 1894, all by daylight, the former by what is known as the odorless system, to the two dumps, and were carried thence down the river in scows, and disposed of to agriculturists. There were also removed 169,915 loads of street dirt and sand.

In some portions of the city the streets are cleaned by sweeping machines, but the dirt is taken from the majority of streets, lanes and alleys by laborers, scraping and sweeping. The daily average number of loads of street dirt removed was 600; and beside this, during the year, 9,987 cart loads of refuse and filth were removed from the various sewers, sewer inlets, and covered gutters, and 1,105 cart loads of vegetable and other offal were taken from the various city docks, all with a view to maintain the public health.

In addition to garbage and dirt carts, we have covered wagons for the removal of dead animals, fowls, tainted meat, etc. During 1894, 45,211 of the former and 2,713 pounds of the latter and more than 112,000 fish, crabs and eggs were removed, and all done so quietly that probably many of our people do not even know of the existence of such wagons.

Our police force ably assists the health authorities in carrying out all laws relating to the public health. It consists of 808 officers and men, maintained in 1894 at a cost of \$825,000. To say that we have a model police organization with a most excellent detective service, would certainly be no exaggeration. We have seven police stations and to each station is attached one of the vaccine physicians and a patrol wagon. These wagons not only carry arrested persons from the signal-box nearest the point of arrest, but are also utilized for the humanitarian duty of carrying sick and wounded persons to their homes, or to the hospitals.

There are two abattoirs and quite a number of slaughter houses, all under private management. These are among our chief unsanitary features.

Baltimore is lighted by 1,039 electric lights, costing 35 cents each per night; beside there are 5,932 gas lamps and also 1,036 gasoline lamps, in small streets and alleys where there are no gas mains. These all conduce to safety of life and limb to pedestrians, and help to secure our persons and property against evil-doers.

A few additional words: I do not wish any one to infer that all of our improvements have been made at once, nor that they have suddenly dropped to us from the skies, or that they have been handed down one by one from the rainbow, as in fairy tales; far from it! They have cost much time, much labor, and much money. Our city has exerted herself and must continue to do so, for there are other great strides to be taken before she reaches sanitary perfection. But Baltimore is a progressive city, and when our brethren of this Association favor us with another session I hope to be able to report further and greater advances.

Among other things we must establish and maintain perfect supervision over our water supply, and

protect it against any and every possible source of pollution.

We must adopt a more rational and scientific method of disposing of our garbage, fecal matter and other offal, either by desiccation or cremation.

We must abolish our abominable privy vault system and adopt dry earth closets, or some other still better method.

We must legislate the 97 cow stables, with their 1,126 cows, and all other nuisances, out of the city, and keep them out.

We must abolish, together with all other pathologic industries, every private slaughter house, and place all abattoirs under such rules as insure full protection to the public health.

We must devise some method of securing perfectly accurate statistics of births.

Free public baths on an ample scale, centrally or conveniently located for the masses, should be established.

The unjust yearly tax of \$3 for each hose attachment for sprinkling and washing the pavements and streets in front of one's residence, should be forever abolished, because these promote the public health.

The dangers of every unsanitary lane and alley in Baltimore should be removed by making it smooth with asphalt.

We, also, badly need a public disinfecting plant for the city, and a city hospital for the care and treatment of the milder contagious diseases, *i. e.*, scarlet fever, diphtheria, measles, etc., while smallpox, yellow fever, cholera, etc., should continue to be treated at the quarantine hospital.

I am also strongly of opinion that our Health Department should be separated and isolated from all other city departments and placed in a building of its own, so that a citizen going in to pay his water bill, or to enter either of the many other departments adjoining, will incur no risk of encountering any one suffering with or coming from a case of contagious disease—a building where each function of the Health Department can be carried on separately.

Thus would I briefly attempt to point out a few of Baltimore's many advantages, and to give you a glimpse at her vital statistics and her sanitary agencies; and, also, to frankly tell you of some steps still required to push her up to the full measure of a perfect metropolis.

I shall mention one other great blessing we possess, and I am done; that is, that in addition to all else, *Baltimore is a lucky city*, for in addition to having hosts of worthy men and noble women, she escapes many of the sorrows that fall to some other communities, for she is neither subject to earthquakes nor volcanoes, tornadoes, cyclones nor blizzards, and neither war nor pestilence has ever laid its hand heavily upon her. Beside, she has suffered no great fires, no sweeping floods, no withering droughts, no ghastly famines, or other dire calamities. And thankfully appreciating these facts, *we, her citizens, "with malice toward none, but with charity for all,"* We, Her Citizens, are determined under God, to exert all the powers of our hands, and of our heads, and of our hearts, to make fair Baltimore, in the future as she is to-day, one of the healthiest and happiest cities in the world.

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THE IMPORTANCE OF THE STATE GOVERNMENT CONTROL OF ARTIFICIAL AGENCIES THAT MAY BE PRODUCTIVE OF NOISES.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY AUGUSTUS P. CLARKE, A.M., M.D.

CAMBRIDGE, MASS.

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The inhabitants of the American States have long been noted for their hurrying and bustling habits, for their ceaseless, restless activities, and for their all but immodest disposition when setting themselves about to accomplish a purpose, not to intrust the fact to the keeping of a silent herald. So marked have these characteristics become and so influential have they been in modifying the development of their personality that Europeans, surrounded by other amenities and pleasures, have fancied that the average American citizen is still but a son of the forest, that the noises incident to his movements are only the rustling of his feathery head-gear, that the implements of his trade are the disguises of the tomahawk, and that the acclamations expressed upon the success he attains are not unlike the war-whoop of his aboriginal predecessors.

After eliminating from our field of vision all the extravagances of imagination indulged in by trans-Atlantic personages, there is, nevertheless, much that having been borne along by our peculiar methods of action has become more and more the subject of the deepest concern, and requiring also for proper correction continued interest and coöperation on the part of all. Not the least among the factors inimical in no small degree to our health, comfort and repose, are the noises that are on all sides produced by artificial agencies. Perhaps in the decades that have preceded ours, a person would not have been deemed patriotic or public spirited had he entered his protest against occurrences which have been regarded as incidental to the affairs of the greater moment, but it must be remembered that the rapid multiplication of the agencies in question has been carried on much more with the view of enhancing private interest than of providing for the needs of the public at large.

The employment of the tramway system upon the streets of American cities was at first considered not only as an innovation, but also as an encroachment upon private rights; this system was at length endured and patronized by the abutters for the reason it was felt that those less favored might with greater facility be enabled to reach the more distant points of their destination. The introduction of the trolley cars into the larger cities is not only an encroachment upon private rights of the inhabitants, but the whole management of such ponderous machines, through the crude and unscientific principle of construction, is not only a waste of force, but its practical application becomes a veritable nuisance. Such a method of conducting travel we have reason to fear will to a very great extent continue to be so, on account of the insufferable noises that must necessarily result from the operating of such cars by the companies for the sole purpose evidently of gain. Such harsh, bewildering sounds, such fiendish, hideous clangor with which the ears of the would-be

sleepers must ever ring, can not but act injuriously upon his whole organism. Though legislative enactments thus far have not been put forth in the direction to lead to the abatement of the evil, yet there is no sufficient reason why the State should not take cognizance of any factor that may disturb to such a degree the health and comfort of mankind.

No good reason can be offered why boards of health should not be clothed with all necessary powers for the supervision of travel and of exercising a salutary control over all the means for accomplishing the same. Indeed, there is more reason why such powers should be delegated than there is for granting authority to institute measures against an apothecary or other dealer who may chance to sell a package of sal soda, or of sal tartar, or to dispense a vial of laudanum, or other quite unimportant article, which may not be up to some arbitrary standard of weight or measurement.

All must admit that there are unnecessarily made disturbing noises that should be prevented by legislative enactment. The numerous whistles and bells employed on railway trains are often deafening in the extreme, and thus become the source of much discomfort, not only to persons who may be suffering from severe illness, but also to the inhabitants of an entire neighborhood. The ringing of church bells, that betoken the coming or the presence of the parson, is often a merciless herald to those who may be too unfortunate to attend the meeting for the appointed service.

It is becoming more and more apparent that in our country, where the public affairs are sought to be managed by popular sovereignty, less attention is paid in response to the actual needs of the masses than in those countries where the will of the people exercises but little influence in the election of rulers. The hurrying through our streets, often at most unseasonable hours, of brick wagons, ice carts, milk teams, market men's loads, beer carts, and of the numerous other vehicles, all for private gain or for a syndicate's exchequer or for a company's till, is most uncongenial to all and is often prejudicial to that large number who are dependent for their activities on quiet and refreshing sleep.

Those who are weak, or who are suffering from peculiar idiosyncrasies, or whose proper psychic balance is dependent on favoring influences, should not be left to suffer through the capricious temper, or be brought under the power for gain of the heartless and unfeeling members of the community. I venture to say that in almost every municipality of our metropolitan district, or our Greater Boston, the daily noises incident to artificial agencies, to say nothing of the avoidable noises made by persons who have not the slightest regard for the public welfare, are frequently greater than what are heard in many of the larger European cities. When any complaint or remonstrance is presented to the officers of the law on account of the ruthlessness of such persons, the answer almost invariably returned is that noise is but a mere inconvenience. It has not been uncommon in my own practice, and I feel certain that it is not unusual in the practice of other physicians, to have patients who, while undergoing the effects of long and exhausting illness, are compelled to endure their full share of this brain paralyzing and nerve destroying agency.

It has long been a recognized fact that in man the

greater part of the impression that is received reaches the sensorium through the medium of the different special senses. Odors that are agreeable produce, for the most part, a salutary effect upon the organism; those that are disagreeable, when endured for long continued periods, exercise an injurious influence. Objects, especially articles of utility, presenting rich and beautiful colors are conducive to the health and strength of the person; the same may be said of all agencies that transmit through the several special channels of communication pleasing and agreeable impressions. Undue irritation or excitation of any one of the senses or of the organs of the body is liable to effect pathologic changes, either from producing immediate and serious derangement in the histologic elements, or from not allowing sufficient intervals for rest and recuperation. The intricate and delicate arrangement of the auditory apparatus is no exception; it can not repel the persistent assault from noises thus made upon it without becoming the center of a diseased condition. Persons who are exposed to such harassing attacks appear dwarfish, undeveloped, or with a retrograded intellect, morbid in their impressions, and if, perchance, they should rise to any considerable degree of activity, they would still be prone to relapse into a listless state that borders on neurasthenia, and to other varieties of the neurotic state.

When one comes to consider what hideous noises are endured by the inhabitants of our more densely crowded municipalities, it would seem that such people are, indeed, lacking in moral stamina; that they are really deficient in what is essential to the development of the higher attainments of mankind. It may be said, however, that the pursuing of the personal aims and ends of the individual tend to lessen interest in matters not directly conservative to such attainments; there then will be brought about no unity of action and no well directed opposition to encroachments on rights regarded only as public in the advantages which they insure.

In order, therefore, to overcome the several factors diverse to the higher accomplishments for the public welfare, and to elicit personal attention, irrespective of private enjoyment, for the support of such measures, it will become necessary to bring into operation other methods, to be carried out in all their details for the proper administration of affairs of state. The building of great public thoroughfares, and especially the grading of such avenues of travel, should be carried on more with the view of conserving all the elements of public health and convenience than of adding features that may be helpful or useful in merely one direction only. In this connection may be mentioned notable instances of the unwise policy so often pursued in the paving¹ of many of our most important streets with rubble stone, or with stones that have been broken into cubes or blocks, and then laid in the usual manner of doing such kind of work. Streets thus prepared become not only the source of great annoyance to the inhabitants by the loud rumbling, by the rapid driving over them of the many heavy wagons, which is often done at unseasonable hours, but they also become, as all sanitarians admit, the source of danger from being the receptacle of filth from drainage matter that continually gravi-

¹ See Medical News, of Philadelphia, August, 1893. See also the October number of the same year of the Buffalo Medical and Surgical Journal. In both of these journals the baneful effects of city noises are ably discussed.

tates into the interstices between the stones, that are laid in such a primitive manner. The employment of concrete, cement or asphalt,² or other similar material, on our streets, as is usual in some foreign cities, would be an improvement and would fulfill most of the purposes for which such streets are graded. The use of properly constructed vehicles, the regulation of the driving, and the hours allowed for the travel should be under the strict control of the government officers. Much of the noises of our street car system could undoubtedly be prevented by the more general adoption of underground ways, or, by what is a better system, the building of roads after the manner of the Ringbahn, of Berlin. If the latter should be adopted the stations might be at greater distances from each other. Tramways, with cars of light gearing, should be the only ones allowed for intramural service. While the fostering of a patriotic spirit should be encouraged and allowed the broadest latitude on all proper occasions for its true exhibition, its conservation should not be jeopardized by the government's yielding to the caprices of unthinking persons, as is so often shown by its resorting to vain and useless mockery in its attempts at public celebrations. On such occasions the discordant ringing of bells, the blowing of horns, the loud cracking and firing of torpedoes, the display of what may really be regarded as "antique and horrible," have helped to displace many of the better class of residents of our eastern cities, and have likewise been the source of much discomfort in their relationship, but unfortunate in their location and surroundings.

As I said before, I can recall as occurring in my own practice numerous instances of persons who have been victims of such public disorder, or instances of persons whose recovery has been materially retarded by the demonstrations of such public license. Have not the minority or the few people who thus suffer, some vested rights that the majority is bound to respect? Surely, the persons whom the physician for the most part is summoned to treat, belong to this latter class. It is in the interest of this class, and for the more unfortunate, generally, that the true physician was first led to choose for his life work the profession of medicine; that he ever seeks by the employment of all his energies to improve his talents for the attainment of the highest good. This he does that he may fulfill the mission to which he feels that he has been called by divine appointment.

REFORM IN MEDICAL EXPERT TESTIMONY.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. S. HERRICK, M.D.

SAN FRANCISCO.

The disagreement of doctors is both a proverb and a reproach: a proverb, as if it were constant and axiomatic; a reproach, as if it were needless, unreasonable and peculiar. If medicine were an exact science, men with equal opportunities for acquiring it might be expected to agree substantially, as they do in chemistry and physics; but the personal equation is a disturbing element in the mind of both physician and patient, of a variability defying the power of the differential calculus. That other people should disagree is a matter of course, and generally of no con-

sequence. Clergymen disagree widely in doctrines believed to affect supremely the eternal welfare of mankind, and in this land of liberty and toleration a large fraction look on with indifference, and the remainder with serenity. Lawyers are paid to disagree; their clients are not satisfied unless they are radical and stormy in variance; yet lawyers are loudest in complaining of the disagreement of doctors, especially when they may be supposed to be paid for it.

The above is said rather to explain than to justify the ground of complaint. Substantial agreement in medical testimony is very desirable and probably possible, though at present impracticable in particulars. This much by way of introduction to the special subject, which has reference to expert medical testimony in courts of justice.

"'Tis true, 'tis pity, and pity 'tis 'tis true," that the figure generally made by physicians as experts is embarrassing and often discreditable to themselves, and that the oft-repeated spectacle has brought reproach on our calling; but I hold that the fault is rather with the system of taking medical expert testimony than with the witnesses themselves. Their services are sought for the purpose of supporting the claims of parties in contest, and their opinions are always known beforehand by the lawyers who call them. If their views were not known to be more or less favorable to the party requiring them, they would be avoided rather than sought.

Furthermore, physicians are human, and can hardly escape bias in favor of a friend who happens to have a case in court, whether as client or attorney. He is asked by an interested party, friendly to himself, to give opinions, knowing that, if favorable, they would be more acceptable than unfavorable ones, and he is too apt to assume a partisan rather than a judicial frame of mind. The main check to such insensible bias is dread of cross-examination. Still more to be deprecated is the custom of paying a considerable fee to the expert by the party employing him. If this be given in advance, it is fairly presumed to secure the most favorable opinion possible; if not given beforehand, then it is expected that the honorarium will be according to the value of the testimony. In either case the fee is demoralizing to average human nature. On the other hand, expert testimony without a fee, either express or implied, is given grudgingly. Parties in court find themselves in a situation like that of people at a public table who feel constrained to fee waiters in order to secure good service. The comparison is humiliating to members of a liberal profession, but human nature varies less in kind than in degree in different stations. Here it is fair to remark that physicians are no more responsive to a pecuniary inducement than lawyers, or even clergymen. Pleading and preaching both have a recognized money value; the dispensers are not apt to depreciate their own worth, and sensible people pay them accordingly.

Under the existing practice of taking medical expert testimony, lawyers intend to use physicians for partisan purposes, and whatever moralists and the public at large may think of the consequences, the legal fraternity have no more right to find fault with experts than duelists have with each other's weapons. It is wrong for the law to allow medical men to be used as partisans in such controversies. An effectual remedy is needed for this abuse, both to spare the ex-

² Op. cit.

pert such degradation and to promote justice, and this we shall now consider.

The first and essential requisite is, that expert witnesses should never be chosen by parties in contest, nor by their legal representatives, either in civil or in criminal trials. If possible, their opinions on questions at issue should not be known beforehand. I would suggest that the court be authorized by law to summon a suitable number of persons to act in the trial as experts, that they be questioned as to any possible bias in the case, and that counsel on both sides have the privilege to object on such grounds, as in case of jurors, but without privilege of peremptory challenge. The court, jurors and counsel on both sides should then have a right to question the expert. Such a plan would give him a judicial position, more satisfactory to himself and vastly more conducive to fairness and justice. The law should allow adequate fees, according to the value of the expert's time in his ordinary business, to be fixed in the judgment of the court and included in the ordinary costs of trial.

I am clearly of opinion that legal counsel should not be allowed to suggest names of experts, nor to have anything to do in their choice beyond aiding in the discovery of any possible bias, and objecting for such cause. Neither should they be taken at hazard from a list of practitioners, as jurors are drawn from a polling list. A man competent to preside over a court may be trusted to select experts from the best of their class. In a city there is ample room for choice, but in a rural community it might be necessary to summon men from a distance.

The court should be authorized, in his discretion, to require one or more experts to listen to the testimony of ordinary witnesses, before giving their own opinions, for this course would obviously qualify them to understand the case and assist to a just and correct decision. This might be made optional with putting a series of hypothetical questions. In either event the same precautions should be used to guard against outside influence upon the experts as are taken with the jury, and for the same reason.

Since the foregoing was written, I observe that the Illinois State Medical Society has proposed a legislative act authorizing the judges of the Circuit and Superior Courts to appoint experts in medical and other sciences, for the purpose of giving opinions upon the evidence as presented in hypothetical form in both criminal and civil trials. The term of appointment is to be one year, and the judge may summon as many as three in one case. They are to be subject to cross-examination, but only upon points touched in their opinion. I think it safer that experts in an important trial be selected for the occasion and at the opening, so as to preclude their being tampered with by interested parties beforehand. Their opinions should be no more forestalled or anticipated than those of the court and jury.

This matter is one for each individual State to settle within its own jurisdiction; likewise for the national government within the purview of the federal courts. It would be well for a suitable example to be set by a Congressional act applying to trials in federal courts, and then we might hope that the several States would take like action so as to make the practice substantially uniform throughout the country. In my judgment it would be fitting and helpful for the AMERICAN MEDICAL ASSOCIATION to urge upon Con-

gress some such measure as the one here briefly outlined, not only for the credit of our profession, but still more in the interest of justice.

THE PREVENTION OF ASIATIC CHOLERA.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ELMER LEE, A.M., M.D., PH.D.

CHICAGO.

Asiatic cholera is one of the pestilential diseases that remains to menace the happiness and prosperity of the human race. In civilized countries epidemics are more and more rarely occurring, but cholera is still a dreaded and fatal disease in periodical epidemics of wide extent in civilized Europe. To-day the disease prevails almost continuously in some portion of southern Europe and western Asia. The people in these countries are of two notable classes; those of the highest, but the majority of the lowest intelligence. Superstitions offer obstacles that so far have prevented the development of prophylactic measures against ravages of epidemic cholera. When a people such as are the occupants of southern Russia, threaten to murder the priest of the parish because he endeavors to introduce, for their use in times of cholera, so simple an agent as carbolic acid, it is not strange that preventive measures make slow headway. The Russian populace during the last epidemic of the year 1892, actually murdered a physician in cold blood, simply because of his profession. They believed that he, with other members of the profession, was indirectly the cause of their suffering and death. Mobs attacked the hospital barracks, dragged the patients into the open places, laid them on their backs in the hot sun, destroyed the hospital, threatened the lives of doctors and nurses, and in one instance a doctor was martyred. In another instance, in order to save his life, at the hands of these sadly superstitious people, it was necessary to place a physician in a coffin and carry him as if dead to the outskirts of the town. Even in more enlightened portions of civilized countries, grave difficulties present themselves to important measures relative to protection of human life in times of epidemics.

It is a long time since there has been an epidemic of the cholera in the United States, but it is perhaps an open question whether our own people in some instances would behave in the most enlightened manner. While it is agreed by the profession universally, that it is desirable to prevent epidemics, it seems everywhere to be scarcely possible to meet the laudable desire. Up to the present time, there have been and there are a number of propositions concerning the prevention of Asiatic cholera. The success of measures of prevention has not realized the expectations of the advocate who has proposed them. A most notable and widespread interest and enthusiasm was produced ten years ago by Ferran, of Valencia, Spain. The Doctor heralded to the world that by the use of his attenuated cholera germs, the disease was both quickly and surely curable, as well as preventable. His proposition received almost universal consideration, but to-day the proposition receives absolutely universal neglect. This is the sad history of the great hope that was extended throughout the civilized world, that at last a great man had discovered a method equal to the require-

ment. Expectations ran high, the medical press, as well as the secular, was filled with seemingly strong and convincing facts that went far to establish the value of Dr. Ferran's proposition; but alas! as have so many propositions during our own brief generation, it waned and to-day is only remembered on account of the notoriety of the failure. Since his day, other equally intrepid investigators have had propositions to advance. Some of the propositions have been worthy of serious consideration, some of them have been ridiculous. In every instance the proposal to protect human life from the contagion of cholera has consisted of some foreign element to be introduced into the blood circulation. The principle underlying the introduction of foreign substances into the circulation is that of antagonism. Some of these substances proposed to be introduced into the body have been animal substances, many of them mineral. The disposition of the moment, especially the disposition of European investigators, is along the line of animal viruses. These viruses are of two kinds: the newer kind is the sterilized toxins of the disease to be prevented; the older form consisted of attenuated bacilli. Both forms have sadly failed to prevent the disease feared.

The latest proposer of a virus of animal nature that would prevent Asiatic cholera is Professor Haffkine, of the Pasteur Laboratory, a Russian by birth and education. The Doctor is an intrepid experimenter, a faithful observer, and a profound bacteriologist. His great and untiring efforts seriously deserve a better fate than the results of latest experiments warrant. Encouraged by the hope of success, he has visited the home of Asiatic cholera in India, and a great many of the natives and members of the native army, were inoculated against cholera. The report of the results of his inoculations, show that 70 per cent. of the inoculated subsequently contracted cholera, whereas the percentage of the natives not inoculated who contracted cholera did not exceed 67 per cent. This is truly disheartening, but it was what was to be expected. Inoculation by animal viruses predisposes to Asiatic cholera, the opposite result to that which is desired. Inoculation against cholera has signally failed in the hands of each successive prophet. The virus subcutaneously introduced produced retrograde metamorphoses similar to the effect of the disease itself. The experiments in Calcutta by inoculation during the past three years have shown better results, but the conclusion is valueless for the reason that that community has not been visited by Asiatic cholera during the entire period of the experiment. If the attenuated germ and the sterilized product of the germs, or the sterilized product of the disease itself, after the conscientious trial of a generation fails, what hope remains along this particular line? There is nothing left to be tried, and it appears to me the case is hopeless in this direction. My own conviction honestly revealed, denies any prospect of a realization of such hopes.

A still later earnest, intelligent, educated enthusiast in our own country comes forward with a new theory. Dr. Reginald Leach, a worthy and honored graduate of Dartmouth, proposes to prevent Asiatic cholera by a process of introducing arsenious acid into the circulation. His conclusion is the result of theoretical deduction. The proof of the value of the deductions has not yet been established, but the high standing

of Dr. Leach entitles him to our most respectful consideration. He assumes, and in his assumption he has my concurrence, that to prevent a disease such as cholera, an agent is required which is in itself able to cure that disease. This is good reasoning; this is from my standpoint literally and actually true. Now, as to the selection of the remedy. The Doctor holds with me that the propositions of Pasteur, of Behring, Haffkine, Hammond, Ferran, and others of that class are faulty, because they use an animal toxin for their preventive measure. An animal toxin, the Doctor says, is necessarily uncertain in its dynamic force, owing to incidental and unavoidable causes. In addition to that, the morbid products of vicious character are liable to accompany the curative animal virus, owing to the impurity of the source from which it is to be taken. Consequently, Dr. Leach proposes to use a definite unvariable mineral of known strength, a mineral which can be weighed and the dose made exact. He reasons that there is some analogy between Asiatic cholera and malarial disorders, and that this mineral substance likewise is able to exert its peculiar protecting influence. Virchow has stated that there is some analogy between the effect of poisoning by arsenic and the disease, Asiatic cholera. Upon this basis of analogy, the theory is constructed in part, that that remedy which produces an analogic disease to cholera may be the remedy which will cure a prototype of that analogy. Another conclusion entertained is that while the morbid products of disease used as viruses for inoculation produce retrograde disturbances of the human body, on the contrary, arsenic is said by Bartholow, as the Doctor's authority, to produce tonic and reconstructive effects. Theoretically, this may or may not be true. Practically, the conclusion has not been determined. It is a serious question in my mind as to whether it ever can be proved to be true. The claims for prophylactic effect of arsenic are being investigated by certain colleagues in Lucknow and some other parts of India. Whatever may be the result, it is too much to hope that the prevention of Asiatic cholera can be secured by introducing any corrosive mineral substance into the circulation. Arsenic is an intense corrosive, and whatever its influence may be, its action is that of a foreign corrosive substance. It has by right and by nature no natural place in the human organism. The reasoning from the point of theory by Dr. Leach is clear and deeply interesting and worthy of consideration. The whole subject has been plainly presented to me by the Doctor in the form of a personal letter, but it is too important a document to be retained by me as a private paper. It is my wish that it be included in the Transactions of this Section for publication in the regular way.

The prevention of cholera must necessarily be along two lines: 1, the measures instituted and executed by the State; and 2, those means and measures to be carried out by the individual. The enforcement by the State of modern sanitation, modern hygiene, the principal feature of both the preceding, being a free supply of pure water for public and private use, constitute the wisest and the best provision as a public policy. The application of rules of strict and severe and unyielding quarantine measures is neither humane nor is it necessary.

Cholera is a preventable disease; but to prevent cholera requires coöperation between the directors

and the directed. Education and the growth of intelligence alone will secure protective coöperation. What can we do in a place where its citizens, when commanded by the authorities to restrict their use exclusively to sterilized water, reply as they did along the banks of the Volga in Russia, that they will not do so because God Almighty did not intend them to drink boiled water, for if he had he would have boiled the water himself. The day when sufficient intelligence will inspire the motive for coöperation between the authorities and the masses is somewhat nearer but still a long way off.

Personal prophylaxis against cholera would avail much if the result of personal intelligent instruction. Victims of cholera are chiefly persons who are themselves victims of vicious appetites or vicious habits. The excessive use of alcoholic beverages is without an equal as a chief factor in preparing the organism for an invasion of cholera. Excessive use of tobacco likewise weakens the system and invites cholera. Unscientific cooking and the too frequent use of animal foods are productive of a condition of body which encourages cholera. The insufficient consumption of water, and especially pure water, is of all factors the most conducive to the acquirement of this disease. One preventive which would be a universal prophylactic against Asiatic cholera is the condition not as frequently found as it should be, which is known by the name of good health. Pettenkofer, of Munich, showed by his experiments upon himself, that with normal secretion of gastric juice, a tumblerful of cholera bacilli could be taken with mirth and impunity. Gastric juice is a corrosive substance secreted in the normal stomach, that attacks and cuts to pieces quickly and surely, every organic particle of matter that comes in contact with it. It is fully taught and fully believed that cholera is produced by organic germs which enter the stomach through the mouth in the contaminated water which is drank, or in the food which is consumed. The sentinel, in good health is vigilant and absolutely prevents every form of organic substance from passing the threshold into the human citadel. But if the guard who stands watch at the door is stupefied and rendered impotent by his own vicious habits, he will permit the foe to enter, and the house to be invaded. Healthy tissue, together with a healthy mind, is the prophylaxis universal as to time and to place against every invasion of the system by Asiatic cholera.

It was my experience during a stay of six weeks in the Oboukoff Hospital in St. Petersburg, to see many cases of Asiatic cholera. There were 600 persons afflicted with cholera at the time of arrival. The cases of cholera were principally among the lower or lowest classes. These poor people live badly, eat poorly, and drink excessively; but instead of drinking pure water, they substitute a Russian liquor, and frequently while under its influence they drink water during the heat of the day from the filthy canals which divide the city into three parts. These canals are so foul that they resemble to some extent the Chicago River. Fish can scarcely be kept alive for even a few days in them. Very many of the men who came to the hospital sick from cholera, contracted the disease through their ignorant use of the contaminated water from the canals of the city. The preventive measure that is universally employed, and which commended itself because of its good results, was the provision

for a supply of boiled water for all the inhabitants. It is wise in observing to take note of a measure so simple, yet so generally recommended as the use of pure water during epidemics. This sensible measure is the only likely preventative of Asiatic cholera. During the prevalence of the epidemic in Hamburg, Altoona, a division of the city, was supplied from a different system of waterworks, from that of Hamburg, and while cholera raged in Hamburg to the extent of 21,000 cases in five weeks, there were no cases of cholera in Altoona, which was only separated from Hamburg by the difference in having a separate waterworks which supplied filtered water as against unfiltered water to the residents of the infected city. Pure water will save Hamburg from future epidemics of cholera.

100 State Street.

LETTER FROM DR. LEACH.

PARIS, TEXAS, April 6, 1895.

Dr. Elmer Lee, 100 State Street, Chicago, Ill.,

My Dear Doctor:—Your very welcome favor of the 3d inst. came to hand but shortly, and I hasten to reply that against your very large practical experience with the disease, I can not pit my remedy (as yet but partially tested) as a curative; nor do I so wish to do, for I hastily acquiesce in the verity of your absolute plea for absolute cleanliness in the treatment of Asiatic cholera, and I also have my apology to offer for some unmeant abstruseness which seems to have slipped into my letter of the 29th ult., for I did not then, nor ever, mean to commend arsenious acid, nor any other form of arsenic, as anything else than the remedy, *par excellence*, as a prophylactic against this disease; believing, always, that with absolute cleanliness, followed by the judicious exhibition of the proper drug, this disease may be reduced to the status of, at least, that now held by the more loathsome variola or possibly to something even better still, for I am at least sufficiently enthused with the belief in arsenization vs. cholera to make any reasonable sacrifice for the pleasure of personally testing the alleged efficacy of my drug to prevent: but to date I have been handicapped by a succession of misfortunes which have wellnigh buried me in that oblivion it seems the desire of the majority to relegate us, and the misfortune of all such who are adventurous in medicine to that point where those who dare but follow pronounce each temerous.

I assure you, therefore, that I appreciate to the utmost, the honor of the attention you have thus far bestowed upon my hypothesis, and trust it may be my good fortune ere long to forward you some more convincing news from the East, of the efficiency of my chosen drug as a prophylactic against this felt destroyer of our fellow beings; meanwhile, I trust you will excuse me when I acknowledge a timidity in asserting views diametrically opposed to the generally accepted theories of the day as presented by Pasteur, Haffkine, Hammond, Behring and others, but at the same time accord me the privilege of the paradoxical position of apparent temerity in asserting my views on arsenization as the only true prophylaxis against cholera (as you have seen it) I believe logical reasoning can arrive at; and accredit me with the desire only to better our standing as preventers of disease, however attained.

As you say, my theory is clever and engaging, please do me the further honor of reading something more of the same which will more fully acquaint you with the wherefore I am so confident of its ultimate good to mankind; and then, if you please, reward me with your further correspondence upon this very intensely interesting subject.

Granting that you will continue to read to the end, I take great pleasure in stating that I find, in reading up on my opponents (inoculation of animal virus) that Toussaint and Chaveau first recognized the fact that not only the attenuated disease germs, but also the sterilized products of bacterial life, could communicate immunity, but Behring says the acquired immunity is of a relatively short duration and the dismal results of Haffkine at Lucknow show that he there lost over 70 per cent. of the inoculated, while there was a mortality of less than 67 per cent. among the uninoculated, showing a morbid condition we would wish to avoid in alleging prophylactic virtues of anything; therefore please note that while I shall attempt to show the fallacy and even dangers of other hypotheses on the prevention of Asiatic

cholera, I do not do so till I feel confident I have something logically correct as a substitute; and, therefore, not as an iconoclast but as a simple investigator do I propound my own theory to you as to all others, hoping only now to sufficiently interest those who may have the ear of public opinion, that tests may be made where such is possible, and the sooner the better, as the more certain of something tangible and reliable.

We know that Virchow first promulgated that "many cases of acute arsenical poisoning are not distinguishable by their symptomatology or morbid anatomy from cases of epidemic cholera;" that Farrington proclaims that arsenic "excites intestinal disease which is almost identical with cholera, even the organic growths of cholera are found in the discharges from the arsenic proving;" also that since 1873 sulphuric acid (as I wrote in my last) has held a high place among the alleged preventive measures against this form of cholera. Therefore in handling this much mooted question I ask your forbearance and a reservation of verdict until I have presented more testimony than I felt it my privilege in my letter of the 29th ult.; and in doing this you will please note I shall attempt to faithfully present all sides of the question; at the same time claiming most for arsenic as the preventive of the disease, as well as the superiority of drugs over all kinds of animal viruses as preventatives, because I am with you in my conviction that the whole principle now underlying allopathic practice is incorrect, and I say so though I am a graduate of Dartmouth College also that I do not now follow the precepts of my alma mater.

Though this may seem already long I have but just begun, yet shall try and not burden you with a novel method of cure, but only present a prophylactic measure as different from a curative as is hygiene from medicine, yet as allied in significance and utility. I follow the same general trend of thought as that of all our illustrious predecessors in preventive medicine (for there is but one royal road to success) but am constrained to choose a drug instead of their inoculation with the animal viruses or antitoxins, for I choose more measurable substance, which, in exhibition as a prophylactic against cholera, is within our power to control by regulating the dosage and within our ken in most probable effect; at the same time eliminating possible idiosyncrasies in persons of unusual susceptibility; but even in them prepared to meet any untoward symptoms with a known antidote such as we have not for the animal viruses.

I choose a drug because of the fact that extraneous noxious agencies (such as natural diseases and animal viruses) possess subordinate and often extremely conditional powers, while drugs possess absolute and unconditional powers far superior to the former in their ability to produce morbid discordancy or the antitype of the prominent, uncommon and characteristic signs and symptoms equal in number to the disease to be prevented which must be the power of any protective to protect. I choose arsenic, therefore, because, as Hippocrates says: "Experience has demonstrated that only that remedy will prevent a disease that possesses the power of curing the disease feared, and which can produce reaction in the system which is directly antagonistic to the disease and its influences." Though I do not claim that the inoculation process with the sterilized viruses will not cure the disease feared, I do assert that in a system that might otherwise demonstrate cholera, that inoculation with animal viruses can not produce reaction directly antagonistic to the disease and its influences, but on the contrary, with cholera, I claim that the inoculation process (contrary to the same process in smallpox) weakens and makes more susceptible to the influences of the natural disease each one inoculated, and by virtue of its similar powers of destructive metamorphosis to the action of the disease, epidemic cholera.

I choose arsenic, also, because long before the profession was dominated by the manufacturing chemist, arsenic was known to be one of the most potent remedial agents in combating this disease, and is even now quoted by Bartholow as "one of the numerous remedies proposed for the cure of this disease," and by others as "indicated in all stages of the disease;" and as it is tonic in effect and a reconstructive, both of which are diametrically opposed to the destructive metamorphosis at work in the cholera patient or him likely to become such. I choose my drug also because, as Wm. Henry Porter says: "The arsenites (that is the molecular elements which constitute the arsenites) are intensely irritating and poisonous to all forms of protoplasmic life, both animal and vegetable. At the same time they enhance the accumulation of tissue throughout the whole animal economy, and when this is done diseased processes all through the system

are in part or completely removed and more or less of a new normal or healthy activity is brought to all parts of the body."

I choose arsenic, also, because authority and experience teach us that the human economy is more susceptible to drug action and the vital force more responsive to its magic touch than to any miasm or perversion of nature's laws; therefore, while I acknowledge that sterilized products of bacterial life might communicate a like immunity, accord me the privilege of stating that many may be the imperfect results of chemic action in this process rewarding us with such prognoses as awaited Haffkine at Lucknow and Lady Montague in England where, in either instance, the results were such as could not be predicted by the most gruesome pessimist of that time or of this; affecting as they did such monstrous mortalities that thanks to Jenner many were saved.

As Behring says of his antitoxin: "The acquired immunity is of a relatively short duration," so I assert of Haffkine's inoculation, and likewise acknowledge a probable short immunity from arsenization, for I accept authority for the statement that "the effects of arsenic continue in the system from a few hours to four weeks, or longer, according to the size and frequency of the dose," yet while the effects of inoculation are not known positively they are of arsenic, and so far as yet demonstrated the results show for the former more of destruction than protection, while for arsenic more for protection and none for destruction. In this, I take no account of the 200 cases reported by Simpson from Calcutta, where there had been no danger of infection for over three years previous to his inoculations. Such misleading reports can have no effect, pro or con, upon the actual prevention of this disease, and their publication as made in American newspapers and medical journals is simply wrong, to say the least; for a prophylactic to command the courtesy of the name must protect a majority of those alleged to be protected, and only where disease and danger to infection is active and imminent and not in situations where it may have existed in the past but has not since reappeared.

In such times as these, therefore, when we are seeking after the true preventive for each preventible disease, with a loyal but misguided enthusiast in the Orient sending to our Western civilization only the immediate results of a most pernicious though seemingly very plausible theory, we can and do realize and recognize the sacrifices of the investigator into the occultness of disease, more especially this of epidemic cholera, yet only to the successful discoverer of that protective which will protect all, be that what it may, can we honestly render our respectful acknowledgments. To return to the why and the wherefore of the proposed substitution of arsenic for all others as a preventive of cholera we recall the facts relative to cases of supposed cholera at Cincinnati in September, 1892, and of similar cases at Little Rock in the following month, wherein the auxiliary diagnostics of the microscope and chemic analysis were required; and in the first instance showed similar though not identical germ life to Asiatic cholera in the milk drunk by those victims, while in the second instance chemic analysis demonstrated arsenical poisoning at Helena while the microscope showed the Little Rock cases to be those of so-called winter cholera. In all exemplifying bacteriology the acme of diagnostics is germ diseases (after the germs are admitted) and Asiatic cholera and arsenic poisoning are, as Virchow so aptly states, indistinguishable (oftentimes) by their symptomatology and morbid anatomy from each other (except, as stated,) by the auxiliaries here noted.

If these be facts, and I believe all know them as such, then truly a drug is eminently superior to any animal virus or if there can possibly be a better process than the one of Haffkine or Ferran (with the excreta of the cholera patient, sterilized or not) why not a drug which we have known in effect for the past century, instead of risking a repetition of our certainty to infection with the disease feared, as well as some possible worse disease. Experience has shown recently in India that there is more danger to the inoculated than to those where no precaution against infection was made, and remembering the results of inoculation from 1721 to 1783, and that the process of sterilizing can be unsuccessful at times (the cause of Haffkine's late failures) then why place ourselves and patients in the unfortunate position of Lady Montague and her enthusiastic collaborators, when they produced (of course unintentionally), a condition which may best be described by that trite old simile of the early English and known as: "the groans of the Britons," in which they are made to say: "The barbarians on the one hand drive us into the sea; the sea, on the other, throws us back upon the

barbarians; and we have only the hard choice left us of perishing by the sword or by the waves."

If this appears far-fetched, my dear Doctor, look at the results in Haffkine's Lucknow inoculations in which it was supposed the sterilization of the virus there used was faulty, and if such was the case there, it is but fair to presume that in any of the "hair splitting" processes of eliminating individual or family characteristics or diseases from the excreta of the cholera patients, we may never have a truly sterilized immunizing virus containing only the comma germs and their toxic results or combinations. For example, let us look upon an imaginary threatened epidemic of the disease and in the following personal manner, wherein you will imagine yourself in imminent danger to infection because your nearest neighbor has the disease. You each use the same well for obtaining your supply of drinking water and your families exchange the ordinary courtesies of such relationship; but you know him or at least suspect him the domicile of syphilis, serofula or tuberculosis. This is the only case thus far, and inoculation as now promulgated, the only preventive measure known to the profession.

If Scylla and Charybdis presented such fearful obstacles to the usually undaunted ancients, which of these seems the more favorable to you? the Scylla of the hardened syphilitic or the possible swirling, twisting and contorting Charybdis of Asiatic cholera? for in this, maybe a little overdrawn simile, you see inoculation against cholera as it might exist and the consequent predicament of our people. This is in fact the only view to take of inoculation as it exists, as shown by the grievous experience of our colleague in India; yet, despite all this, we find the leaders of preventive medicine of to-day forgetful of the near past, and the wave of a more certain and accessible prophylactic which is offered in arsenization, of which I had the pleasure in my letter of the 29th ult., of reporting so much of what is good and none of a like character to the inoculations of my unfortunate colleague.

If, then, Pasteur prevents hydrophobia with a virus which presents symptoms in the inoculated almost identical with the rabies canina, and Jenner's vaccine may, and sometimes does, exhibit such a similarity to true smallpox as to question the purity of the virus, and it be a fact, as Virchow says, that arsenic produces a condition which may preclude a positive differential diagnosis with cholera to produce this effect, then the arsenious acid must actually occupy the exact space or place in the animal economy or affect the intestinal pabulum in a like manner (as I think I wrote you before) as would true Asiatic cholera, (and it matters not which is the solution) to there demonstrate its certain effect. Therefore, by the willful arsenization of men up to a condition of slight physiologic effect of the remedy, such, for instance, as is produced by the animal virus, this process must and will effectually prevent that one so treated simultaneously demonstrating in himself the disease feared, and just as surely, and upon exactly the same hypothesis that we presume and logically conclude that the vaccinated can not suffer simultaneously the full virulence of variola; yet in this we need not be more void of common sense in our expectations of arsenization than of vaccination (already sufficiently tested to satisfy a big majority) as facts simply verify, in the latter, that personal idiosyncrasy in the well is quite a factor in the equation, and that such affects its prognosed results as in the administration of different remedies to the sick. Therefore not every one arsenicized, more than every one vaccinated, will be protected against disease more than is to be expected of otherwise positively indicated remedies prescribed, as they all are, according to our fallible diagnostic powers and prognosing hopes.

These, then, are some of my reasons for promulgating what Gibier so aptly pronounces my "theoretically perfect" hypothesis, and the reason for my choice of a drug in preference to any animal virus. Because I believe that through a drug alone, exhibited into the system and that system made responsive to its physiologic effect, and so kept while danger lasts, may we be protected, and finally emancipated from the ravages of epidemic or Asiatic cholera. By this method alone may we hope for relief from the pernicious theory of inoculation advocated by the gentlemen referred to; and by drug effect alone may we hope to keep off indefinitely the possible dangers far worse than the probable epidemic disease; and by drug effect alone practice truly aseptic prophylaxis against this disease.

If, then, the sterilized products may become dangerous through some unknown cause, why should we advocate further a process which, at best, can but effect an equal immunity with arsenious acid which latter is long known as

to effect, where positive antidotes are the public property of all inquiring minds and named in all medical works pertaining to the subject of arsenic and its compounds. Why, then, inoculate at all, while the alleged acquired immunity is of so relatively short duration, and while a more certain and safer effect may be had by arsenicizing, which demonstrates truly one more long known fact that two diseases, though different in kind (drug and miasm) but very similar in their manifestations of signs and symptoms will always extinguish each other, whenever they meet in the system, for the superadded morbid potency (drug) takes possession chiefly of the same parts in the organism heretofore affected (or hereafter to be affected) by the weaker morbid agency (disease). This is thereby deprived of its power of action and is consequently extinguished or prevented.

In arsenization we therefore have a safe, sure and accessible prophylactic; for such a process must demonstrate true asepis and the power to produce a like condition to that intended to prevent, as well as a condition directly antagonistic to the disease and its influences. All of which Bartholow unconsciously affirms when he says: "Arsenic is, with but a few exceptions, destructive to animal and vegetable germ life and is a reconstructive and a tonic to the system, yet in lethal doses produces symptoms similar to epidemic cholera." To all this I add that I note with pleasure that you agree with me that Haffkine's inoculation theory, like Ferran's, must fail under test, but what must also be the verdict of all others in the case of inoculation as practiced, filled as it must be necessarily with provisional possibilities of other and worse diseases than Asiatic cholera. What of this inoculation process in comparison with arsenization which must not only protect the inoculated or arsenicized, but also protect all coming into his presence, as well as those who, by virtue of their environment, might ingest particles of his ejects? In the arsenicized is one less germinating center and one less germinating medium for the rapid incubation and dissemination of the comma bacillus and its toxins, thus sterilized beyond any possibility of a doubt and the result unaccompanied by any wail of possible failure in the process, such as came from India after the demonstration of such a fearful mortality.

Therefore, if we are to have protection against cholera through a process yeapt vaccination or inoculation (as predicted by von Pettenkofer), and none can be more efficacious or expeditious, it can be done in but the one way, and that is by arsenization of each and every suspect or patient (in the first stage), or person subjected to possible infection, as well as to all others seeking protection, and this should be repeated after four weeks at the longest if danger to infection remain. So by arsenicizing with ivory points charged with doses of the one-thirtieth of a grain of pure arsenious acid (such as are made at the Lancaster County Vaccine Farms), each one thus brought under the sufficient effect of the remedy may experience a successions of symptoms resembling an attack of cholera in miniature, yet with few, if any, of the distressing symptoms usually incident to true cholera. At most, there will be but slight diarrhea, with burning at the epigastrium and under the eyelids, and a ringing and roaring in the ears, as is common after dysentery, diarrhea, or profuse fluxes of any sort; but in inoculation with the offal of the cholera patient most of these symptoms are more pronounced in that each must, perforce, suffer a mild and sometimes even a virulent attack of the actual disease. Under slight physiologic effect of arsenic, one has but taken a dose and acquired its effects, such as has been common practice (in prescriptions during the past century) for chronic malarial cachexia and skin diseases of a germ origin, and is still an almost diurnal prescription for such maladies with the "regular" doctors.

Such constitutional effect of the drug may be produced when there is no especially imminent danger to infection, by the ingestion of from 2 to 5 drop doses of Fowler's solution, repeated every two hours till the desired effect is acquired; or the same may be effected by hypodermic administrations in like dosage and repeated until like effect is acquired; but all this, like successful vaccinations, should be done only under the prescription and immediate supervision of the physician, who holds ever ready, in dialyzed iron, an antidote to any possible idiosyncrasy in the applicant; and such none may possess against the inoculations with any degree of certainty of action; for once inoculated or ingested, the cholera germ or miasm takes its own course, and often the life of him experimented upon.

From some comes the common wail of fear for those thus arsenicized, but to all I respectfully request a comparison of the mortality at Berlin alone, before and after the intro-

duction of vaccination, yet this process of protection counts some victims. Compare the mortality from cholera and from Haffkine's inoculation and that from arsenic poisoning (in the hands of the physician when purposely prescribed); compare also the possible dangers incident to inoculation (even to those who survive the process) to the process of arsenization as I propose it, and of all these choose the lesser evil, if evil it be to try and avoid disease; compare the actual increased mortality from inoculation against that where it was not practiced at all and therein alone see the fallacy of a theory in relation to the practice of which we speak; and then remember that inoculation calls for a first case, with all its possible accompanying dyscrasia, its entire lack of effective antidotes and its frequent mortality. While arsenization calls for the ingestion or other manner of acquiring a slight physiologic effect of arsenious acid (a drug in daily use the whole world over), and that in this process there need be no first case from which to obtain the virus, for this drug is known to all medical men, who know its effects and its antidotes, while few know cholera and its effects, and fewer know its antidotes.

Let me, therefore, my dear Doctor, review your favor of the 3d inst., and remind you first that where you find the consensus of opinion to have been against good results from the use of drugs during the epidemic in Europe in 1892, that I believe you have only been able to hear from one side of the profession, and that side used much too large doses, thereby augmenting the diseased condition by adding drug disease, whereas by the judicious administration of much reduced doses you would have probably come out of that epidemic much more in favor of continuing the good old-fashioned drug medication. I am also truly pleased to find one more who shall acknowledge, with you, that "adding to an already overburdened and disordered blood new and additional foreign and disturbing substances is the principle underlying allopathy, but it is not the correct principle involved in curing disease." I would respectfully cite you to one Professor Brunton (medical author, editor and examiner), who acknowledges a like empiricism in the allopathic practice, which is claimed to be the only scientific process of medicating our fellows; and as above stated I am pleased to add that I am one with you in encouraging absolute cleanliness in the cholera patient. But do not forget that drugs will do much more than the majority of practitioners. I now respectfully and forcefully present my allegations in detail and shall appreciate much your further consideration of this most interesting subject, especially as I can see that through your disinterested interest you further promulgate this hypothesis, which is thus far "incontrovertible except by test," and which has thus far stood firmly against all adversities.

I conjure you, my dear Doctor, to write of this subject while you have the ear of the entire profession, as I am but yet little known; also do me the honor of an early answer and your candid opinion as to the theory as thus far propounded, and believe me,

Yours very truly,

REG. LEACH.

THE PROPRIETARY SYSTEM AND ITS REMEDY.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY F. E. STEWART, M.D., PH. G.

DETROIT, MICH.

THE PROPRIETARY SYSTEM.

For the purpose of promoting progress in science and the useful arts the Constitution of the United States gives Congress the power to grant to authors and inventors for limited times the exclusive use of their respective writings and discoveries. Hence our copyright and patent laws.

A patent is a contract between the government, representing the public at large, and the inventor. The consideration moving from the government is the granting of the exclusive use of the invention for a limited time. The consideration moving from the inventor is the invention of a new and useful article, and the giving to the public full knowledge of it by a proper application for a patent, so that, when the pat-

ent expires, the public may manufacture the invention. The wisdom of such a law seems apparent, for by it inventors are stimulated to produce new and useful articles, capital is protected during the working and marketing of the invention until the investment becomes remunerative, knowledge is increased, and the archives of the Patent Office become a great public library and industrial exhibit, free to the use of the public, and commerce is promoted by valuable additions to the list of marketable commodities.

A trade-mark is a "commercial signature" employed to distinguish one brand of an article from another brand of the same article on the market. Its use does not confer on the user any exclusive right to the manufacture and sale of the article upon which the trade-mark is branded. In law, the trade-mark has two uses. One is to designate ownership, illustrated by the common method of branding horses and cattle so often seen on the ranches of the great West. Another use is to designate the source of emanation or of manufacture. For this reason the lumberman brands his logs with a trade-mark, or the manufacturer of pottery stamps his wares with peculiar marks or signs. In the same way the manufacturers of silk, linen and other fabrics use the words "Lyon," "York Mills," etc., as trade-marks, to distinguish their various brands of goods from other brands of the same articles on the market. But these uses of the trade-mark do not vest in the users the right to the exclusive handling, or manufacture and sale of the articles upon which the trade-marks are branded. The man who brands his cattle with a trade-mark does not acquire thereby a monopoly in cattle; neither does the use of trade-marks by potteries, silk manufacturers, makers of linen and other fabrics, vest in the users the right to exclude others from making and selling the same commodities.

Another use of the trade-mark has sprung into being as a development of modern times—a use not contemplated by law. The method to which I refer is the registering at the Patent Office of the only name by which an article is known, as a trade-mark on said article. This use of the trade-mark has created what is known as the proprietary system. This system should not be confounded with the patent system, as it is, in principle and practice, directly opposed to it, as a further consideration of the subject will show.

The monopoly created by registering the only name by which an article is known as a trade-mark upon such article is unconstitutional, illegal and unscientific. These charges I now proceed to prove.

The monopoly is unconstitutional because unlimited in nature. *Congress has no power to grant perpetual monopolies.* I grant that the right to use a trade-mark can not be limited by law. But, as I said before, when one puts his commercial signature on his goods he acquires thereby no exclusive right to the manufacture and sale of articles so marked. No monopoly whatever can result from the *proper use* of a trade-mark. Only its misuse or abuse creates the so-called proprietary system.

The monopoly is illegal, for there is no law in the statute books of the United States designed to protect the new use of the trade-mark. On the contrary, the courts have decided that when a new article of commerce is born it must be provided with a name; and that any one has a perfect right to manufacture and sell the article under the name by which it is

known to the public provided the article is not patented.¹ In case the article is patented no one has a right to make and sell it under that name or any other name until the patent expires. Furthermore, the name, by use becomes descriptive. A name is descriptive if commonly used by the public in designating the article when purchasing it.² And it is an axiom of law that a descriptive name can not be a trade-mark. An absurdity that might occur by misusing a trade-mark in this way illustrates the subject very well. The trade-mark law permits the employment of the same trade-mark as many times as there are classes of articles. The word "Lyon," for example, can legally be used as a trade-mark on logs, silk or tin-plate. In the same manner the word "Lactopeptine" may be branded on a cow with just as much propriety as upon a medicine. The very impossibility of such a thing occurring demonstrates most clearly the name lactopeptine is not a trade-mark when applied to the well-known article so-called, but its proper or descriptive appellation, the present manufacturer to the contrary notwithstanding.

The monopoly is unscientific because it is protective of secrecy. While in many instances the ingredients of proprietary medicines advertised to the medical profession are given, their true, or working formulas, whereby the public (pharmacist) may manufacture them are rarely published. The disadvantage of this to pharmacy must be apparent to any thoughtful mind. Pharmacy is the *science* of preparing medicine. Therapy is the science of applying medicine to the cure of disease. *Materia medica* is the name given to the collection of substances used as medicine. These three were formerly classed under the general term pharmacology, or the science of drugs. Pharmacy, then, is a branch of medical science, and should be represented in scientific medical literature alongside of therapeutics and *materia medica*, as a part of that science. But the proprietary system stands directly in the way of it. How can pharmacy have its place in medical science when the knowledge of it is locked up in trade secrecy? How can we have a scientific nomenclature to pharmacy when many of the new medicinal compounds are introduced under "proprietary" names which can have no place in science? The proprietary system more than any one thing prevents pharmacy being recognized as a science, and its practice as a profession.

Finally, the patent law was designed to promote progress in science and the useful arts by encouraging inventors to invent new and useful things, and to "publish full knowledge thereof whereby the public may manufacture the invention when the patent expires." The proprietary system, on the contrary, hinders progress in science and the useful arts by putting in its place a system of secrecy and perpetual monopoly. Many physicians object to the open limited monopoly of the patent law as injurious to the welfare of sick humanity. Are we to indorse the proprietary system which is far worse, both in principle and practice?

THE REMEDY.

The main objections to the proprietary system are its secrecy, the unlimited duration of the monopoly, and the unscientific nature of its nomenclature. The great thing in its favor is that it protects the invest-

ment of capital better than the patent law. Very few manufacturers with whom I am acquainted would object to a reasonable time limit being set on the monopoly. All manufacturers would agree to the adoption of a scientific nomenclature as far as I know. But there are very few who would care to throw their processes open to unrestricted competition. And it seems hardly fair to ask it. Yet, unless some kind of compromise is adopted between what might be called equity and expediency, the objections I have named remain in force.

Nothing can be done in this struggle with wealthy nostrum proprietors, unless the legitimate manufacturing interests will coöperate with the medical profession. Therefore, the establishment of some basis of coöperation is essential to success. Secrecy of composition is incompatible with scientific prescribing and should be prohibited; there is no special objection to allowing processes and methods of manipulation to come under the patent or copyright laws.

Now, I have a compromise to suggest which, it seems to me, would overcome the difficulty. In my trip across the continent with a large party of medical men for the purpose of attending the annual meeting of the AMERICAN MEDICAL ASSOCIATION held in San Francisco, I suggested the plan to various prominent physicians, who, in the main, agreed in regard to its desirability. It is to *permit* an inventor of a new and useful medical compound to retain the name and secret of manufacture of his invention for a limited time, provided the true working formula thereof be placed in the hands of a national committee of physicians and pharmacists, and the article marketed only under the sanction of the committee. In other words, let the system remain as it now is, only with the exceptions that a censorship shall be exercised over the market by a committee of competent physicians and pharmacists, the monopoly to be limited in time, and the system to be made scientific by providing it with a proper nomenclature and by the final publication of every invention whereby all pharmacists may manufacture the same when the patents expire.

I use the term *permit* advisedly. The present position of the trade is in every respect one of assumption, not permission. Pharmacy can never rank as a profession until the proprietary system is abolished, or some compromise of the kind I have suggested be adopted. Either point once gained then it is time for the medical journals to recognize pharmacy as a profession and invite the pharmacist to contribute the results of his researches to the medical journals. Pharmacy now only appears in the advertising pages of the medical journals, which are torn up when the journals are bound. Under such a system there is danger of the pharmacy of the nineteenth century becoming to a great extent a lost art for want of a literature. There are pharmacists who are taking the position I have mentioned now, and they should be admitted as members of county medical societies as honorary members, or active, if they take the medical degree.

Then let every manufacturing house open a scientific department manned by competent physicians and pharmacists, who can be held responsible to the profession for their utterances, and for the representations made by respective houses in labels, in circulars, in advertisements, and in the contributions of these houses to scientific literature. It would be

¹ Brown on Trade-marks.

² *Ibid.*

well if the members of these scientific departments were graduates in medicine as well as in pharmacy. They could then join the AMERICAN MEDICAL ASSOCIATION, become members of the section on materia medica and pharmacy, and contribute to the scientific proceedings, thus promoting the interests of both pharmacy and therapeutics.

At the present time there are quite a number of medical journals pretending to be independent, but really organs of various manufacturing houses. I can see no reason against, and much in favor of a manufacturing house issuing a journal as its organ; but I have nothing but condemnation for the pretender who sails under false colors as a purely scientific journal. Such a journal as *Squibb's Ephemeris*, for example, issued above board as the organ of Squibb's manufacturing establishment, but filled with scientific articles, the work of investigators in his laboratory, or elsewhere, is a valuable addition to our list of journals.

The question of the day at the recent meeting of the AMERICAN MEDICAL ASSOCIATION at San Francisco was, shall the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION advertise proprietary medicines? I would have the JOURNAL draw the line and admit only those whose true formulas are placed in the hands of a committee and under the restrictions I suggest. However, it must be agreed that such indorsement must not be construed as a recommendation and used for advertising purposes. And I would add another restriction, and that is, do not advertise any proprietary medicines which are advertised to the public in the newspapers.

Now, as to the complexion of the committee, I would suggest that it consist of one member each of the AMERICAN MEDICAL and American Pharmaceutical Associations, and one member each from the medical departments of the Army, Navy and Marine-Hospital service, to which might be appropriately added as chairman, the Commissioner or Secretary of Public Health, if such an office is finally created by Congress.

DOES ALCOHOL EVER ACT AS FOOD, OR AS A GENERATOR OF ANY NATURAL FORCE IN THE LIVING BODY?

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1896.

BY N. S. DAVIS, M.D.

CHICAGO, ILL.

Ever since Baron Liebig, of Germany, laid the foundations of organic chemistry by his two essays read before the British Medical Association—one on "Chemistry in its Application to Agriculture and Physiology" in 1840, and the other on "Animal Chemistry as Applied to Physiology and Pathology" in 1842, the assumption that the nitrogenous elements of food were appropriated to the growth and repair of the organized structures of the body and non-nitrogenous elements underwent oxidation or combustion, generating heat, has been accepted and incorporated into all our literature, both professional and non-professional. Consequently, the non-nitrogenous proximate elements of our food have been and still are almost universally regarded as fuel for supposed combustion or *respiratory food*, and not as furnishing material for the growth and repair of organized tissues. This arrangement of food elements into two

classes by Liebig and his followers was founded on no experimental proof, but rested solely on the analogies of composition. The starch, sugar, gum, cellulose, etc., being composed of the three primary elements, carbon, hydrogen and oxygen, and capable of uniting with additional oxygen outside of the living body constituting combustion, it was assumed that the same union with more oxygen took place in the living body and thereby evolved the heat characteristic of the animal.

As all this class of proximate food elements was composed of carbon united with hydrogen and oxygen in proportion to form water they were called carbohydrates. And as alcohol in its elemental composition was strictly analogous it was unhesitatingly placed at the head of the list of carbohydrates or heat producing foods. I found so much difficulty in reconciling many facts connected with the diet of different individuals and communities with this theory that as early as 1850 I instituted a series of direct experiments for determining the actual influence of both the carbohydrates and nitrogenous elements of food on the processes of heat production and tissue repair. The results of these experiments were embodied in a paper that I read before the AMERICAN MEDICAL ASSOCIATION at its annual meeting in Charleston, S. C., 1851, and were such as convinced me that both carbonaceous and nitrogenous elements of our food furnished materials for tissue growth and repair; and that the animal heat was the result of molecular changes constantly taking place in the tissues; while the presence of alcohol neither promoted tissue repair nor heat evolution, but retarded both.

Böcker, of Germany, had previously demonstrated experimentally that the presence of alcohol in the living body diminishes the sum total of eliminations and excretions and therefore retarded the molecular or metabolic changes in the tissues. These results were verified by further experimental researches by Dr. W. A. Hammond and several others, as set forth in his work on hygiene published in 1863. It is worthy of note that all these early investigators as well as those of more recent date, found that the alcohol, instead of undergoing digestive changes in the stomach like starch, sugar and other carbohydrates, was rapidly absorbed into the blood and with it permeated all the tissues and reappeared more or less in the excretions, while the products of combustion, *i.e.*, carbonic acid and heat, were both diminished. It became evident, therefore, that it could not be longer regarded a respiratory or heat producing food. But the fact that its presence uniformly retarded tissue metamorphosis and lessened the products of waste, having been well established, it was at once assumed that such retardation of tissue waste was equivalent to the same amount of actual nutrition, and therefore the alcohol must be regarded as *indirect food*.

This view was adopted by Dr. Hammond, who asserted that if the presence of a moderate amount of alcohol in the blood lessened the amount of waste products to the extent of four or six ounces in twenty-four hours, it rendered that much less food necessary, and hence he placed it with several other substances, in a distinct class of *indirect foods*. He was led by his own experiments to acknowledge that both the nitrogenous and non-nitrogenous or carbohydrate elements of our food were capable of entering more

or less into the formation of tissue and both capable of heat production; a position still more fully sustained by Dr. F. W. Pavy in his recent work on the "Physiology of the Carbohydrates."

The theory so plausibly advocated by Dr. Hammond that alcohol by retarding the molecular or katabolic changes in living tissues, actually became indirect or accessory food, rapidly acquired wide popularity and caused both medical and magazine writers to designate it the "savings-bank" or the "conservator" of the tissues, and gave a marked impetus to its use in the treatment of all diseases characterized by predominance of waste over that of nutrition. And though Dr. Hammond and all the more reliable experimenters agree that the presence of alcohol diminishes the animal temperature, many others still assert that it is mainly oxidized or "burnt up in the system," and that it "is a conservator of tissue, a generator of vital force, and may therefore be considered as food." (See Essay on the "Physiological Actions of Alcohol," by Dr. D. Cerna.)

Considering the very large amount of alcohol consumed by the people in the form of fermented and distilled liquors, the question whether it is capable of ever acting in the living body as food, either direct or indirect, or of generating vital force, is one of the greatest importance in its relations, both to the public health and to its therapeutic value as a medicine.

That alcohol undergoes no digestive or molecular change in the stomach, but is rapidly absorbed and mixed with the blood, has been demonstrated so completely that it does not need further discussion. That, while in the blood it does not furnish any material for either the growth or repair of any of the organized tissues, and consequently does not act as direct tissue food, is conceded with equal unanimity. That it does not act as respiratory or heat producing food, by uniting with oxygen or being "burned up" in the blood or tissues is proved by: 1, the fact that the temperature of the body diminishes in direct proportion to the quantity used until life ceases at a temperature from 5 to 10 degrees below the natural standard of health; 2, the fact that no investigator has been able to find any increase of the well-known products of its oxidation, namely, either aldehyde, carbonic acid, or acetic acid, although diligently sought for; and 3, the fact that it displays a much stronger affinity or attraction for the hemoglobin, albumin and water of the blood and tissues than for oxygen at the temperature of the living body. If it be thus conceded that the alcohol does not act in the living body as either direct tissue or respiratory food, does its known power to retard or lessen the ordinary katabolic processes, justify the inference that such retardation is in any physiologic sense equivalent to the same amount of nutrition, and that it is therefore an *indirect food*? In other words, is retarding katabolism or tissue disintegration, physiologically equivalent to the same amount of anabolism or tissue building? If it is, any person ought to be able to live well on notably less ordinary food by taking regularly a given quantity of alcohol, opium, tobacco, or any other agent capable of retarding the tissue waste, and yet be able to do the same amount of work, mental and physical. But the abundant facts of human experience in every climate, in every relation of human life, and every kind of occupation, deny the truth of the supposition. Again, if retardation of waste was in any proper sense equivalent to nutrition, an individual ought to be

able to live much longer on nothing but diluted alcohol, as in fermented and distilled liquors, than he could on pure water alone. But while we have quite a number of examples of men living on nothing but water forty or fifty days, I have never seen or learned of a well authenticated case of a man taking, or receiving into his system, nothing but diluted alcohol for half of that length of time, without becoming sick with either gastro-duodenitis, nephritis or delirium tremens.

It is not necessary, however, to appeal to the facts of human experience in determining the question before us. A careful study of the conditions and processes necessary for both tissue building or nutrition, and tissue waste or disintegration in all the higher orders of animals, will show that neither process can be materially retarded without retarding or preventing the other. Both processes take place only in bioplasm or vitalized matter supplied with oxygen, water and heat. Neither the assimilation of new material, food, nor its use in tissue building can be effected without the presence of free oxygen and nuclein or corpuscular elements of the blood. And without the presence of the same elements we can have no natural tissue disintegration and removal of the waste. The processes of tissue building and tissue disintegration are, therefore, so intimately related and dependent upon the same materials and forces that neither can be either hastened or retarded from day to day without influencing the other. When alcohol or any other substance, introduced into the blood, retards the tissue waste, as shown by the diminished amount of excretory products, it must do so by either diminishing the amount of free oxygen in the blood; by impairing the vasomotor and trophic nerve functions; or by direct impairment of the properties of the nuclein or protagon elements of the blood and tissues.

The popular idea, both in and out of the profession, is, that the alcohol by further oxidation in the blood lessens the amount of oxygen to act on the tissues, and generates heat or "some kind of force." Those who advocate this theory of saving the tissues by combining the oxygen with alcohol, seem to forget that in doing so they are diverting and using up the only agent—oxygen—capable of combining with, and promoting the elimination of all natural waste products as well as the various toxic elements causing disease. But the theory that alcohol directly combines with the oxygen of the blood by which it would be converted into carbonic acid and water with evolution of heat, is completely refuted by the well-known fact that its presence in the blood diminishes both temperature and elimination of carbonic acid as already stated. Physiologists of the present day very generally agree, that the capacity of the blood to receive oxygen from the alveoli of the lungs, and convey it to the systemic capillaries and various tissues, depends chiefly on its hemoglobin, protein or albuminous and saline elements.

Both experimental and clinical facts in abundance show that alcohol at all ordinary temperatures displays a much stronger affinity for these elements of the blood and tissues than it does for oxygen. And when present in the blood, it rapidly attracts both water and hemoglobin from the corpuscular and albuminous elements of that fluid, and thereby diminishes its reception and distribution of oxygen. We are thus enabled to see clearly how the alcohol

diminishes the oxygenation and decarbonization of the blood and retards all metabolic changes both of nutrition and waste without itself undergoing oxidation with evolution of heat. Consequently, instead of acting as a shield or conservator of the tissues by simply combining with the oxygen, the alcohol directly impairs the properties and functions of the most highly vitalized elements of the blood itself, and thereby not only retards tissue waste but also retards the highest grades of nutrition and favors only sclerotic, fatty and molecular degenerations as we see everywhere resulting from its continued use.

Can an agent displaying such properties and effects be called *food*, either direct or indirect, without a total disregard for the proper meaning of words? And if not, can it act as a generator of vital or any other natural force in the living body?

The recognized physiologic forces belonging to the human body are, vital force, heat force, muscular force and nerve force. Vital force is that property of bioplasm or vitalized proteid matter, that is manifested in such molecular or metabolic changes as constitute nutrition, secretion and excretion, or growth and decay. Consequently the best test or measure of the *vital force* in any body, is the degree of activity of its metabolism; and yet it has already been shown that one of the most marked effects of the presence of alcohol, is the diminution of this same metabolism, and with it a loss of heat also. That it does not generate or increase muscular force or contractility, but the reverse in a marked degree has become so well known, that entire abstinence from its use has become an imperative rule in *all* intelligent training for exhibitions of the greatest muscular strength and endurance. Nerve force is manifested in two ways, namely, sensory, or acuteness of sensibility, and conducting or transmitting. That alcohol diminishes both these functions of nerve structure in direct proportion to the quantity present in the system, has been demonstrated by its use as an anesthetic, and by the application of instruments for the actual measurement of the acuteness of sensibility and the rate of transmission, under the influence of doses varying from 4 c. c. to 100 c. c. From the foregoing review it will be seen that alcohol when present in the system positively diminishes vital force as measured by molecular or metabolic activity, reduces temperature, lessens muscular force, and impairs nerve force both transmitting and sensory, in direct proportion to the quantity used. And yet, simply because a large part of the alcohol taken has not been actually reproduced in the excretions and eliminations, a large proportion of writers continue to assert that it "must, therefore, be oxidized in the body, thus serving the purpose of a food and in this manner generating *force*."

The same writers when asked what kind of *force* is generated, quote Dupré as having "shown that 1 gram of alcohol oxidized in the organism yields 7,184 heat units, while the same weight of lean beef evolves only 1,482 heat units." And therefore "two ounces of alcohol generate a *force* equal to that generated by a little over nine ounces of lean beef;" thereby leaving us to infer that heat is the force generated. And still the stubborn facts of both experiments and daily observations, show that nine ounces of beef a day maintains a man's temperature and other forces quite well, while on two ounces of alcohol per day

his temperature diminishes together with every other known physiologic force manifested in the living body. And if it continues to be used daily for a number of years, instead of "conserving," it results in molecular degeneration in almost every tissue of the body, as seen in all cases of chronic alcoholism.

But why so persistently assume that the alcohol *must* be oxidized in the system, when it is fully demonstrated that it displays a much greater affinity for the water, albumin, hemoglobin, and nuclein of the blood and tissues than it does for the oxygen? Is it not quite possible that it is held in molecular or atomic combination with the protein elements named? And is not such a supposition much more in harmony with all the facts belonging to the subject?

Certain it is, that in its origin and its effects on the functions and structures of the living body, it is wholly unlike every other substance recognized as food. Instead of being a natural product of either vegetable or animal growth, alcohol is the well-known active toxic product of bacteriologic culture, neither digestible nor capable of assimilation, but pervading readily all parts of the system, and producing effects closely analogous to those produced by ether and chloroform, and usable for the same purposes. Then why longer delude the public and aid in deteriorating the public health, by calling it either a food or a generator of some kind of imaginary force?

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

BY BYRON ROBINSON.

PROFESSOR OF GYNECOLOGY POST-GRADUATE SCHOOL,
CHICAGO.

(Continued from page 418.)

The lesser bag extends in young subjects from the cardiac end of the stomach to the pelvis and from the transverse fissure of the liver to the spleen. Beside this wide extension of the sac does not long remain. The cavity begins to lose its completeness at the lateral circumference during childhood. Coalescence encroaches upon its borders. Adhesions of its closely applied walls begin early on the lateral edges. This coalescence appears to me to be the result of local peritonitis. However, coalescence occurs in distinct localities of the lesser sac, so far as my examinations are concerned. These definite localities are: (a), the pars omenti colica; (b), the ligamentum phrenico-colicum; (c), the omentum colicum Halleri; (d), on the posterior surface of the ligamentum gastro-lienalis. So far as regards the pars omentum colicum, every anatomist knows that it coalesces. Its two double-bladed layers become adherent in early adult life. No explanation of this cohesion has attained general recognition. It appears to me that the coalescence is due to peritonitis and the only reasonable explanation which I can offer is that as the folds of the omentum lie on the bowel, microbes or their products pass through and induce peritonitis in the pars colica omenti; I mean that portion of the omentum below the transverse colon, in other words I mean the colic part of the omentum. The blades of the pars colica can be definitely separated in children and sometimes in adolescence, but as a rule the blades coalesce early and in places almost completely. I have found in autopsies that

patches of the pars colica omenti would be adherent to the bowel surface due to local peritonitis, and there was no doubt that the infection had passed from the bowel lumen through its walls. Others may argue that the colica part of the omentum coalesces from absorption of the endothelial layers and consequent adhesions, the absorption being due to lack of nourishment. His's followers would say the serous endothelium being not genuine, acts just like connective tissue cells and coalesces when and where it chooses, but they do not tell us why the coalescence rules so frequently in the pars colica omenti and not other places. Another explanation I offer myself, but not so reasonable as the first is, that the double blades of the pars colica omenti lie on a movable digestive tube and it might induce enough friction by peristalsis to cause a (plastic) peritonitis. The region of the ligamentum phrenico-colicum and gastro-lienale may be taken together and constitute the chief coalescence found so frequently

diverticle. One can find simple adhesions, cicatricial bands and depressions or narrow-necked sacs constricted off. The chief place for constricted off sacs are in the ligamentum phrenico-colicum. Some of the sacs may be completely closed. Multiple adhesions occur immediately to the left of the septum bursa omentalis. Adhesions of various kinds, cicatrices, peritoneal depressions, sacculations and completely closed off spaces may be found at the right end of the lesser omental cavity along the flexura coli hepatis or Haller's omentum. Hence, these coalescences which occur, as a rule, in the above named localities of the lesser omental sac limited its size in the adult. They allow considerable encroachments on the border surfaces, lessening materially the circumference of the sac. The coalescence occurs at the lateral edges or places where friction or infection are liable to arise. As regards the neck of the sac, orificium epiploicum, I have found it closed in two of the many subjects examined. It nearly

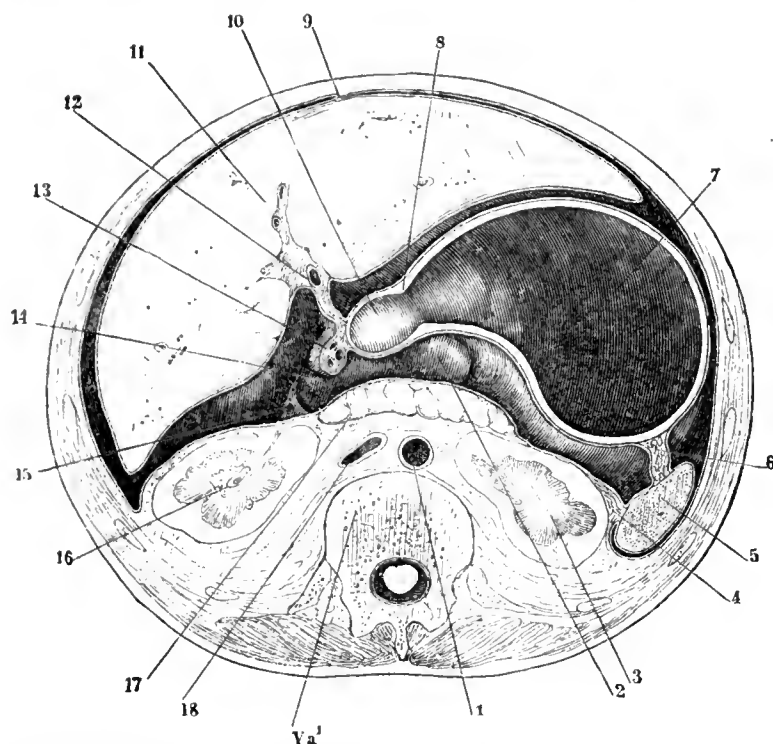


Fig. 43 (After Henle, 1873) represents a horizontal section of a new bone through the under border of the 1st lumbar vertebra, Va 1 to show the disposition of the peritoneum and viscera. The section passes through Winslow's foramen and the bursa omentalis. The upper surface: 1, aorta; 2, posterior liver lobe; 3, left kidney; 4, ligamentum phrenico-lienale or better vena splenic ligament. I have found it well marked in many bodies; 5, spleen; 6, ligamentum gastro-lienale; 7, pylorus; 8, ligamentum suspensorium hepatis; 9, beginning of duodenum with its transverse portion; 10, ant. surface of the liver whose overhanging border fell under the gall bladder; 11, cystic duct; 12, cystic duct again appearing in right border of gastro-hepatic omentum together with the portal vein and hepatic artery; 13, sharp border of the ligamentum hepato-venale; 14, orificium epiploicum; 15, sharp border of the ligamentum hepato-venale; 16, right kidney; 17, pancreas; 18, vena cava. This excellent diagram shows well the disposition of the peritoneum and the relations of viscera.

at the left end of the lesser omental sac. I have found some coalescence at the left end of the lesser omental bag in nearly every adult body. The spleen is the organ around which the adhesions chiefly occur. Infection and constant motion must induce the peritonitis. The dilatation and contraction of the stomach (movement), the proximity to the flexura coli lienalis where infection is apt to arise from sharp foreign bodies abrading the mucosa as they pass around the acute bowel flexure, and the disturbances of the spleen, may account for so much and so frequent coalescence found in the left end of the lesser omental sac. The coalescence takes on peculiar forms in the left end of this peritoneal

always admitted one or two fingers and hence varied in size, but I can not, so far, report definite adhesions distinctly around the mouth of Winslow's foramen, except in two cases which were closed. Of course the gall bladder region is a great peritonitic region, but its inflammation belonged to the gall bladder or the flexura colica hepatis and occasionally to the pylorus and not to the hiatus Winslowii. In several cases adjacent inflammation made it appear that the foramen was closed, but careful investigation showed that it was not, but free from cicatricial tissue.

In the adult omentum or mesogaster there are three segments that may call for a few remarks. There is

1. The mesogaster which belongs to the stomach more strictly. It arises in the mid-dorsal line and passes to the greater curvature. But in the adult this purely stomach segment of the mesogaster is somewhat changed on account of the left blade of the mesogaster being displaced toward the left and the right blade following and becoming fixed against the posterior dorsal wall, that is, the mesogaster forms a part of the parietal peritoneum of the dorsal wall from displacement toward the left. The stomach mesogaster also forms part of the lesser omental cavity. It contains also between its blades, the body and tail of the pancreas. In an adult dog one can note the mesogaster exactly in the mid-dorsal line. It has never shifted its blades to the left and become part of parietal peritoneum of the dorsal wall by displacement or coalescence. This condition of part of the mesogaster becoming part of the dorsal parietal peritoneum in man is no doubt due to the liver pushing the stomach to the left, and forcing the stomach so strongly against the mesogaster that it displaces it (or possibly coalesces it).

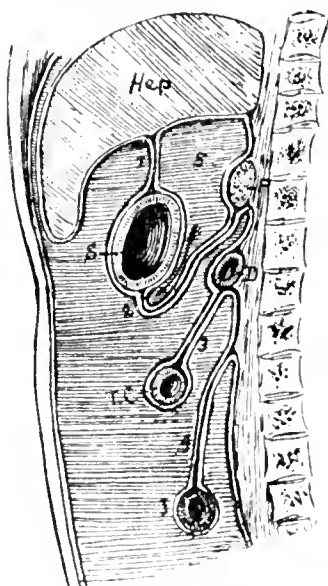


Fig. 44 (modified from Testu) illustrates the formation of the great omentum and its relations to the transverse colon. Hep. liver; S. stomach; 1, gastro-hepatic omentum; 5, bursa omentalis; P, pancreas; 2, gastro-colic omentum of the future in which is directed an arrow; D, duodenum; 3, mesocolon; T. C. transverse colon; 4, mesenterium; 1, small intestine. The author does not indicate that the lower or anterior blade of the mesogaster and the upper (anterior) blade of the mesocolon is drawn out but this figure suggests that these two layers coalesce.

2. The next segment of the mesogaster, which is altered in the adult, but is a distinct portion of it is the mesoduodenum. In the adult the mesoduodenum appears to be absent, but it is an error to consider it absent. My dissections show the mesoduodenum present. In its mesentery, one can find the head of the pancreas, the lymphatics and nerves and blood vessels all arranged just as in the mesentery of the small intestines. The blood vessels show arcs and arcades, but the mesoduodenum in the adult consists of only the membrana mesenterii propria minus the two shining serous endothelial layers which cover other mesenteries. But the membrana mesenterii propria is a true mesentery though it lacks the shining endothelial layers. The mesoduodenum reaches from the pylorus to the flexura duodeno-jejunalis. It must be remembered that every portion of the bowel must possess the membrana mesenterii propria because it is the neuro-vascular visceral pedicle on which its

life depends. The open spiral ring, molded to fit the vertebral column, known as the duodenum, is no exception to the unalterable rule of possessing a membrana mesenterii propria though it does not possess the not absolutely necessary endothelial layer.

3. The third segment of the mesogaster is the anterior layer of the great omentum, i.e., the pars omenti colicum or the pendulous portion of the blades below the colon. This part becomes the omentum colicum Halleri and ligamentum hepatocolicum on the right side. On the left side it merges into the ligamentum phrenico-colicum. In the middle it forms close relations with the transverse colon. The relations of the left end of the great omentum with the ligamentum phrenico-colicum and flexura coli lienalis I have gone over in the relation of the spleen to the peritoneum, as well as its right relations to the ligamentum hepato-duodenale et hepatocolicum and omentum colicum Halleri.

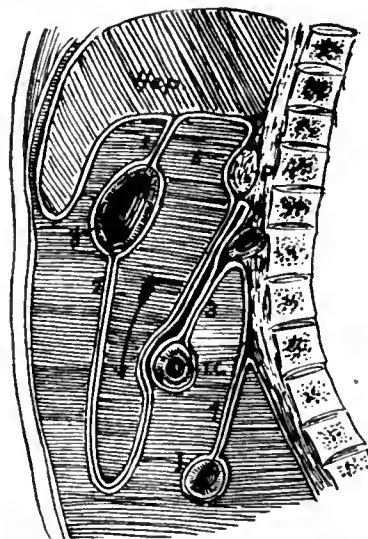


Fig. 45 (after Testu, 1892, modified) represents the relations of the mesogaster and mesocolon transversum just before coalescence. The figure suggests coalescence of the superior blade of the transverse mesocolon and the anterior (lower) blade of the mesogaster. The displacement theory is not entertained in the sketch; Hep. liver; 1, gastro-hepatic omentum; 5, bursa omentalis; S. stomach; P. pancreas; D, duodenum; 3, mesocolon transversum; T. C. colon transversum; 4, mesenterium; 1, small intestine. The arrow shows the mesogaster elongated. The anterior blade of the mesogaster and the superior blade of the mesocolon would need to coalesce according to the figure. According to the displacement or readjustment theory they would be drawn out.

(To be continued.)

SOCIETY PROCEEDINGS.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Twenty-first Annual Meeting, held in Detroit, Sept. 3, 4, 5 and 6, 1895.

The Association convened in the Strassburg Academy, and was called to order by DR. H. O. WALKER, of Detroit, Chairman of the Committee of Arrangements.

Prayer was offered by the REV. MARCUS A. BROWNSON, of Detroit.

DR. WALKER then introduced MAYOR PINGREE, who paid an eloquent tribute to the medical profession, and extended a cordial greeting to the Association.

The ADDRESS OF WELCOME on behalf of Detroit physicians was made by DR. J. HENRY CARSTENS, of Detroit.

DR. WALKER presented the President of the Association, DR. WM. N. WISHARD, of Indianapolis, who delivered the PRESIDENT'S ADDRESS.

He said the importance and advancement of Detroit were

represented by the standing and intelligence of the local physicians. He referred to the beginning of the four years course in medical colleges, and said that the fear that the new rule would operate to the disadvantage of the smaller schools was unfounded. The President urged the advisability of publishing the records, papers and discussions in some manner to make them accessible to all members. He recommended a permanent executive committee, and regretted that the large number of papers necessitated the holding of two meetings at the same time. He commended the preparations for the convention, and pledged his earnest efforts to the promotion of the profit and pleasure of the convention.

The reports of the Secretary and Treasurer were read and accepted.

The reading of papers was proceeded with, the first one being read by Dr. THOMAS HUNT STUCKY, of Louisville, entitled

THE GOLD COMBINATIONS AS ALTERATIVES.

At a meeting of the Medico-Chirurgical Society of Louisville, April 5, 1894, the author had the pleasure of exhibiting a series of cases who had been taking the preparations of gold and arsenic, known to the profession as *arsenuro* and *mercauro*. He was under the impression at that time that the good effect claimed was produced in three ways: 1, by stimulation of the secreting glands of the stomach; 2, by the probable alterative effect upon these secretions; and 3, that probably there was a local antiseptic influence exerted. The class of patients in which he had used the preparations were people afflicted mostly with consumption, Bright's disease in its various stages, chronic hepatic troubles, and convalescents. He made it a rule with all these cases to withdraw all medicines except the combinations of gold and arsenic. He had selected from a series of cases four or five, which he detailed.

Case 1.—Patient, a male, 60 years of age, with tuberculosis. History good. Eight drops of the mercuric bromid of gold and arsenic were given hypodermically every four hours, this treatment being continued for two months. No deleterious results were noticed. On the contrary, he is decidedly better; physical condition, color, appetite and bodily strength improved.

He reported a few cases out of a large number to demonstrate, in his judgment conclusively, that by the combinations of gold and arsenic we have an agent acting as neither of the minerals do when administered separately, or in other words, we have an entirely new agent in so far as therapeutic action is concerned.

The author then dwelt at considerable length upon the chemic differences between the chlorid of gold and sodium, and the bromid of gold and arsenic (*arsenuro*) with reference to their therapeutic action and subsequent elimination. He believes that in the action of the combination of bromid of gold and arsenic, it is entirely different from any therapeutic agent known. As compared with *mercauro*, iodine or the combination of iodids, the action of gold in the combinations named is greater and intensified; that these combinations enter into the circulation as gold and arsenic, and spend their force and exert their influence in an alterative way upon the glandular system; that a marked alterative effect is exerted upon all sclerosis (non-malignant); that it is not only a blood-maker, but a blood-builder; that it not only increases the quantity, but the quality of the corpuscles; that under its use hemoglobin is markedly increased; that it is eliminated by the kidneys; that they produce no irritation either when given per orum or hypodermically.

Cases corroborating the beneficial and curative effects of the preparations mentioned by the essayist were reported by Drs. A. P. Buchman, I. N. Love, and Wm. F. Barclay.

The following paper was read by Dr. Wm. F. BARCLAY, of Pittsburg:

LEGITIMATE PHARMACY.

He defined legitimate pharmacy as that which meets the necessities and demands of the regular medical profession and the people. The medical profession is entirely separate and distinct from pharmacy. Medicines are divided into four classes; patented, proprietary, non-proprietary and secret. There are a large number of cures, mixtures and tonics bearing the name of their originators and deserving of consideration as proprietary preparations. Pharmacists and physicians are interdependent and should work together. Legitimate pharmacy has called into service educated and able men, but the incompetent and dishonest have got in,

too, and can not be too severely condemned. Pharmacists make errors, but physicians are careless, too, in writing prescriptions. Physicians should not favor any particular pharmacist and should not receive pay from them. On the other hand, it is unworthy and unprofessional for pharmacists to prescribe drugs or medicines. Legitimate pharmacy should protect the people from the nostrum-makers. Physicians have a right to require the highest skill and competency upon the part of the pharmacist, both for their own interest and the good of their patients.

Dr. F. E. STEWART, of Detroit, read a paper on

COD-LIVER OIL.

He considered the powerful stimulant action of cod-liver oil on nutrition, also demonstrating with specimens the difference in the color of oil digested from fresh livers and that prepared from putrid livers; the former being pale, golden or light brown, according to the number of hours digested, and the latter dark brown. The darker oils contain more extractive matter. Dr. Stewart said the text-books contained many errors regarding the preparation of cod-liver oil.

DISCUSSION.

Dr. I. N. LOVE, in the discussion, conceded the merits of the paper, but expressed himself as rather skeptical as to the value of cod-liver oil. He declared that there was danger of our getting too professional, and said that that which brings relief to the patient is to be commended. He favored proprietary remedies which have come to the profession through pharmaceutic channels.

GYNECOLOGY AND ABDOMINAL SURGERY.

Dr. TOD D. GILLIAM, of Columbus, Ohio, read a paper entitled

UTERINE FIBROIDS—WHEN TO OPERATE.

The medical and electrical treatment of uterine fibroids is to-day in a very unsettled state. While it can not be denied that amelioration or even recovery has followed such lines of treatment, there has not been that degree of uniformity in results calculated to inspire confidence. To the author's mind, there is no better field for a competent observer, than the study of the natural history of uterine fibroids. It will enable us to determine the true value of so-called curative agencies. It will insure a more certain prognosis. It will give the proper cue to surgical interference. If, out of 100 cases, 90 suffering women can be restored to lives of usefulness and happiness, would it not be better to give them a chance? No surgeon is justified in doing hysterectomy or the more serious operations for uterine fibroids when the patient has not experienced sufficient trouble to make it a menace to her life.

Dr. L. H. DUNNING, of Indianapolis, Ind., read this paper:

TUBERCULAR PERITONITIS.

In the domain of surgery there is no more attractive study than tubercular peritonitis. The mode of invasion, forms of the disease, diagnosis and treatment were considered in the paper, and finally a brief history of five cases was given.

Tubercular peritonitis, with effusion, is now universally considered a surgical disease. Even in the acute suppurative cases, abdominal section yields a sufficient number of successes to render its employment imperative. Senn excludes all forms of the disease from surgical treatment except the exudative form. Manellaire gives as the chief contra-indications to surgical treatment, the generalization of the lesion, and the existence of profound systemic infection. Linder analyzes the results in 205 operations, with a mortality of 75 per cent. The deaths resulting in most of these cases were from collapse. In cases of involvement of the tubes and ovaries, they should be extirpated. His experience, in two cases leads him to the belief that we should, if possible, avoid using silk ligatures in tying the pedicle when it is necessary to remove the uterine appendages.

Case 1.—Mrs. A. B., aged 56 years, consulted the author concerning the extirpation of a fibroid tumor of the uterus. She had passed the menopause five years previously, but the tumor had gradually increased in size. At the time of examination, it had reached the umbilicus. There was a small amount of fluid in the abdomen, and on opening it probably a quart of clear straw-colored fluid ran out. The peritoneum and intestines were studded with innumerable small grayish deposits of the size of a millet seed. Similar deposits thickly studded the serous covering of the tumor. The intestines were agglutinated, but were not adherent to the tumor. After removal of the tumor by supravaginal hysterectomy, and ventrofixation of the stump, the abdominal cavity was

irrigated, and then leaving the drainage tube just behind the stump, the abdominal incision was closed. Recovery.

In *Case 2*, a diagnosis of ovarian tumor had been made and examination revealed an accumulation of fluid in the abdomen which was encysted. The uterus was fixed and an immovable mass was outlined in the pelvis upon the right side, which the author believed to be a small ovarian tumor surrounded by inflammatory exudates. An exploratory incision was made, and three gallons of dark fluid evacuated from the abdominal cavity. A small tumor was felt in the pelvic cavity. The incision was enlarged, the tumor enucleated, and the pedicle tied off, together with the Fallopian tube. The left tube and ovary were likewise extirpated. On exposing the abdominal and pelvic cavities to view, it was seen that the viscera were thickly studded with small grayish deposits. Microscopic examination demonstrated the presence of tubercle bacilli. Patient now, eleven months after operation, in good health. Two of the five cases reported by the author terminated fatally.

DISCUSSION.

DR. GILLIAM, of Ohio, believes that where we have tuberculosis of the ovaries and tubes, it is better to remove the uterus, too.

DR. J. FRANK, of Chicago, asked whether any of the members, who had operated for tuberculosis of the peritoneum, had noticed a recurrence, or how long the patient was immune from further attack.

DR. HUMISTON, of Cleveland, Ohio, reported two cases, upon which he had operated successfully.

DR. R. S. SUTTON, of Pittsburg, had seen a good many cases of tubercular peritonitis, upon several of which he had operated successfully. Until within a year he had been in the habit of washing out the cavity with hot water, but now he pays no attention to it, but simply opens the abdomen and cleans out everything. He is convinced that while hot water does no harm, it does no good in that it has no influence upon the disease. He believes in removing as far as possible, all diseased organs.

DR. HENRY O. MARCY, of Boston, operated in 1887 for the first time on a case of tubercular peritonitis, the patient making an easy recovery. He had operated several times since then for this disease with excellent results.

DR. A. H. CORDIER, of Kansas City, Mo., called attention to the fact that Mr. Wells, as early as 1862, operated for tubercular peritonitis, simply incising the abdomen and draining, thus curing his cases. He thinks that drainage is the principal thing that brings about a cure of this disease, but how, is not definitely settled. He said the theory had been advanced by Dr. Morris, of New York, that it is due to the admission of saprophytes into the peritoneal cavity.

DR. BAYARD HOLMES, of Chicago, related an interesting case of adhesive peritonitis cured by operation.

The paper was further discussed by Dr. W. S. Caldwell, of Freeport, Ill.; Dr. Entriken, of Findlay, Ohio, and Dr. B. M. Ricketts, of Cincinnati, Ohio.

DR. DUNNING, in closing, said that Linder's observations were the most complete of any, and he found very little tendency to recurrence of the disease where it was primary and of the adhesive form; but where the disease was secondary and of the adhesive form, there was a strong tendency to recurrence. His own experience had not been sufficiently extensive to furnish reliable data in this regard.

DR. BAYARD HOLMES, of Chicago, was the author of this contribution:

HYSTERECTOMY FOR PUERPERAL SEPSIS—WHEN SHALL IT BE PERFORMED? WITH A REPORT OF FOUR CASES.

The paper was divided into five parts: 1, a report of four cases of puerperal sepsis, treated by four different methods; 2, the pathology of puerperal sepsis in various stages; 3, curettement in the hands of its advocates; 4, puerperal sepsis as a cause of death in Chicago, New York, Brooklyn, and in the Charity Hospital at Berlin, with an abstract of 79 deaths from puerperal sepsis in 6,635 cases.

The first case was a multipara, 26 years of age, of Irish extraction, having a history of tuberculosis of the lungs, confined under unfavorable circumstances, with retained placenta, post-partum hemorrhage, delivered without an anesthetic with the hand of a physician, arrest of a hemorrhage, gradual sepsis, failure of curettement, and death seven weeks after confinement.

The second case was a woman 30 years of age, normal confinement, with sepsis appearing upon the fourth day, of mild character, gradually increasing until six weeks after delivery. Temperature was high, pulse rapid, and symptoms of peritonitis with obstruction of the bowels. Laparotomy.

Removal of the right broad ligament, tube and ovary; drainage through the vagina; death after eight days without peritonitis, from phlebitis and pulmonary embolism.

The third case was in a multipara with gonorrheal history, an abortion followed by pelvic inflammation, peritonitis and obstruction three weeks after delivery. Removal of both tubes and abdominal drainage; death after ten days without peritonitis through phlebitis and pulmonary embolism.

The fourth case was a multipara, 32 years of age, delivered by a midwife, with a bad history of puerperal infection, rapid onset of a mild infection, no curettement. Obstruction of the bowels, vomiting six weeks after delivery, with evidences of peritoneal effusion. Laparotomy; removal of the uterus and its adnexa, abdominal drainage and recovery. This uterus and these appendages were carefully examined microscopically. There was evidence of necrotic endometritis, suppurative endometritis, suppurative metritis, suppurative lymphangitis in both tubes with abscess of the ovarian ligament upon the right side and adjacent peritonitis. The blood vessels throughout the broad ligaments were found indicating a progressive infective thrombosis. The uterine tissue was filled with pus cells occupying the perivascular and lymph spaces with occasional obliteration of large blood vessels. A great number of mastzellen were found throughout the infected tissues. The author held that the progress of puerperal infection was in this case through infective thrombosis and suppurative lymphangitis, and that the removal of both tubes and drainage would have been ineffectual. He then proceeded to recount the pathologic findings in cases of non-infected puerperal women dying from accidental causes during the first, third and sixth weeks after labor, and also cases dying at somewhat similar times after labor, stating the comparison of the normal and the abnormal uterine and peri-uterine tissues.

Fourth division. In the city of Chicago, during the years 1881 to 1894 inclusive, there were 2,127 deaths from puerperal fever. In New York during six years ending May 31, 1880, there were 250,000 deaths, of whom one-sixth were females, and 2,236 of these deaths were due to the pregnant state. Of these, 1,250 were due to puerperal infection. In Brooklyn, with 112,000 deaths during the same period, 53,000 were females, and of these 867 died of the puerperal state, 462 dying of puerperal sepsis. These figures show the importance of the subject.

The question of treating puerperal infection by evident curetting was discussed by presenting the work of its own advocates, showing that out of 7,600 cases of labor in the hands of one of the advocates of curettement, 101 were treated by repeated curettement and irrigation. Of these ninety-six recovered and five died.

An abstract of the history of these five cases was presented, showing that there was every reason to believe that after curettement had failed, hysterectomy would have proved efficient in saving the patients.

A series of 6,635 cases of confinement occurring in the Charity Hospital in Berlin, under the care of Hensoldt, Schwarze, Huenermann and Hochselter during four successive years were then analyzed. Seventy-nine deaths from all cases occurred. Of these deaths, thirty-three resulted from puerperal sepsis, and in order to fully understand the possibility of these cases, a short epitome of the history of each was presented, showing that only 3 out of 633 cases were of such character as to give rise to the suspicion that they might not have been saved by an hysterectomy.

The author gave the following conclusions: 1, puerperal sepsis has its origin in the endometrium, and usually travels by the lymph channels or by the thrombosed blood vessels and the lymph channels together; 2, it still causes almost one-half of the deaths which occur in the puerperal state; 3, curetting is ineffectual in many cases of puerperal sepsis; 4, the removal of an infected broad ligament and the drainage of a pelvic abscess or peritonitis is often ineffectual; 5, hysterectomy should be performed, therefore, in such cases of puerperal infection as do not yield to uterine curetting and irrigation; 6, hysterectomy should be done whenever peritonitis is present in the course of puerperal fever; 7, hysterectomy should be performed in cases of puerperal mania where there is a history of endometritis without uremia; 8, hysterectomy may not be helpful in the course of diphtheritic vaginitis and endometritis; 9, hysterectomy may not be helpful in cases of rapid early infection; 10, it may not be useful in cases of septic phlebitis reaching outside of the pelvis.

DR. WM. H. HUMISTON read a paper entitled

A METHOD OF PREVENTING THIRST FOLLOWING CELIOTOMY.

He said: No one who has had any experience in the after-

care of abdominal cases will deny the important place that thirst occupies. It is the one prominent, annoying and distressing symptom, and I know it can be overcome. This is my method of procedure:

The patient should have the usual preparation for celiotomy; i. e., diet, daily baths, cathartics, etc. For three days prior to operation, order the patient to drink one pint of hot water an hour before each meal and on retiring, thus drinking two quarts of water each twenty-four hours, the last pint to be taken three hours before the time set for operating. Do not omit to give the water the day previous to the operation, while the patient is restricted to a limited amount of liquid nourishment and the bowels are being unloaded. We thus restore to the system the large loss of fluid occasioned by the free catharsis, and we have the great satisfaction of seeing our patient pass through the trying ordeal of the first thirty-six hours after the operation in comparative comfort, with no thirst, a moist tongue, and an active renal function, represented by an excretion of from twenty-eight to fifty fluid ounces of urine during the first twenty-four hours, catheterization being seldom necessary. This is in keeping with the full character of the pulse noted.

The above details I have recently carried out in twelve cases. To eleven, chloroform was administered; to one, ether. The time required to complete the operation varied from ten to fifty-five minutes. Whether the case was one of sclerotic ovaries or a pus case with universal adhesions of all the pelvic structures, the result has been uniform and highly satisfactory, thirst being allayed and excretion stimulated.

I believe this method will prove to be efficient in the hands of abdominal surgeons generally, and I publish it early, with all confidence that the twelve cases that I have had will soon be fortified by the reports of many hundreds, and that by it we may avoid a condition that is and has been distressing alike to the patient, surgeon and nurse.

DR. MILES F. PORTER, of Fort Wayne, Ind., read this paper:

CELIOTOMY IN GENERAL SUPPURATIVE PERITONITIS, WITH THE REPORT OF A CASE.

The author first quoted Prandin, who says regarding general puerperal peritonitis: "The women die, no matter what the form of treatment employed." Dr. Baldy says: "To my knowledge, there has never been reported an undoubted case of general purulent peritonitis from any cause whatever, in which an abdominal section or any other line of treatment has succeeded in saving the patient's life." That the mortality of general septic peritonitis is large all will agree, but that it is always fatal is certainly not true. Dr. Porter then reported the case, and closed by saying that the object in writing the paper was to assist in arousing a sentiment against the too prevalent idea that in general septic peritonitis death is inevitable, and to encourage in these cases prompt operative interference.

DR. A. H. CORDIER, of Kansas City, Mo., presented the subject of

PERITONEAL IRRIGATION AND DRAINAGE.

In which he said that the latest works on abdominal and pelvic surgery contain, like the older text-books, very short and misleading articles on the indications for peritoneal irrigation and drainage, and still less explicit are the directions how to use these agents for good, intelligently and correctly. This diversity of opinion among authors leaves the inexperienced beginner in a position of perplexity and doubt as to the special course he is to pursue in his early work. The same principles hold good in draining the peritoneal cavity that are applicable to other parts of the body. No surgeon, with all the antiseptic precautions possible to be used in opening a diffuse abscess of the thigh or other part of the body, would think of such a thing as at once closing a wound hermetically, leaving many broken-down shreds of diseased tissue dangling in the abscess cavity. He might have irrigated the cavity thoroughly with a 1 to 1,000 solution, yet he would not feel it safe to close the wound until after he had made counter-openings and introduced a drainage tube, this being as near ideal surgery as it is possible to obtain in these cases. Freshly boiled distilled or filtered water, cooled to 102 or 110 degrees F., should be used in irrigating.

The author drew the following deductions: 1, drainage is a life-saving process when properly used; 2, to use it is not an admission on the part of the surgeon that his work during the operation is imperfect; 3, the use of the tube alone does not produce or leave any condition that favors the development of hernia; 4, the omentum, or other structures,

do not become entangled in the openings in the tube; 5, a small sized flint glass tube, with small openings and open end, should always be selected for pelvic drainage; 6, the tube does not produce fecal fistulae; 7, the tube should be used when in doubt as to the absence or presence of drainage indications; 8, to depend upon microscopic findings as to whether a given case should or should not be drained is seemingly scientific, but is neither necessary nor practicable; 9, gauze drains should rarely be used, and should always be supplemented by a glass drain; 10, there is no danger of infecting the patient through a tube if the attendant is properly instructed.

DR. J. HENRY CARSTENS, of Detroit, followed with a paper entitled:

THREE CASES OF HYSTERECTOMY FOLLOWING CELIOTOMY FOR PUS TUBES.

The author summarized his remarks as follows:

"1. It seems to me in the light of my present experience in cases of bilateral pus tubes that a more perfect and complete operation can be performed by abdominal section, with less danger of injury to the bladder and intestines, and with smaller mortality and better ultimate results.

"2. That in certain cases a better immediate result is obtained by vaginal hysterectomy and drainage, but these cases frequently require a second operation to remove the ovarian tissue and parts of the tube, which at first in many cases can not be removed, before a perfect ultimate cure is established.

"3. Where the sympathetic and other nerves are affected, the cause is not in the uterus, ovaries or tubes alone, but part in each. We are unable to state which organ is at the bottom of the trouble. Sometimes it may be only one, sometimes the other, sometimes two or all three; hence, in such cases I would say:

"4. In many cases with marked nervous symptoms, the best results are obtained only after the complete removal of every particle of the generative organs—that is, uterus, tubes and ovaries—be this accomplished at one, two or three operations, per vagina or by abdominal section."

DISCUSSION.

DR. R. S. SUTTON, of Pittsburg, favored abdominal section for pus tubes. He maintained first and foremost that a uterus deprived of its appendages is of no use. Second, that it is an organ, if left, which is liable to tuberculosis, gonorrhea, syphilis, discharges, adhesions, etc. When it is decided to remove the appendages, the uterus also should be taken out.

DR. GILLIAM, of Columbus, Ohio, argued against the removal of the uterus with the appendages in order to save life, the objection being that shortening of the vagina resulted.

DR. B. M. RICKETTS, of Cincinnati, believes total extirpation will be relegated. The dangers are cystocele, hernia, increased danger of prolonging the operation, and shortening of the vagina.

DR. HENRY O. MARCY, of Boston, favored retaining the cervix when it is healthy, and pointed out the reasons why it should not be removed. It helped materially in acting as a support to the vault of the vagina.

DR. HOLMES, of Chicago, in discussing Dr. Cordier's paper, said that drainage was a sort of vicarious redemption for poor surgery. Whenever it is impossible to make a wound clean we must drain, and sometimes we drain when the wound is clean, but we are unable to arrest the hemorrhage. He could conceive of no other indication for drainage, whether in the abdomen, the brain, or any other part of the body, than failure to meet one great indication of wound treatment—to keep the wound clean.

DR. GEORGE W. CALE, of St. Louis, read a paper entitled

TWO SUCCESSFUL OPERATIONS FOR TRAUMATIC INSANITY.

The author said that insanity due to injuries of the head is of rather infrequent occurrence. In 2,200 cases of insanity, treated by Kiernan, 45 were of traumatic origin; while Hays records 61 due to the same causes, out of 2,500 cases. Schlager reports 500 cases of insanity due to concussion of the brain. The author then considered the causes and symptoms.

Case 1 was a male, 26 years of age, carpenter by occupation. Family history good. No case of insanity or of serious nervous disease had ever been present. June, 1885, the patient received a blow from a club in the hands of a negro, the wound inflicted being midway between the fissure of Rolando and the external occipital protuberance, slightly to the left of the median line. It was treated as an ordinary

scalp wound, as it suppurated for three months. Four years after the inception of the wound, he complained of severe pain in the left parietal and occipital regions of the head. October, 1888, he was sent to an insane asylum, where he remained sixteen months. His condition improved, he returned home, but was again sent back to the asylum, where he was detained five months. Four months later he was brought to Dr. Cale, who diagnosed traumatic insanity; advised operation, which was consented to. Recovery.

Case 2 was one of acute mania, following a trauma. Operation performed the same as in Case 1. Recovery.

DR. WILLIAM FULLER, of Grand Rapids, Mich., had operated on two cases of insanity, due to traumatism, one in Montreal in 1870. The patient was discharged from an insane asylum as incurable. When the dura mater was opened, there escaped some serum. A few days subsequent to the operation, the patient was rational, but as soon as the wound closed up the hallucinations returned. He then punctured the brain in two or three different directions with no result except to establish drainage. The man died two months later, and a post-mortem examination revealed a tubercular abscess in the fissure of Sylvius, containing about two teaspoonfuls of pus. The other case was due to syphilis, and was relieved by the removal of the pressure from that disease.

DR. J. FRANK, of Chicago, reported an interesting case of insanity in which he trephined, removing a large piece of bone. A piece of the brain was also excised for examination, and seemed to be healthy. The patient, after being in an insane asylum for five years, made a complete recovery, and took up the thread of life where she left it. She continued in this way for one year, then relapsed. What was the reason of her recovery? In opening the dura, there was a gush of cerebral fluid. Dr. Frank firmly believes that it is not the depression of the skull which produces the bad result, but that at the time of the injury there is a chronic inflammation of the meninges, or a slow inflammatory process, which throws out cerebral fluid. This fluid may be in the ventricles between the dura and the brain, or in the tissues of the brain filaments themselves, and the theory of concussion, held by the profession, he believes is erroneous. He had repeatedly made experiments on dogs by rapping them on the head and rendering them insensible, and immediately thereafter, effusion was found.

DR. MAAS, of Detroit, thought we were in the dark as to the exact cause of the insanity in many cases, and that there was evidently some vasomotor disturbance.

DR. MAAS then read a paper which was largely a statistical one, in which he pointed out the comparative value of the medical and surgical treatment of appendicitis.

DR. WILLIAM E. WIRT, of Cleveland, Ohio, read a paper on THE USE OF DRY HEAT OF HIGH TEMPERATURE IN THE TREATMENT OF JOINT DISEASES.

Shortly after reading a description of this treatment in the medical journals, the essayist encountered a case of rheumatoid arthritis, in which he resorted to this method. The treatment was followed by great improvement in the motion of the joint, and in the comfort felt by the patient. He also reported a case of rheumatism of a year's standing, in which there was more or less fixation. He broke up the adhesions, made use of the high application of heat, and raised the temperature to 290 degrees, which was followed by decided improvement in the ease with which the patient could move the joint and the relief from pain.

DR. CARTER S. COLE, of New York, presented a paper on
ULCERS OF THE LEG; ALL CAN BE CURED.

What constitutional conditions obtain that favor morbid states, or that retard a return to a healthy state, such a diathesis receives its proper treatment, whether or not ulcers exist. For systematic purposes, ulcers of the leg were designated by the author according to their appearance as healthy, irritable, indolent, etc. In intractable cases, he is inclined to place foremost thorough washing with soap and water and good scrubbing with a stiff bristle hair brush. If the ulcer be inflamed, irritable or painful, anesthesia may be required for this and subsequent steps. The next step is a thorough cleaning out of all soft granulations, and the base of the ulcer with a sharp curette. The edges of the ulcer are freed from their attachment, and in many cases with a curved sharp bistoury he nicks the circumference at intervals of about one-quarter of an inch. If much hemorrhage follows, a pad of gauze wrung out of a 2 per cent. solution of carbolic acid is placed over the wound, and a firm compression bandage from the toes to the knee applied, the wound having been previously cleansed with the carbolic solution. The

dressing, when used, is allowed to remain for twenty-four or forty-eight hours, after which he considers the ulcer to have become a simple one, and amenable to treatment as follows: no further lotion is used. The wound is wiped off with dry cotton, and over and completely covering it, he places strips of diachylon plaster to protect the ulcer. Over the surgeon's plaster he applies a pad of sterilized gauze, held in place by strips of rubber adhesive plaster, or often simply by a bandage. He then uses a firm muslin bandage from the toes to the knee, making equable compression. Bandaging should be carefully done. Sometimes he uses two bandages three inches wide and eight yards long. This bandage is not removed unless the discharge comes through, or the leg becomes painful, or the bandage gets loose. When he re-dresses the ulcer, he again uses simply dry absorbent cotton to cleanse the wound, and proceeds as before. Often after two or three dressings, the bandage may remain five to seven days without being disturbed. In some cases a thin scum forms on the ulcer, which must be removed by going over the surface lightly with a curette. With this treatment, in ordinary cases about three weeks will suffice for an ulcer of even a dozen years standing. In extraordinary cases, as much as six weeks may be necessary.

DR. EUGENE FULLER, of New York city, presented an article on

HOW TO DIAGNOSTICATE SEXUAL DERANGEMENTS IN THE MALE.

The author endeavors to impress upon the profession the fact that in the majority of instances, sexual derangements in the male are caused by pathologic processes in or about the seminal vesicles, and further, that they accomplish their results by interfering with the mechanism of ejaculation. He calls attention also to the fact that this side of the question has been almost wholly neglected by preceding writers on sexual disorders, who have devoted themselves largely to psychologic conditions in this connection, the result being that the great majority of the profession associate sexual disturbances with some radical mental defect. Sexual derangements in the male should be diagnostically arranged in four classes: 1, those dependent on seminal vesiculitis; 2, those dependent on neuroses; 3, those dependent on primary mental disease on degeneration; 4, those dependent on general malnutrition and debility. The order of this classification corresponds to the frequency with which these different forms of diseases are encountered in practice. In explanation of the first class of causes, the writer states that it is needless to go into details, since he has recently reviewed that subject very fully in his book, just published.

Where seminal vesiculitis exists, there is generally a previous history of urethral or bladder inflammation, sexual abuse and the like, all of which are agents tending to produce localized inflammation in the seminal vesicles.

The second class of causes either inhibit or excite the sexual center by means of reflex nervous action.

The third class of causes includes the different forms of paranoia, in which the sexual sense exists in a perverted form.

The fourth class of causes is a small one. It includes individuals, generally young or middle-aged, who make complaint that they are capable of little sexual exertion and that feelings of prostration and exhaustion result whenever coitus is attempted.

Dr. Fuller then takes up the clinical examination. In conclusion, the writer makes some special remarks on the different appearances that the varying grades of seminal vesiculitis present to the sense of touch, and calls attention to the fact that in cases of extensive perivesiculitis, involving both sacs, an inexperienced examiner is liable to err in diagnosis, mistaking the condition for hypertrophy or inflammation of the prostate. The author holds that to become perfected in the feel of the seminal vesicles, the finger needs as much practice as does that of the gynecologist in feeling the ovaries and tubes. To obtain the necessary practice, he advises the genito-urinary surgeon to make it customary to examine in this manner every male case coming into the clinic until all normal and pathologic conditions can be fully appreciated.

DR. S. P. COLLINGS, of Hot Springs, Ark, read a paper on
CHRONIC SEMINAL VESICULITIS WITH HEMORRHOGE.

He said there has apparently been little known of the pathologic condition of the seminal vesicles until within recent years. The usual cause of this trouble is the extension of gonorrheal inflammation from the prostatic urethra through the ejaculatory duct into the vesicle itself; at least, there is usually a history of a former gonorrhea with a chronic deep urethral trouble remaining. The vesicles are

sometimes involved in very acute and severe gonorrheal inflammation with or without the implication of the cord and epididymus. They may also be involved with a tubercular inflammation, although practically never primarily.

One observer reports a case in which the autopsy showed that the vesicle was primarily involved. The most important symptom is the disturbance of the sexual function. The character and appearance of the seminal fluid is more or less changed. Its consistency is so increased at times that it is gelatinous. The diagnosis of subacute or chronic seminal vesiculitis would be difficult to make, were we to depend entirely upon symptoms in reaching a conclusion. They are vague and at times misleading except the appearance of the blood in the semen, which, if thoroughly mixed with it, would determine a diseased condition of one or both vesicles at once. The author reported two cases, discussed the treatment as applied to them, as well as that generally used in the subacute and chronic forms.

In conclusion, he said that if inflammation of the vesicle occurs in one whose urethra is strictured, cure the stricture before we can hope for permanent results in vesical treatment.

DR. C. T. DRENNEN, of Hot Springs, Ark., read a paper on

SYPHILIS AND ITS TREATMENT.

The author spoke more directly of the treatment of this disease in connection with the use and abuse of certain so-called antisyphilitic remedies. He said, we are unable as yet to form definite conclusions as to the usefulness of serotherapy in the treatment of syphilis from the most recent researches, but the reports are quite encouraging, and there is hardly a doubt but that it possesses value in at least the tertiary lesions. Fournier believes the good effect to be due not to any specific, but to its rehabilitative effect upon the system. The author said, in closing, that the hot water at Hot Springs was well known to exert an influence peculiar in its effects for good, and in it we had a veritable Mecca for syphilis. That its action is eliminative, stimulative and antiseptic, and that larger doses of mercury and the iodid of potassium can be given without harm is known to the writer, based upon experience and observation; that its exact or specific action is unknown, and that its value is attested to by the multiplied thousands throughout the country, are propositions that are incontrovertible.

DR. WILLIAM T. BELFIELD, of Chicago, described and presented an instrument for the purposes of securing asepsis in bladder and prostate operations.

DR. THOMAS H. MANLEY, of New York city, read a paper on

THE ELEMENT OF VASCULAR COMPRESSION IN FRACTURE TREATMENT.

The author considered at length the anatomic structure and vascular function as related to fracture. The extent of damage borne by the vessels in a given case of fracture will primarily depend upon the degree and quality of force applied and the line of treatment adopted. In a series of experiments made during the past year on the blood and blood vessels, under a multiplicity of conditions in the lower animals under anesthetics, one question which the author spared no pains to definitely determine was whether in fracture, as a general rule, the circulation to the distal part of the limb was retarded in cases of fracture. Without entering into detail on the great diversity of vascular phenomena observed in a frog's webbing under the microscope, after single, multiple and compound fractures were produced, it will suffice to say that with few exceptions, immediately and for a considerable period of time after the bone was broken, the circulation in the capillaries and the smaller arteries was completely arrested. In several it was found that for several days all the smaller vessels were motionless, and in a few they so remained until after the fractured ends of the bones united. These experiments were extended to the mammalia, the shafts of the limbs of pups, kittens and adult dogs, of different ages and various sizes.

DR. H. O. PANTZER, of Indianapolis, Ind., read a paper entitled

THE SIGNIFICANCE OF FISSURE FRACTURES OF THE ARTICULAR ENDS OF THE LONG BONES.

He reported a case of fissure fracture involving the outer third of the head of the radius, having loose attachments to its body. An excessive callus had likewise developed in its site, without affecting union. This splinter and callus were removed, when re-position of the joint was easily attained. The crepitus felt at the first examination and the failure to find it again, should have suggested fissure fracture in the opinion of the author. When the first dressing was removed,

the limb seemed to present a perfect condition, and to promise full restoration. These prospects were changed as soon as passive and active mobilization was begun. The probability is that the attempts at mobilization for this kind of injury was begun too soon, and that they were at least partially responsible for the subsequent unfavorable developments. The author concludes that when undue painfulness and subsequent swelling with no gain or even a loss of mobility attends the efforts of mobilization after kindred lesions, we should delay further efforts at mobilization. The possibility of a fissure fracture should be considered in determining the diagnosis and treatment of all cases of joint injury.

DR. E. W. ANDREWS, of Chicago, contributed a paper entitled "Imbrication or Lap Joint Method—A Plastic Operation for Hernia." (See JOURNAL June 15, p. 934.)

DR. CHARLES A. L. REED, of Cincinnati, presented a paper on

FURTHER OBSERVATIONS ON THE RADICAL CURE OF RUPTURE BY THE INTRAPELVIC METHOD, WITH ILLUSTRATIVE CASES.

In what essential particulars does this intrapelvic method differ from the several methods of radical operation now in vogue? It differs, in the first instance, in the fact that it is intrapelvic, while the others—Bassini's, Halsted's McBurney's, Macewen's—are extrapelvic. The essential point of difference between Dr. Reed's operation and that of Bassini, consists in: 1, leaving undisturbed the extremely tense fascia composing the anterior wall of the ring; 2, in leaving the cord in the position which Nature designed for it, and entirely protected by the normal fascia; 3, in closing the internal ring on the inside of the pelvis, and in protecting it by a strong peritoneal pad; 4, in avoiding the menace to virility arising from a transplantation of the cord, its possible constriction by an artificial ring of tense fascia, and its necessary investment by an inflammatory exudate; 5, in increasing the resistance of the parts by fortifying the fascia comprising the anterior wall of the ring, and by increasing and making permanent the obliquity of the cord within its normal canal.

The advantages of the operation consist in securing by the unfolding of the redundant but attenuated median fascia, the formation of a column which, when consolidated by inflammatory adhesions, has a certain retentive and supportive power the influence of which is of value in preventing recurrence. The anchorage of the recti in the median line restores the retentive power of the wall.

DR. HENRY O. MARCY, of Boston, followed with a paper entitled

SURGICAL TREATMENT OF HEMORRHOIDS.

This paper was in the nature of a reply to the strictures cast upon the Whitehead operation by Dr. Edmund Andrews, of Chicago, in a paper read before the last meeting of the Illinois State Medical Society. Dr. Marcy believes that if in the statistics given by Dr. Andrews the names of the operators were mentioned, most of the disastrous results will be found to have followed the work of incompetent men. His results had been excellent in those cases in which he had done the Whitehead operation, slightly modified by himself.

DR. JOHN RIDLON, of Chicago, read a paper on

CLUB FOOT,

which he defined as a distortion of the foot in its relation to the leg. The simple and compound varieties of club foot were dealt with. Nearly all of the congenital cases present the compound variety—equino-varus; a few present equino-valgus; rarely there is seen a simple calcaneus. Of simple equinus, the author had met with but a single instance, and of simple varus and simple valgus, he had seen none. Of the acquired variety, simple equinus is by far the most frequently found; next in frequency we find simple valgus; then equino-varus; calcaneo-valgus, equino-valgus, simple varus, and varus in one foot and valgus in the other. The acquired deformity occurs more than three times as frequently as the congenital form. The etiology of the congenital forms was next dealt with, as well as of the acquired forms. Then followed the symptoms, diagnosis and prognosis.

The treatment of club foot is mechanical or operative, or both mechanical and operative. Both these measures were dealt with at length.

DR. E. E. TULL, of New York, read a paper on "Vaginal Castration." The author claimed for this method a lower mortality, a shorter convalescence and a wider adaptability as it may be practiced in cases too weak for abdominal section.

Dr. F. J. GRONEA, of Grand Rapids, Mich., read a paper entitled

A NEW PHASE OF CELIOTOMY.

He related a suit for malpractice which had just been terminated in Grand Rapids. The suit was begun against a doctor some time ago, and was for \$50,000. The defendant died, but the court held that the cause of action survived, and that the suit could be brought against the estate. The jury returned a verdict for \$10,000. The author claimed that he knew there was no malpractice because he was interested in the case and knew just what was done in the operation. He found fault with the laws which permitted a suit against a doctor to survive his death, and be a menace to the widow and children. The speaker thought that the next Legislature should remedy the law. He had the draft of a bill prepared which he thought would remedy the present law, and which he read.

Dr. J. FRANK, of Chicago, read a paper on

RESULTS OF FIVE YEARS' EXPERIENCE WITH INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS.

Since his last publication, November, 1889, he had had the opportunity of performing this operation seventeen times, with only one failure, and without any deaths. All of the seventeen cases operated upon were for retroversion, prolapsus, and retroversion with prolapsus of the uterus.

Technique of the operation: the median incision is made a trifle lower than for ordinary celiotomy, the round ligament is caught up anteriorly with a sharp or blunt hook, and is then held taut by an assistant. A small, full curved needle threaded with fine silk is then passed through the loop of the round ligament and is brought back in the reversed manner through the other half of the loop. No portion of the broad ligament is included in any of the sutures. Too much stress can not be placed upon this particular procedure of passing a needle through a part of the cord and not around it, for in passing the needle around the cord there is danger of strangulation, as the blood and nerve supply would be entirely shut off by this faulty method of placing the sutures around the ligament.

About 50 per cent. of the cases have been under the observation of the author since the time of operation, which in some instances has been as long as two years, and in all of these the uterus retains its corrected position. This operation should be performed in preference to any other in all cases where the uterus is prolapsed or immediately falls back upon replacing it with a uterine sound, and where pessaries and tampons afford no relief, clearly showing that there must be some force which does not permit the uterus to remain in its normal position.

Dr. THEODORE A. MCGRAW, of Detroit, delivered the

ADDRESS ON SURGERY,

which appeared in our last issue. (See p. 387.) He selected for his subject: "The Present State of Our Knowledge of Cancers and Tumors."

(To be continued.)

SOCIETY NEWS.

Litchfield County (Conn.) Medical Society.—The annual meeting of the Litchfield County, Conn., Medical Society will be held at Litchfield on October 8. Papers will be read by Drs. J. W. S. Gouley and Charles Phelps of New York City, J. C. Kendall of Norfolk, and Charles Page of Litchfield.

F. H. WIGGIN, President.

American Orthopedic Association.—Program of the ninth annual meeting, to be held at Chicago, September 17, 18 and 19:

The President's Address, John Ridlon, Chicago.

The Treatment of Fractures from an Orthopedic Standpoint, A. M. Phelps, New York.

Joint Disability following Fractures, James Kerr, Washington, D. C.

Observations on the so-called Congenital Dislocations at the Hip Joint; and the Success of Dr. Buckminster Brown's Treatment by Recumbency with Extension for two years, Wm. Adams, London, Eng.

On the Surgical Treatment of Congenital Dislocations of the Head of the Thigh Bone, Bernard Brodhurst, London, England.

Operative Treatment for Congenital Dislocation of the Hip, Wm. E. Wirt, Cleveland.

A Case of Double Congenital Knee Luxation, H. L. Taylor, New York.

Congenital Absence of Radii, with Operation, S. L. McCurdy, Pittsburg.

The Report of a Case of Congenital Dislocation of the Shoulder, and an Operation for its Relief, A. M. Phelps, New York.

Treatment of Slipping Patella, E. H. Bradford, Boston.

Club Foot, R. W. Lovett and John Dane, Boston.

A Case of Talipes Varus following Section of the Biceps Cruris Tendon. Neurorrhaphy after six years, without benefit, E. Muirhead Little, London, Eng.

A Case of Unusual Varoid Deformity of the Foot. (Illustrated.) E. Muirhead Little, London, Eng.

Removal of Astragalus for Talipes Valgus, James E. Moore, Minneapolis.

Tendon Transplantation in the Treatment of Paralytic Deformities of the Feet; A Report of Cases, Joel E. Goldthwait, Boston.

A Report of Seventy Cases of Splicing of the Tendo-Achilles, H. Augustus Wilson, Philadelphia.

Treatment of Rigid Flat-Foot by the Localized Hot-Air Bath, W. J. Walsham, London.

A Study of the Weak Foot with Reference to its Causes, its Diagnosis and its Cure; with an Analysis of One Thousand Cases of so-called Flat-Foot, Royal Whitman, New York.

Metatarsalgia, L. A. Weigel, Rochester.

One Thousand Cases of Lateral Curvature of the Spine, Treated by Posture and Exercises Exclusively (without mechanical supports), Bernard Roth, London.

The treatment of Lateral Curvature of the Spine without Corsets, Noble Smith, London, Eng.

The Treatment of Scoliosis by Light Gymnastic Exercises, James K. Young, Philadelphia.

On Forcible Correction and Corrective Jackets in the Treatment of Scoliosis, Bernard Bartow, Buffalo.

The Use of Mechanical Supports in Treatment of Scoliosis, L. A. Weigel, Rochester.

Spasmodic Wry Neck, Noble Smith, London, Eng.

Spasmodic Wry Neck, T. H. Myers, New York.

Bone Drilling in Arthritis and Osteitis, Noble Smith, London, Eng.

The deformities Produced by Acute Inflammatory Lesions in Bone, Roswell Park, Buffalo.

Some Considerations of the Mechanical Arrangements around the Hip Joint, H. M. Sherman, San Francisco.

A Review of the Treatment of Hip Disease, B. E. McKenzie, Toronto.

Some Remarks Concerning Hip Disease, with Especial Reference to the Deformity, A. B. Judson, New York.

Presentation of Hip Joint Brace, S. L. McCurdy, Pittsburg.

Operative Measures in Caries of the Spine, E. H. Bradford, Boston.

Caries in Adults, R. G. Brackett, Boston.

Ambulatory Treatment of Pott's Disease, R. W. Lovett.

Spondylitis (?) followed by Hysterical Spine and Chorea, A. B. Hosmer, Chicago.

The Rawhide Corset Spinal Brace, B. E. McKenzie, Toronto.

The Anterior Spine Brace, J. C. Schapps, Brooklyn.

New (anterior) Spine Brace, with exhibition of patients, A. E. Hoadley, Chicago.

The Use of the Plaster Jacket in Caries and the Effect of Position on the Spine, E. G. Brackett, Boston.

The Causative Relation of Suppuration to Tubercular Meningitis in Joint and Spine Diseases, Samuel Ketch, New York.

A Study of the Interior Forms and Burrowings of Lumbar Abscesses, Edmund Andrews, Chicago.

How the Orthopedic Surgeon should Treat Abscesses (tubercular and purulent), A. M. Phelps, New York.

Excision of the Knee as an Orthopedic Measure, W. O. Plimpton, New York.

Kinks in Club Foot Rectification, in Head Traction and in Hip Traction, A. J. Steele, St. Louis.

Pain in the Back, L. A. Weigel, Rochester.

Pigeon Toe, James E. Moore, Minneapolis.

Improved Osteoclast, Nicholas Grattan, Cork, Ireland.

Some Cases of Osteoclasts with the Lorenz Osteoclast, F. S. Coolidge, Chicago.

Idiopathic Osteopsathyrosis, Wallace Blanchard, Chicago.

Statistical Report of the Orthopedic Department of the South Side Free Dispensary, John Ridlon and H. P. Woley, Chicago.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00

SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, SEPTEMBER 14, 1895.

MEDICO-LEGAL CONGRESS AT NEW YORK.

This convention, held under the auspices of the New York Medico-Legal Society, began its session September 4, under the presidency of Dr. H. W. MITCHELL, in the United States court rooms, New York City. A gathering of physicians, lawyers and judges, and the reading and discussion of fifty-eight papers on widely varying topics of medical jurisprudence, extending over a period of three days, is an event of unusual interest.

DR. FORBES WINSLOW, the eminent alienist of London, was the star guest of the occasion, and read the opening paper on the "Progress of Lunacy during the Present Century." This will appear in full in next week's JOURNAL. He is reported to have said "that in Great Britain on Jan. 1, 1895, there were 91,081 persons registered as of unsound mind, an increase of 2,014 over the number a year before." He complimented the United States on its magnificent institutions for the insane, and said he was looking forward with pleasure to visiting them. He was inclined to lay great stress upon newspaper publicity as a cause of the present great prevalence of suicide, while recognizing the same tendency of this form of lunacy to act epidemically that is well known to have been the fact in past ages. Respecting certain emotional factors he spoke as follows:

"There is no passion of the mind which so readily drives a person to suicide as remorse. To live is horror; the infuriated sufferer feels himself an outcast from God and man, and although his judgment may still be correct upon other subjects, it is completely overpowered upon that of his actual distress.

"In England the great majority of the cases of

insanity among women can clearly be traced to unrequited and disappointed affection."

DR. T. D. CROTHERS, Chairman of the Section on Inebriety and its Legal Relations, read a paper on "Inebriety" which was discussed by DR. WINSLOW and others.

DR. OGDEN DOREMUS attacked the system now in vogue for testing milk used by the Board of Health in this city. He cited a number of instances in which adulterated milk satisfied the requirements of the Board, and attacked the law which specified that skimmed milk shall not be sold in this city. He gave the testimony of physicians to the effect that many invalids can not drink unskimmed milk. Skimmed milk, he said, is a healthful diet. He doubted if its sale was forbidden in any other city in the world.

PROF. A. H. MOTT read a paper entitled "Somatic Death by Poison." PROF. CHARLES A. DOREMUS followed in an elaborate examination of "Two Remarkable Cases of Chronic Poisoning." A paper on "Ptomaines," written by PROFESSOR VEIGL, of Harvard, was read by PROFESSOR MOTT. PROF. M. C. WHITE, of New Haven, Conn., rehearsed the details of a trial, in which the case turned upon the identity of arsenics from various sources, illustrating his contentions by photographs. PROF. R. OGDEN DOREMUS exhibited vials of arsenic tending to establish the fact that parcels of arsenious acid obtained from different sources, or from different manufactories, may be distinguished.

DR. PAUL GIBIER made an earnest defense of the worth of vaccination, illustrating it by an appeal to history. These remarks were elicited in rejoinder to a paper by one of the lady members who took the occasion to enter her protest against compulsory vaccination and its so-called errors.

DR. GIBIER read an address on "Bacteriology" which caused quite a flutter, inasmuch as he pointed out the fact that anarchists and other criminals are likely to turn their attention from chemic to bacteriologic studies, for the procuring of a sure and safe (to themselves) means of murder. He said, "there are two aspects of this branch of science, the civil and the criminal."

"Concerning the criminal phase, he said that he was asked by a certain man as to the resultant traces if bacteria were injected into a person. The person was told that certain effects might result from such an injection which could lead to discovery of the cause. But he afterward found that his questioner was a man of doubtful reputation, and his suspicions were at once directed toward the possibility that would-be murderers might resort to bacteriology with deadly effect. In many instances death could be caused by such injection, and the evidence would be hardly discoverable."

"Already desperate men have shown that they are willing to devote infinite labors to the accomplishment of their purposes. Anarchists had pursued elaborate chemic studies. There was no reason for believing that they would not, if they thought it worth their while, devote themselves with all zeal to a study of bacteriology, whereby their designs could be accomplished. A bomb thrown into this city

would cause less harm than a few microbes thrown into the source of water supply."

At the end of the first day, the following were among the permanent officers elected: President, CLARK BELL; Medical Vice-Presidents, T. D. CROTHERS, R. OGDEN DOREMUS, PAUL GIBIER, W. B. OUTTEN, IRVING C. ROSSE, FORBES WINSLOW, H. LOUISE THOMAS; and FRANK H. CALDWELL, of Florida; Secretaries, MORITZ ELLINGER, F. B. DOWNS, ALBERT BACH, CLARENCE A. LEIGHTON, CHARLES A. DOREMUS, of New York; Treasurer, GEORGE CHAFFEE.

A resolution was passed at the close of the session expressing the belief of the conference that medical and law schools should include medical jurisprudence in the curriculum, and that examination in the subject should be made compulsory. Another resolution provided for the appointment of a Standing Committee on Medical Jurisprudence by every National and State Bar Association.

Dr. W. X. SUDDUTH was chairman of the Department of Experimental Psychology, and Dr. G. P. CONN Chairman of the Section on Medico-Legal Surgery. DR. H. A. MOTT presided over a Section on Medico-Legal Chemistry. PROFESSOR M. C. WHITE was Chairman of a Section on Legal Microscopy. Judge A. H. DAILEY, and HON. M. ELLINGER each presided over special sections.

The New York Medico-Legal Society, through its energetic Secretary MR. CLARK BELL, projected and carried out this Congress, which was undoubtedly the largest and most successful public discussion of Medical Jurisprudence ever held.

The Congress ended with a reception and banquet at the Press Club.

MENTAL HYGIENE OF WOMEN.

One of the papers read before the Medico-Legal Congress lately in session in New York, was an urgent plea by a woman, MRS. CONNORS, to the medical and legal professions to do something to cure the marked emotional tendencies of her sex. She asserted that on the physician rested largely the responsibility for this state of affairs, and that if our profession did its whole duty, much of the evil of which she complained would cease to exist. That women are invalids because encouraged to be such by the doctors is a libel on the medical profession, and is probably never intended to be said except by certain irresponsible writers. But that they are humored in their invalidism may perhaps be more justly charged, though any unqualified and absolute condemnation even of this course may be a mistake. When female ailments are not a palpable organic fact, they are the indications of a psychosis, the efficient moral treatment of which may be a serious question, and one may err as much in any attempted brusque repression as in the following the

fancies of the patient and admitting to some extent, even, the reality of her troubles.

In a recent publication ("The New England Invalid," Shattuck Lecture, for 1895), DR. ROBERT T. EDES discusses this subject very fully and instructively. He concludes that the condition of nervous invalidism is very possibly connected with actual changes in the neuron, analogous to those that have been demonstrated by HODGE as the result of fatigue, thus indicating a rational possible pathology of neurasthenia in both sexes. Emotional weakness is only one symptom of the disorder, and that it is most observable in woman is due to the natural constitution of the sex as well as to social conditions and environment. The "new woman," so far as she is to be realized, will not at once throw off all tendencies in this direction that she has acquired through the ages by heredity, and nervous enfeeblement will undoubtedly exhibit itself in her by special manifestations due to this as well as to the structural peculiarities of sex.

With this basis of heredity, DR. EDES holds, the fully developed condition, ranging in all its forms from pure nervous exhaustion to hysteria and insanity may be acquired at any time, but especially in early life, either gradually or as the result of disease or shock. Its treatment must be based on a careful diagnosis by exclusion of all actual organic disorder, and must then consist in restoring the exhausted nerve elements by proper nutrition and rest, and the appropriate moral treatment which must be individual in the full sense of the word, and to be successful requires unlimited tact on the part of the physician. In this, as DR. EDES says, expectant attention is for therapeutic purposes, a much better thing than argumentative and combative attention; it may be worse policy often to tell a neurotic woman that her ills are imaginary than it is to enlist her vanity in the therapeutics of her supposedly remarkable symptoms. Woman's psychic weaknesses may be thus, in a measure utilized as a counteracting influence to her physical ones, and humoring her ailments be a direct aid to their cure. When a woman feels ill, she thinks she knows it, even if it is not possible to find any tangible objective reason for it.

Women are by their physiologic organization more inclined to be emotional than men, and the prevalent systems of education and the conventional social usages probably increase to some extent this tendency. The "new woman" may throw off these latter, but she can not relieve herself of her physiologic handicap of more delicate response to sensory impressions.

The New England invalid, studied by DR. EDES, is a type too common in our older settled communities, but is largely the result of heredity and the selective process due to emigration. The alarmist note of

MRS. CONNORS, while indicating a present evil, would have applied even more forcibly, it is probable, in the past few decades than now, in the greater portion of our country.

THE AMERICAN ORTHOPEDIC ASSOCIATION.

The ninth annual meeting of the American Orthopedic Association will be held in Chicago on the 17th, 18th and 19th of the present month. Some fifty papers, many of unusual interest, are promised in the program which appears elsewhere in this issue of the JOURNAL. MR. BERNARD ROTH, of London, England, will contribute a report on 1,000 cases of lateral curvature of the spine treated by posture and exercise. MR. WILLIAM ADAMS, of London, a paper on the mechanical treatment of congenital dislocation at the hip, and MR. BERNARD BRODHURST, of London, on the operative treatment of the same displacement. DR. H. AUGUSTUS WILSON, of Philadelphia, will report on seventy cases of splicing the tendo-Achillis. DR. ROYAL WHITMAN, of New York, whose writings on flat-foot are classic, will discuss the subject of weak-foot, its cause, diagnosis, and cure. Every surgeon who has read the prize essay on hip disease by DR. R. W. LOVETT, of Boston, will be interested to know that, in connection with DR. JOHN DANE, he will present an essay on club-foot; this will be discussed by DR. A. M. PHELPS, of New York.

A study of the origin and growth of this society might be of interest to those connected with similar special societies. When it is remembered that very few men have any special interest in orthopedics, and that the number of subjects upon which the orthopedist may write is also very limited, one marvels at the well-attended meetings and the 400-page volume of Transactions which the Society publishes annually. We are inclined to think that the vigorous growth of the Association is due in no little extent to the rigid requirements for admission, the high annual dues and the generous expenditure in the publication of the Society's Transactions.

THE COMPLAINT OF THE MANUFACTURING CHEMIST.

For many years there have been complaints that the druggist in filling prescriptions either disregarded the wishes of the prescriber *in toto*, or only made a pretense of using the particular preparation designated in the prescription.

One chemist in St. Louis recently informed the JOURNAL that by an actual test in more than one-half the cases where his preparation was asked for, the article obtained was not his own make. Other manufacturers have made the same complaint. Professional sentiment could crush this business of substitution if once concentrated on this question. If DR. SMITH writes for "JIBB's Ether," "KIBB's Chloro-

form," or "MAUDLIN & Co.'s Fluid Extract," if JIBBS, KIBBS and MAUDLIN & Co., are reputable manufacturers it should be furnished. When DR. SMITH writes a prescription and Druggist A receives it, A is bound in honor to either furnish the exact brand called for, or to privately communicate with DR. SMITH, and explain *why* he can not do so. There is no more reason why it should not be recognized as dishonesty to substitute one article for another, than there is reason to condone any other method of obtaining money under false pretenses. Common honesty requires that a prescription should be filled with the identical articles named therein, and any druggist who makes a business of substitution should be promptly dropped by the profession.

At least, the Illinois Legislature at its last session seems to have so regarded it, for a penalty was enacted on all pharmacists who should substitute one drug for another.

CHRISTMAS WEEK, 1897.

Our Mexican confrères have authorized PROFESSOR PEPPER to announce that the second Pan-American Medical Congress will be held in the City of Mexico Christmas week, 1897.

In Mexico, the week of the Nativity is the week of festival and rejoicing. The Christmas chimes peal merrily; the city is in holiday garb; entertainment, good fellowship, and overflowing hospitality characterize the season.

Business, while not actually suspended, is carried on only so far as is absolutely necessary for the purposes of commerce and public comfort.

The management have done wisely in choosing Christmas week as the one in which shall be held the second Pan-American Medical Congress.

CORRESPONDENCE.

The Code—Another Reply to Amicus Veritatis.

CANTON, OHIO, Sept. 11, 1895.

To the Editor:—The gentleman writing the open letter to you and signing himself *Amicus Veritatis*, reminds me of a ship at sea without a rudder, or a man out on the sea of professional life without a conscience, roaming about seeking whom or what he may devour from a non-professional or commercial standpoint. If the writer were to take up the Code and be determined to read and understand it in the same spirit as it was given us, in accordance with the Golden Rule, he would, I am sure, entertain a more exalted opinion of our profession. I read the communication very carefully, and laid it aside with a silent expression of pity for the writer.

Respectfully,

S. A. C.

PUBLIC HEALTH.

Anthrax in a New Jersey Dairy.—Representatives from the New York City Board of Health have visited a section of Cumberland County, New Jersey, for the purpose of investigating an outbreak of anthrax among cattle, and its relation to the milk supply of that city. They reported the dis-

ease to be in a limited area, and the affected cattle to be under the supervision and control of the State Dairy Commission, so that none of the products of the infected herd can be shipped.

Crematory for Refuse in New York City.—On September 5, a new crematory for the incineration of city refuse, except garbage and ashes, at Twelfth Avenue and Fifty-third Street, began operations. Three car-loads of material were burned, and the inventor of the system said he was well satisfied with the result. If this system is adopted by the city it will require five or six plants conveniently located to dispose of all its refuse. The capacity of the first plant, when working night and day, is estimated at sixty tons.

Disinfection in Typhoid Fever.—Even when the fecal discharges of a typhoid fever patient are properly disinfected, which is by no means so much the rule as the exception—especially in country districts—little or no attention is paid to the disinfection of the urine. Wright and Semple, however, in a recent issue of the *London Lancet* (July 27 ult.) draw attention to the frequency with which the typhoid bacillus may be found in the urine of such patients; they, themselves, have found them in six out of seven cases examined. It is suggested further that their presence will help to clear up the diagnosis of doubtful cases and to explain the serious kidney complications which are not uncommon in typhoid fever. The late complications of the disease, regarded by some observers as due to the coli communis, are also probably caused by the wide-spread diffusion of the typhoid bacillus.

Cholera Mortality in Japan.—In view of the present prevalence of Asiatic cholera in Japan, the following summary¹ of the ravages of this disease in the land of the Mikado have a timely interest. When cholera first appeared in Japan is not known, but it is supposed that it was in 1822. Between 1858 and 1860 the disease again made its appearance, but there are no returns for those years. They are, however, complete from Jan. 1, 1877 up to July 19, 1895:

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1877.	13,816	8,027	1887.	1,228	654
1878.	902	275	1888.	811	460
1879.	162,637	105,786	1889.	751	431
1880.	1,580	618	1890.	46,019	85,227
1881.	9,389	6,237	1891.	11,142	7,760
1882.	51,631	33,784	1892.	874	497
1883.	969	434	1893.	633	364
1884.	900	414	1894.	546	314
1885.	13,772	9,310	1895 (to July 19) 7,901		4,804
1886.	135,923	108,409			

"A Burning Fiery Furnace."—In the discussion on the cremation of garbage and town refuse in the British Medical Association at its recent meeting, Brigade-Surgeon Pringle, M.D., took occasion to call attention to the fact that the subject is a very ancient one. In the East in many places fires are still used, as they were centuries ago, as the great sanitary measure of the city, and the Tobhet or Tophet of Jerusalem, or as Milton calls it, "black Gehennum, styled the type of hell," was the place of burning refuse, where "the fire was never quenched;" and the burning fiery furnace of the plain near Babylon was only a vast receptacle for burning the city refuse; and the fact of those who threw in the Hebrew captives being burnt was due, no doubt, to some defect in the draught-shutters, by which the flames instead of passing up the chimney rushed out at the door. The plan on which this vast cinerator was built is what is seen now in the East where bricks, etc., are burnt for the purpose of securing a draft in that windless land.

Severe Punishment for Milk Adulteration.—It appears that one of the new police magistrates of New York city has been for years interested in chemistry. His brother justices hav-

ing delegated to him the trial of the adulterated milk cases, he has instituted an unusually severe line of discipline against dealers found guilty by the inspectors of the Board of Health. Fines of \$100, with ten days' imprisonment, were among some of the heavy sentences imposed; the lighter grade of sentences was a fine of \$25, with or without five days' imprisonment. This latter sentence was the exception, whereas under the old régime the light punishment was almost the invariable rule, except in the case of second or third offenses. The Health Officers are especially desirous of getting convictions of certain wealthy wholesale dealers and jobbers in low test milk, and the court, in some instances, suspended sentence as to the smaller dealers found guilty for the purpose of securing the coöperation of the latter in bringing the former to justice. This action, if carried out to a successful issue, will have the effect of striking at the fountain head of much of the impoverished milk supply of that city. The court pointed out the fact that the City Board of Health had received very little aid and comfort from the State Dairy Commission in combating the evil of adulterated milk. On this point the magistrate is reported to have remarked: "It is incomprehensible to me why this Commission, which receives such a large sum of money from the State, does not at least lend a hand in stopping this traffic in impure milk. The Commission, so far as I can learn, appears to confine itself to chasing people into boarding houses and arresting them for selling or eating oleomargarine, which is much better than much of the alleged creamery butter in the market."

The counsel for the accused had been carefully primed for his work, and sought to entangle the Health Board's chemists by asking them what sort of milk a cow would give that was bothered with Texan flies, and what was the difference in the milk from a high-fed Jersey and a low-fed Holstein; but the fines fell heavily "all the same."

Leprosy in Cape Colony and India.—The Commission appointed by the Cape government to study the question of leprosy has finished its labors and made its report. According to the census of 1891, the total number of lepers at the Cape was 625—366 men and 259 women—or a proportion of 4.77 per 10,000 inhabitants. Of this number 532 were born in the colony, 41 in the countries of Africa, 1 in Asia, and 51 were Europeans, or of the white race. Among the latter were four individuals who were not born in the colony and were only attacked after arrival in South Africa. The disease seems to have markedly increased, for in January, 1895, the number of lepers was 1,177, or nearly double that of four years previous. As regards frequency, it is found most often among the Hottentots; then come the mixed races, next the Malays, and lastly the Kafirs and Europeans. The Commission is of opinion that the theory of contagion is the only one capable of satisfactorily explaining the increase or diminution of the disease. Moreover, the mode of living in the country favors the spread of the disease. No instance of transmission by vaccination has come under the notice of the Commission. However, the disease is, as noted above, most prevalent among the natives, who are opposed to vaccination. As regards the influence of heredity, the Commission, while neither affirming nor denying it, is of opinion that it occurs but very rarely. No treatment is of any avail; isolation is to be insisted upon and furnishing notice of the existence of lepers should be made obligatory upon landlords, physicians, etc. It is interesting to note that the report of the Commission in India, appointed for a similar purpose, gives exactly opposite results. In 1891 there were 126,361 lepers in India, 31,069 of whom were women. The Indian Commission declares that the dangers of the propagation of leprosy are considerably exaggerated and regards the disease as non-contagious, hence there is no necessity for obligatory isolation, with the exception of vagabonds. The Indian Commission, moreover, recommends the exclusion of lepers from certain occupations. The questions of the heredity and of the contagious nature of leprosy are far from being settled definitely. On the one hand are Zombaco Pasha, Armauer, Ilansen and Ehlers; on the other, the Cape and Indian Commissions which arrive at diametrically opposite conclusions.¹

¹ Abstract of Sanitary Reports, Sept. 6, 1895.

¹ La Semaine Médicale, July 31, 1895.

Health Reports.—The following health reports have been received at the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, August 3 to 31, 2 deaths.

Michigan: Kalamazoo, August 17, 1 case; Calhoun, August 24, 1 case.

Tennessee: Memphis, August 1 to 31, 3 cases.

Texas: Eagle Pass, September 4 to 8, 5 cases, and 3 deaths. Total smallpox cases and deaths among refugees at Camp Jenner, near Eagle Pass, 177 cases, 55 deaths.

SMALLPOX—FOREIGN.

Cairo: July 23 to August 5, 3 deaths.

Calcutta: July 20 to 27, 5 deaths.

Constantinople: June 1 to 31, 39 deaths.

Dublin: August 17 to 24, 3 cases.

Gibraltar: August 11 to 18, 1 case.

Havana: August 24 to 31, 2 deaths.

Hong Kong: July 20 to 27, 1 death.

London, Eng., August 17 to 24, 6 deaths.

Montevideo: July 27 to August 3, 1 case.

Naples: August 16 to 23, 1 case, 1 death.

Nice: July 1 to 31, 1 death.

Nogales: August 31, 1 case, 1 death.

St. Petersburg: August 3 to 10, 4 cases, 1 death.

Prague: August 3 to 17, 2 cases.

Rio de Janeiro: August 3 to 10, 68 deaths.

Rome: June 22 to 29, 1 death.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, August 3 to 10, 7 deaths; Santos, August 3 to 10, 2 cases.

Cuba: Havana, August 22 to 29, 90 cases, 30 deaths; Matanzas, August 21 to 28, 12 cases; Santiago, August 17 to 31, 44 deaths; Santa Clara, August 24, 2 cases; Santa Domingo, August 24, 2 deaths; Sancti Spiritu, August 24, 30 cases.

Puerto Rico: San Juan, August 3 to 24, 21 cases, 14 deaths.

CHOLERA—FOREIGN.

China: Hong Kong, July 28 to August 3, 2 deaths.

France: Cognac, August 17 to 24, 1 death.

India: Calcutta, July 20 to 27, 9 deaths; Bombay, July 27 to August 2, 1 death; Singapore, July 16 to 22, 44 cases, 37 deaths.

Japan: Nagasaki, August 5 to 12, 40 cases, 30 deaths; Osaka and Hiogo, August 3 to 10, 243 cases, 179 deaths; Yokohama, August 2 to 16, 36 cases, 27 deaths.

Turkey in Asia: Aleppo, July 17 to 24, 24 cases, 21 deaths; Hamah, July 22 to August 3, 20 cases, 5 deaths; August 7 to 10, 1 death.

BOOK NOTICE.

Report of the American Humane Association on Vivisection and Dissection in Schools. Chicago, 1895.

This pamphlet consists mainly of replies to circulars sent out by the Humane Association in regard to the benefits and propriety of vivisection in the teaching of children. Naturally, they are nearly all condemnatory—in fact, there is very little to be said in any way for the practice. It is a very different thing from experimental investigation, and young children can, and readily will take physiologic facts on trust without practical demonstration, which will, at the best, be likely to be very imperfectly appreciated.

The tendencies of children to torture animals need checking, and vivisection under the sanction of instruction is, with them on the whole, liable to do harm rather than good.

NECROLOGY.

ROBERT L. VAUGHT, M.D., of Chattanooga, Tenn., was born May 24, 1863. He was drowned August 28 ult., while bathing in the Great Kanawha River at Henderson, W. Va. He was spending his vacation at the home of his nativity and when the news of his death reached his friends and relatives, both far and near, sorrow was general. Professionally and socially but few physicians enjoyed the popularity he

attained. Dr. Vaught was graduated in medicine March, 1884, at the Medical Department of the University of Nashville and Vanderbilt University, and served one year as interne to the City Hospital of Nashville, located in Chattanooga. At the time of his death he was professor of anatomy in the Chattanooga Medical College; Member of the Chattanooga Medical Society; Tennessee State Medical Society and the AMERICAN MEDICAL ASSOCIATION. He left an aged mother and an only brother beside other relatives and numerous friends who mourn his untimely death.

HENRY W. RAND, M. D., of Brooklyn, N. Y., August 31. Dr. Rand was born in Nova Scotia in 1851 and was graduated at Acadia University in 1873. He received his degree as Doctor of Medicine in the Bellevue Hospital College of Medicine in 1877. In that year he was appointed resident physician at the Brooklyn Hospital, and later visiting surgeon to the Brooklyn Orthopedic Infirmary, filling this position for several years. He was visiting physician to the Home for Destitute Women and Children for several years and had charge of the department of women's diseases at the Atlantic Avenue Dispensary. In 1884 he was appointed attending surgeon of the Long Island College Hospital, and in 1890 to St. Johns Hospital, filling both places at the time of his death. —N. E. Wright, M.D., Berea, Ohio, September 10. He was a native of Ohio, and was 61 years of age. —M. H. Murphy, M.D., Scranton, Pa., August 4, aged 32. —H. C. Reid, M.D., Mari-
posa, Cal., September 7. —C. V. Jones, M.D., formerly of Indiana, at San Jose, Cal., September 7, aged 40 years.

MISCELLANY.

Jefferson Medical College.—The chair of pathology in the faculty of the Jefferson Medical College in Philadelphia is vacant.

An Illegal Practitioner Sent to Jail.—In New York city, the lawyers employed by the County Medical Society have secured the conviction of a "Doctor" Ruffo for practicing medicine without a license and registration. He was sentenced to a three months' term in the penitentiary.

Medical Students in Holland.—The universities of Holland have an attendance during the current collegiate year of 2,940 students, of whom 1,486 are studying medicine, distributed as follows: 624 at Amsterdam; 349 at Leyden; 277 at Utrecht; and 236 at Groningen.

Parisian Practice.—Mons. X, according to *Le Journal de Medicine de Paris*, consulted his physician, saying that he was not feeling at all well, being tormented nightly by "bad dreams," and especially by visions of women in "the altogether," *a la* Trilby and Mother Eve. "That is easily remedied," replied the doctor. "Every night before retiring you will take an infusion of fig leaves."

Treatment of Phlegmonous Inflammations.—In the lesser phlegmonous inflammations alcohol dressings abort the inflammatory process and in the graver forms they cause the rapid formation of a circumscribed abscess filled with thick pus. Alcohol of 60 to 90 degrees is to be used. The skin of the inflamed area is cleansed with ether; if there is any open wound it is covered with powdered iodoform; then a thick, even layer of cotton soaked with alcohol is applied with a proper protective over it; this latter is pierced with holes or slits so as to allow evaporation of the alcohol and prevent any caustic action. The dressing is kept in place for twenty-four hours and must be renewed daily for some days after the disappearance of all tumefaction.

To Examine Medical Students.—Springfield, Ill., August 31.—The Illinois State Board of Health has issued a call for examinations to be held in Chicago, September 16 and 17, of all matriculates in medical colleges not graduates of some literary institution. The branches used in examinations are reading, writing, grammar, geography, arithmetic, composition, elementary physics and United States history. The questions are furnished by the faculty of the State University, who will rate the papers and issue certificates to successful applicants. These examinations have heretofore been

conducted by the faculty of different medical colleges. The State Board decides that every applicant for matriculation should submit to the same examination conducted by disinterested persons.

The regulation, while in some respects desirable, would have been in better taste if this institution were not the identical one that had a somewhat shady project on foot to buy for the State one of the medical colleges of the city. As the President of the Board of Health favored the scheme, and was at the same time a member and alleged stockholder of the medical college in question, this action, taken after the colleges not in the secret had already issued their announcements, smacks of favoritism and should be revoked.

Dr. John S. Billings, U. S. Army.—*L'Union Médicale* of August 31, says: "Surgeon-General Billings, of the United States Army, has asked to be retired in the month of October. This very distinguished confrère will leave the Army Medical Museum, of which he is administrator, and the library of the Surgeon-General's office, of which he is librarian, institutions which have been made what they are by his ability and devotion.

Before taking his retirement Surgeon-General Billings hopes to terminate the last volume of the Index Catalogue, an immense and precious work for which the entire medical profession should be grateful to the Government of the United States, its Army Medical Department, and above all to Dr. John Shaw Billings. In retirement Dr. Billings will not cease to work. He has accepted the Chair of Hygiene at the University of Pennsylvania.

Clinical and Bacteriologic Researches on Osteomyelitis.—Carrow has studied seventy cases of osteomyelitis from a clinical and bacteriologic point of view—thirty-one acute the rest chronic. The age of the patients with the acute variety was from nine months to 20 years; with the chronic from 3 to 22 years. Thus the disease seems to be one of youth. In these cases the disease had lasted from four days to four weeks before surgical intervention. The length of time influences the character of the exudate, which is sometimes mucous, sometimes muco-purulent, sometimes altogether purulent. Of the thirty-one acute cases both limbs were involved fifteen times, and six times in the thirty-nine chronic cases. In twenty cases it was possible to trace the source of infection either to an infectious disease, a suppurating wound, an ulcer of the leg, or a carious tooth. The rôle of dental caries was proved by the identity of the organisms in the teeth and in the osseous lesion. The pus was examined in twenty-six cases; in eleven the *S. aureus* was found; in six the *S. albus*. In thirteen cases the blood was examined with nine positive results. In these cases a large number of staphylococci were found beside a number of streptococci. Pus from an osteomyelitic foyer containing staphylococci injected into animals in many cases produced osteomyelitis. The same experiments with the colon bacillus, Eberth's bacillus and Löffler's bacillus were negative. With the streptococcus it was possible to cause medullary abscesses in animals. Immunizing animals with serum from the osteomyelitic ones or with weak cultures succeeded in a certain measure. The serum appeared to confer a greater immunity than the cultures against staphylococci of medium virulence; but both were powerless against staphylococci of increased virulence from passage through a successive series of animals.¹

Trendelenburg's Method for Varicose Veins.—Trendelenburg's researches on the formation and growth of varicose veins in the lower limbs have shown that the trouble lies, not in the difficulty which the blood experiences in circulating in the veins, but in the pressure of the column of blood heaped up above—that is, in the saphenous vein, a column whose weight rests on the peripheral veins on account of the weak valves of the saphenous. Trendelenburg's method—ligature of the saphenous at the upper part of the thigh—is based on this theory. Perthes, operating on forty-one cases, had thirty-

two definitive cures. He had some relapses, due to the vein becoming permeable again some time after the operation; consequently, the author recommends resection of a few centimeters of the vessel. The successes of this method are remarkable—not only for the effect they have on the disappearance of pain, but also for the improved local conditions. Varicose ulcers were notably ameliorated in a short time by ligature of the saphenous. This method appears worthy of adoption; its advantage over Madelung's method—extirpation of the varices—consists in the much greater facility with which it may be performed.¹

Damages Recoverable for Breach of Contract for Sale of Practice.—The losses recoverable on breaches of contract are those directly connected with and arising from the breach. In case of the breach of contract for the sale of an established business, and its good will, damages may be given on proof of the diversion of the business from the purchaser, or the basis for damages might be furnished by proof of acts or conduct on the part of the vendor causing loss of the business to the purchaser, entitled to all the income, and to the aid of the vendor in securing the income. But for the breach of a contract of sale of a physician's practice, the Supreme Court of Louisiana holds (*Rigney v. Monette*, decided March 25, 1895) that damages for the amount the purchaser claims he would have made from professional practice given up, relying on the contract, do not arise from the breach complained of, and are not within the measure of damages fixed by the law in such cases.

Rivals of the Doctor.—A French physician figures out in *La Médecine Moderne* that the doctor is lucky if he sees one sick person in five, and that, as things now go, of all human beings doctors will soon be those who will see the fewest sick people. What with the strong-minded individual who does not believe in doctors, but "knows it all" himself; the mother, grandmother and mother-in-law, each of whom doctors all the children, big and little; the water-, faith-, mind- and other "curists"; the volunteer, who has an "infallible remedy" for every ailing friend and acquaintance; and, finally, the prescribing druggist—it is doubtful if even one in five of the sick reach the doctor's office or ever send for him. He concludes that "the medical profession, which certainly ranks far above many other callings, is in reality a very inferior one in regard to material things, and from this point of view many trades necessitating manual labor often soar far above it. If we want a coat we can not do without the tailor, nor without the shoemaker for a pair of boots; yet in that which appertains to the art of healing any ignoramus can be a formidable rival to us; so that not only have we, in the race of life, come to struggle against other medical men, but also against a multitude of individuals with various crotchets who enrich themselves by filching the fees out of our very pockets."

American Medicine's "Chief Ornament" in Edinburgh.—According to a personal note in *Leslie's Weekly*, August 29, Dr. Mitchell, of Philadelphia, has fallen heir to the mantle of Dr. Holmes—in the estimation of the Scotsmen—for it says, in effect, that the doctorate of laws recently conferred on Dr. S. Weir Mitchell, of Philadelphia, by the University of Edinburgh, is the second he has received, the first coming from Harvard; but it was left for the Scotch university to do him the extraordinary honor of referring to him as the "chief ornament to medical science in the New World." In addition to his great attainments as a physiologist, Dr. Mitchell has the unique distinction of maintaining a practice in London as well as in Philadelphia. He is one of the numerous physicians of celebrity, of whom Smollett and Oliver Wendell Holmes were examples, who have excelled in letters as well as medicine. Dr. Mitchell is well known both as poet and as novelist, and it is not unlikely that a "run" on one of his books would have pleased him even more than the Edinburgh degree.

¹ Rev. Int. de Med. et Chir. Prat. No. 15, 1895.

¹ Gaz. Med. de Paris, No. 28, 1895.

Bellevue Hospital.—The Commissioners of Public Charities and Corrections have lately asked the members of the Fourth Division of Bellevue Hospital to form an organization for the purpose of giving instruction to graduates and third year students. The medical staff of the Fourth Division consists of Drs. C. L. Dana, George B. Fowler and Alex. Lambert. The surgical staff consists of Drs. J. W. S. Gouley, Chas. Phelps and W. F. Fluhrer. The gynecologist is W. Gill Wylie. The following communication, from the commissioners, and the answer thereto are given for the information of the profession:

DEPARTMENT OF PUBLIC CHARITIES AND CORRECTION, COMMISSIONERS' OFFICE.

NEW YORK, Sept. 3, 1895.

Gentlemen:—I am directed to transmit the following proceedings of the Board, at a meeting held this day:

Resolved, That the seven members of the Fourth Division of Bellevue Hospital be requested to form, without delay, an organization for practical instruction to graduates in medicine and third year students, in the hospital and the bureau of medical and surgical relief for out-door poor.

Resolved, That the members of the fourth division shall be empowered to draw, from the institutions subject to the division, all necessary clinical material.

Resolved, That the commissioners will heartily coöperate with the fourth division in carrying out the scheme of instruction.

Resolved, That certificates issued, to those who shall have attended instruction, and signed by the seven members of the fourth division, shall be countersigned by the commissioners, and shall bear the seal of Bellevue Hospital.

By order,

G. F. BRITTON, Secretary.

NEW YORK, Sept. 6, 1895.

To the Commissioners of Public Charities and Correction:

Gentlemen:—At a meeting of the Fourth Division of Bellevue Hospital, held on the fourth day of September, your communication was presented and read. The members of the division desire to express their high appreciation of the step you have taken, in the interest of the hospital and of the people at large, in thus adding to the usefulness of the vast amount of clinical material in Bellevue. They have therefore resolved to accept your invitation to become a teaching corps, have formed the organization which you requested, and have further resolved to begin, on or about the first of October, the courses of instruction instituted by your honorable board. Each course of instruction shall continue six weeks, and not less than five courses shall be given annually.

Very respectfully,

479 Fifth Avenue.

W. F. FLUHRER, M.D., Secretary.

The Kings County Hospital, New York.—A legislative committee has recently been investigating certain charges against the management of the public institutions, for the pauper sick and insane, in the county called Kings, of which the great city of Brooklyn is the center. Since the temporary adjournment of the inquiry, a report by the medical officers of these institutions has been drawn up, a part of which is quoted below so far as it relates to the county hospital above named. The report, addressed to the commissioners of charities who are in charge of the county buildings, is a kind of half-hearted attempt to meet, without answering, the charges that have been made year after year in about the same tenor, but without any material or permanent advantage.

The charges set forth that the hospital was overcrowded, uncleanly, unsanitary, and that drunkenness and abuse of patients by male nurses were common. The report, after setting out the objects of the physicians' investigations, as stated above, says:

"Overcrowding. This hospital of thirty years ago is compelled to receive all comers, residents of the county, suffering from no matter what disease (contagious diseases alone excepted). The building is compelled to shelter more than double the number of patients it was intended to accommodate. The hospital is overcrowded, and must remain so until the authorities of Kings County either enlarge the present building to double its size or, what the staff considers a better plan, build a new hospital elsewhere.

"Uncleanliness. Uncleanliness is not an unnatural result of overcrowding, nevertheless the staff have been surprised at the cleanliness of the institution. The wards and corridors are as clean as paint, kalsomine, soap and water can make them, as visitors can easily see for themselves.

"Unsanitary condition of buildings. The plumbing itself is in very fair condition, apart from its location in the wards.

"Nurses. With regard to the nursing at the hospital, it is as good as can be expected under a system which does not provide for a training school.

"Night service. In regard to having a medical officer on duty at night, it may be said that the internes at the hospital are on duty continuously and answer night calls as promptly as day calls.

"Visiting staff. As the present staff have made during the last year over sixteen hundred visits to the hospital it can hardly be said that the patients have lacked proper medical or surgical treatment. Constantly diminishing appropriations, however, have forbidden anything more than temporary repairs for a number of years."

Have We Too Many Doctors?—Our contemporary, the *Medical News*, in its issue of July 27, editorially discusses the comparative standing of the American medical profession; and, among other wise and timely remarks, refutes the trite and senseless charge that, because its numbers are disproportionately large, therefore the quality of the profession must be poor. It is pointed out there are other factors to be taken into consideration beside that involved in the statement that this country has 1 physician to every 500 inhabitants, while England has only 1 to 2,000, France 1 to 3,000, Germany 1 to nearly 4,000, and Spain and Russia 1 to 7,000 of population. There is the law of supply and demand for one thing, and the density of population for another. One competent physician, says the *News*, is probably capable of properly performing the medical services required by 1,500 or 2,000 people—provided, that they live within a radius of three miles of his office; and for an even larger number within a mile. But what about the district where he would have to drive forty miles to reach 500 people? A physician is as absolute a necessity to a "cowboy" town or mining-camp of 300 people, with no other medical aid within fifty miles, as to a factory town of 5,000. Indeed, many a "superfluous," poorly educated, uncouth country doctor, out on the frontier, with his clientele scattered over two counties, who loves his patients and profession, commands as much of our admiration and respect, deserves as well of his country and is as "necessary" in every way and sense of the term as the most scholarly and polished consultant of a European center. If we were to divide this country and England each into geographic settled districts, each requiring the residence of a physician, nearly two-thirds of our "excess of doctors" would disappear at once. Furthermore, it is argued, "the number of physicians is a good index of the intelligence of a race. And as civilization becomes more complex and the whole field of preventive medicine—scarcely surveyed as yet—is added to our domain, a still higher proportion of skilled, intelligent advisers will be demanded by the community."

Hospital Notes.

GROUND has been broken at Kankakee, Ill., for a \$10,000 emergency hospital building. The institution, although a private one, will be under the charge of Sisters of Charity. —It has been stated that over \$5,000 has been subscribed for the erection of the proposed German Hospital at Buffalo, N. Y.—Work has been begun upon the new wing of the Buffalo General Hospital.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended August 31, is as follows: number of deaths (still-births not included): white, 59; colored, 52; total, 111. Death rate per 1,000 per annum, white, 16.71; colored, 31.08; total, 21.41. Death rate per 1,000 per annum for corresponding week last year, 16.78. Still-births: white, 2; colored, 6; total, 8.

GARBAGE DISPOSAL.—After many months of investigation and study by the Health Officer and the Commissioners, the question of garbage disposal in the District is at last settled. It is to be destroyed by cremation and the "Smith furnace" is the one adopted as being the most satisfactory. The question of location of the plant is now the all absorbing item. As usual, protests and indignation meetings are springing up, opposing any location suggested by the authorities.

REPORT OF THE WOMAN'S DISPENSARY.—The report of Dr. Magruder Muncaster, secretary of the Woman's Dispensary, for the past fiscal year states that the allowance from the Commissioners is \$500, and that the amount received from other sources is \$362.25, making a total of \$862.25. Out of a little less than that the dispensary has compounded and given away 4,099 prescriptions; treated 123 male and 1,060 female medical cases, 52 male and 189 female surgical cases, made 816 external applications and attended 3,568 patients. While the dispensary has sufficient wards for the accommodation of many who require hospital treatment, it is a source of regret that it has been compelled to close the hospital portion for several years, owing to lack of funds to pay for nurse hire and provide proper food. For this purpose there is asked an increase of \$1,000 in the appropriation.

REPORT OF THE U. S. HOSPITAL FOR INSANE (ST. ELIZABETH).—The fortieth annual report of the board of visitors to the Government Hospital for the Insane has been received at the Interior Department. The admissions during the past fiscal year were 371, more than ever before except during the last two years of the war. The whole number under treatment, 2,052, is larger than ever before. The recoveries during the year were 98 and deaths 179. A mortality of 10.73 per cent. of the average number of inmates and 8.72 per cent. of the whole number under treatment. More than half the sickness is charged to the flats of the eastern branch of the Potomac, which lie exposed to the sun. Additional buildings are now under construction, which will relieve the present crowding. The estimates for current expenses during the coming fiscal year are \$368,500, divided between the District appropriation and the sundry civil bills in the proportion of \$104,049 to the former and the remainder to the latter. This is on the basis of \$220 per capita for an average of 1,675 inmates. The other appropriations recommended are as follows: general repairs, \$20,000; rebuilding shops, \$7,000; laboratory extension, \$1,500; electric fans and resistance coils, \$6,000; heating apparatus for new buildings, \$4,500; renewing and fireproofing floors, \$2,500; kitchen and dining rooms, \$2,400. The extension of the laboratory is necessary for the important pathologic work, which is being carried on in connection with the treatment of the inmates.

WATER METERS TO BE USED.—The Commissioners have decided that all large consumers of water shall use meters, after October 1 next. The rates will be 3 cents per each thousand gallons, payable quarterly. A number of rules and regulations have been adopted with penalties for their violation. The principal penalty is the cutting off of the water and a \$2 charge for turning it on afterward.

AGRICULTURAL CHEMISTS ASSOCIATION.—About sixty government chemists met during the week at the lecture room of the National Museum. It was the Association of Official Agricultural Chemists, and included many of the State chemists of the various States, beside a large number of other government workers and those interested in agricultural education. The meeting was called to order by H. A. Huston, the president. The object of the Association is to secure uniformity and accuracy in the modes and methods and statements of analyses relating to fertilizers, soils, cattle foods and dairy products. The annual meeting usually lasts three days, and is made the time for presenting papers of general interest to the members. The Secretary of Agriculture was present at the opening and made a short but instructive address.

REPORT OF THE WASHINGTON HOSPITAL FOR FOUNDLINGS.—Dr. Z. T. Sowers, President of the Washington Hospital for Foundlings, yesterday submitted his report. He states that the average number of children during the year was thirty-four. The expenses have been greatly increased and the directors ask that the appropriation for 1896-97 be increased to \$7,000, as the indications are that the number

of applications for admission will be greatly in excess of any previous year. Attention is called to the fact that there were twenty-three deaths during the year, while during the year ending June 30, 1894, there were thirty-four deaths.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 31, 1895, to September 6, 1895.

Leave of absence for two months, to take effect on or about September 15, 1895, is granted Captain William C. Gorgas, Assistant Surgeon.
1st Lieut. Alexander S. Porter, Assistant Surgeon, is relieved from duty at Fort Keogh, Montana, to take effect on the expiration of his present sick leave, and ordered to Fort Huachuca, Arizona, for duty.
Major Joseph K. Corson, Surgeon, granted leave of absence for two months.
Captain Leonard Wood, Assistant Surgeon, is relieved from duty at Fort McPherson, Georgia, and ordered to report in person to the Attending Surgeon in this city, for duty as his assistant.
Captain Marlborough C. Wyeth, Assistant Surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Arkansas, and ordered to Fort Huachuca, Arizona, for duty.
Captain Julian M. Cabell, Assistant Surgeon, upon the expiration of his present sick leave, will be relieved from duty at Washington Barracks, D. C., and ordered to report to the Surgeon-General.
1st Lieut. Frank T. Meriwether, upon the expiration of his present sick leave, will be relieved from duty at San Diego Barracks, California.
1st Lieut. Charles E. B. Flagg, Assistant Surgeon, upon his return from duty in the field, will be relieved from duty at Angel Island, California, and ordered to Fort Hancock, Texas, to relieve 1st Lieut. Francis A. Winter, Assistant Surgeon. 1st Lieut. Winter, on being thus relieved, is ordered to Fort Grant, Arizona, for duty, relieving 1st Lieut. George M. Wells, Assistant Surgeon. Lieut. Wells, on being thus relieved, is ordered to Fort Mason, California, for duty, relieving Captain William L. Kneedler, Assistant Surgeon. Captain Kneedler, on being thus relieved, is ordered to San Diego Barracks, California, for duty.
Captain Walter D. McCaw, Assistant Surgeon, is relieved from duty at the Presidio of San Francisco, California, and ordered to Fort Ringgold, Texas, for duty, relieving 1st Lieut. Champe C. McCulloch Jr., Assistant Surgeon. Lieut. McCulloch, on being thus relieved, will report in person to the Commanding Officer, Army and Navy General Hospital, Hot Springs, Arkansas, for duty at the Hospital.
1st Lieut. George M. Wells, Assistant Surgeon, granted leave of absence for two months, to take effect on his relief from duty at Fort Grant, Arizona.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the sixteen days ended August 31, 1895.

Surgeon John Vausant granted leave of absence for thirty days, August 24, 1895.
Surgeon W. H. H. Hutton detailed as chairman board for physical examination of officers revenue cutter service, August 22, 1895.
Surgeon Fairfax Irwin detailed as chairman board for physical examination of candidates revenue cutter service, August 30, 1895.
P. A. Surgeon C. E. Banks detailed as member board for physical examination of candidates revenue cutter service, August 30, 1895.
P. A. Surgeon G. B. Young, upon expiration of leave of absence, to report at Bureau for temporary duty in laboratory, August 28, 1895.
P. A. Surgeon B. W. Brown detailed as recorder board for physical examination of candidates revenue cutter service, August 30, 1895.
E. K. Sprague detailed as recorder board for physical examination of officers revenue cutter service, August 22, 1895.
Ast. Surgeon J. B. Greene to proceed from Washington, D. C., to Wilmington, N. C., for temporary duty, August 22, 1895.

LETTERS RECEIVED.

Ashmead, A. S., New York, N. Y.; Antikamnia Chemical Co., St. Louis, Mo.; Atlantic Medical Weekly, Providence, R. I.; Atwood, H. M., Grand Rapids, Mich.
Bleyer, J. Mount, New York, N. Y.; Brunder, Geo., Milwaukee, Wis.; Boody, Geo., Kankakee, Ill.; Brenner, F. T., Quincy, Ill.
Coolidge, F. S., Chicago, Ill.; Christison, J. S., Chicago, Ill.; Chamberlain, Geo. L., Bessemer, Mich.; Currie, M. L., Ailey, Ga.; Chandler, H. S., New York, N. Y.; Cone, Andrew, New York, N. Y.; Cochran, Jerome, Montgomery, Ala.; Carpenter, J. W., Omena, Mich.
Davis, Wm. H., Colorado Springs, Colo.; Darr, H. H., Caldwell, Texas.
Elliott, A. R., Chicago, Ill.; Evening Herald Co., Binghamton, N. Y.; Edwards, J. B., Milwaukee, Wis.
Gardner, C. R., Hadley, N. Y.; Gardner, R. W., New York, N. Y.; Gal-lowsay, D. H., Chicago, Ill.
Hummel, A. L., (3) New York, N. Y.; Hyatt, B. F., Ottumwa, Iowa; Hal-deustein, L., New York, N. Y.
Johnson, H. L. E., Washington, D. C.; Jenks, Ernst, P., North Brook-field, Mass.; Jordan, S. N., Columbus, Texas; Jelks, J. T., Hot Springs, Ark.
Keuon News & Postal Subscription Co., Chicago, Ill.
Lamb, D. S., Washington, D. C.; Levings, A. H., Milwaukee, Wis.; Le Hardy, J. C., Savannah, Ga.
Mayo, E. L., De Kalb, Ill.; Moorhead, E. L., Chicago, Ill.; Messman, Hugo, Milwaukee, Wis.; Macey, The Fred Co., Grand Rapids, Mich.; McFarland, D. W., Waterbury, Conn.
Newman, H. P., Chicago, Ill.; Nelson, D. E., Chattanooga, Tenn.; Nolan, E. C., Mt. Pulaski, Ill.; Nutrice, The Food Co., Reading, Pa.
Prentiss, J. H., Ann Arbor, Mich.; Pepper, Wm., Newport, R. I.; Parke, Davis & Co., Detroit, Mich.
Ridlon, J., Chicago, Ill.
Sears, H. B., Beaver Dam, Wis.; Schimmel, M. S., Baltimore, Md.; Smith, A. A., Washington, D. C.; Scollard, W. E., Milwaukee, Wis.; Stearns, F., Detroit, Mich.; Subscription News Company, Chicago, Ill.; Scribner's, Chas. Sons, New York, N. Y.; Snickland, W. P., New York.
Timpany, R. H., (2) Toledo, Ohio.
Vowinkel, F. W., San Francisco, Cal.
Wyman, Hal. C., Detroit, Mich.; Whitford, Wm., Chicago, Ill.; Würde-man, H. V., Milwaukee, Wis.; Westerveldt, J. D., Alice, Texas; Web-bar & Bigner, Mansfield, Ohio; Wilcox, Geo. A., Augusta, Ga.; Wakefield W. H., Charlotte, N. C.; Wilson, J. C., Philadelphia, Pa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, SEPTEMBER 21, 1895.

No. 12.

ADDRESSES.

SUICIDE AS A MENTAL EPIDEMIC.

Read before the Medico-Legal Congress, at New York City, Sept. 5, 1895.

BY FORBES WINSLOW, M.B. AND LL.M. CANTAB., D.C.L.
OXON., M.R.C.P. LOND.

SENIOR PHYSICIAN TO THE BRITISH HOSPITAL FOR MENTAL DISORDERS,
EUSTON ROAD, LONDON; LATE LECTURER ON INSANITY,
CHARING CROSS HOSPITAL, LONDON.

The question of suicide is one which for some time has occupied public attention. During the present year, in consequence of the alarming increase of suicide, I have decided to choose this subject for our consideration, hoping that perhaps what I shall place before the society may prove of interest to its members and draw their serious attention to a grave question.

All human actions are under the influence and power of example more than precept, and consequently self-destruction has often been justified by an appeal to the laws and customs of past ages. An undue reverence for the authority of antiquity induces us to rely more upon what has been said or done in former times than upon the dictates of our own feelings and judgment. Many a mistaken individual has formed the most extravagant notions of honor, liberty and courage, and, under the impression that he was imitating the example of some ancient hero, has sacrificed his life. He may possibly urge in his defense that suicide has been enjoined by positive laws and allowed by ancient custom; that the greatest and bravest nation in the world practiced it, and that the most wise and virtuous sect of philosophers taught that it was an evidence of courage, magnanimity and virtue. The force of example is one which appeals to the mind of certain individuals, but is in itself based solely on a fallacy.

No inferences deduced from the consideration of the suicides of antiquity apply nowadays, as we live under a Christian dispensation. Our notions of honor, of death, and of courage are in many respects so dissimilar from those which the ancients entertained that the subject of suicide is placed entirely on a different basis. History is replete with examples of moral and criminal epidemics during the past centuries. The force of example and imitation is very great among a certain class of our humanity.

The fourth century is remarkable for the rapid increase and spread of superstition, the reinstitution of image worship, the adoration paid to relics, and the many pious frauds of the so-called monks; the fifth century for the epidemic of climbing to the top of heights and there remaining. Simon, a monk, adopted as a mark of sanctity the singular device of spending thirty-seven years of his life on the top of a high pillar. Led by a false adoration and utterly ignorant of true religion, the inhabitants of Syria and Palestine followed the example of this fanatic

and, what is more incredible, this practice continued in vogue until the twelfth century. The rise and spread of Mohammedanism in the seventh century is one of the most remarkable instances of the rapid propagation of ideas and principles.

STRANGE FANCY IN TENTH CENTURY.

In the tenth century a very strange fancy seized upon men's minds. They imagined that the end of the world was close at hand, and multitudes forsook their daily vocation, both civil and domestic, and gave their property to the church, and repaired to Palestine, where they imagined that when the end did come they would be in greater safety. An eclipse of the moon or of the sun was considered as the immediate precursor of the end of all things, and many tried to bribe the Deity by great gifts to the church. In a word, no language is sufficient to express the confusion and despair which tormented the minds of miserable mortals on this occasion. Consequent upon this we have, perhaps, the most extraordinary epidemic for which fanaticism ever is responsible, for vast multitudes left for the Holy Land, and not a meteor fell across the skies but sent whole hordes on the same delusive errand. Scarcely had this excitement departed when the plague, or black death, of the fourteenth century, set in, which appeared in 1333, in China, and passing over Asia westward, and over Europe and Africa, carried off about one-fourth of the population. In Europe it is supposed that 25,000,000 fell victims to this dire pestilence. All epidemic diseases have their moral aspect, and this one was attended by a constellation of fanaticisms and delusions such as man had never witnessed before or since. The specific moral aberrations connected with this period were:

1. The rise and spread of the flagellants, or whippers.
2. The wholesale murder of the Jews on the suspicion of having poisoned the water.
3. The dancing mania.

In Mayence alone, 1,200 Jews were slaughtered by the flagellants, and with this epidemic was associated witchcraft, which then existed and was gradually increasing. The dancing mania in 1374 consisted in persons joining hands and jumping about frantically for hours together, and falling down ultimately in a state of exhaustion. This epidemic was tried during this century in the form of the "Shakers" in the New Forests, but so far as my recollection goes, the best antidote to the revived nonsense was the police court of the district, which evidently had the desired effect.

In the sixteenth century demonomania existed largely, a belief that they were possessed by the devil, and many were burned at the stake in consequence. Our present century has been full of epidemics of one sort or another. I will just name, *en passant*, spiritualism. There are three kinds of individuals

who believe in this, but, not desiring on this occasion to begin a controversy on the subject, I will not refer to them.

Incendiarism, infanticide, kleptomania, homicide and suicide have all during this century been epidemic at one time or another, the force of imitation being so great, and acting prejudicially on weak-minded persons or on those predisposed to mental disorders. In the time of the Ptolemies, a Stoic philosopher preached so earnestly and eloquently on the contempt of life and the blessings of death that suicides became frequent. The ladies of Miletus committed suicide in great numbers because their husbands and brothers were detained at the wars. At Lyons there was an epidemic of drowning among the women. No cause could be assigned for this. It was ultimately checked by the order of the authorities that the bodies of all who drowned themselves should be publicly exposed in the market place. The epidemic was stopped at Miletus by a similar device.

REASONS FOR THIS YEAR'S EPIDEMIC.

An order was made that the bodies of those who hanged themselves should be dragged through the town by the same rope with which they had accomplished their purpose. At Rouen, in 1806, at Stuttgart, in 1811, and at the Valois, in 1813, there are histories of suicide as a powerful epidemic. In 1844 there was an epidemic of voluntary mutilation in the French army, numbers of soldiers being self-mutilated and for no reason. Suicide from poison has often occurred epidemically.

Having thus shown that suicide has during various ages been connected with an epidemic, I would draw the attention of this society to the fact of the recent epidemic which has taken place during the present year, especially during the spring of the year, the alarming character of which is my excuse for drawing your attention to the question of suicide to-day. Speaking generally, the reasons for this epidemic appear to me to be as follows:

1. The great publicity given by the press in publishing revolting details of crime and trials, thus reacting perniciously in the minds of weak-minded persons.

2. Insufficient power of the legislature in suppressing such publicity.

3. The liability to act epidemically in the same way as I have previously mentioned in past ages.

To the medical philosopher nothing can be more deeply interesting than to trace the reciprocity of action existing between different mental conditions and affections of particular organs. Thus the passion of fear, when excited, has a sensible influence on the action of the heart; and when the disease of this organ takes place independently of any mental agitation, the passion of fear is powerfully roused. Anger affects the liver and frequently gives rise to an attack of jaundice; and in hepatic and intestinal disease, how irritable the temper is!

Hope, or the anticipation of pleasure, affects the respiration; and how often do we see patients in the last stage of pulmonary disease entertaining sanguine expectations of recovery to the very last!

As the passions exercise so despotic a tyranny over the physical economy, it is natural to expect that the crime of suicide should often be traced to the influence of mental causes. In many cases it is difficult

to discover whether the brain, the seat of the passions, is primarily or secondarily affected. Often the cause of irritation is situated at some distance from the cerebral organ; but when the fountain head of the nervous system becomes deranged, it will react on the bodily functions, and produce serious diseases long after the original cause of excitement is removed.

It is not our intention to attempt to explain the *modus operandi* of mental causes in the production of suicidal disposition. That such effects result from an undue excitement of the mind can not for one moment be questioned. Independently of mental perturbation giving rise to maniacal suicide, there are certain conditions of mind, dependent upon acquired hereditary disposition, or arising from a defective expansion of the intellectual faculties, which originate the desire for self-destruction.

SOME CAUSES FOR SUICIDE.

Some idea of the influence of certain mental states on the body will be obtained by an examination of the various tables which have been published, in this and other countries, respecting the causes of suicide, so far as they could be ascertained. The table for London is as follows:

Indication of Causes.	Men.	Women.
Poverty	905	511
Domestic grief	728	524
Reverse of fortune	322	283
Drunkenness and misconduct	287	208
Gambling	155	141
Dishonor and calumny	125	95
Grief from love	97	157
Disappointed ambition	122	410
Wounded self-love	53	53
Envy and jealousy	94	53
Remorse	49	37
Fanaticism	16	1
Misanthropy	3	3
Causes unknown	1,381	377
Total	4,337	2,853

According to a table formed by Falret of the suicides which took place between 1794 and 1823, the following results appear: of 6,782 cases, 254 were from disappointed love, and of this number 157 were women; 92 were from jealousy, 125 from being calumniated, 49 from a desire without the means of vindicating their characters, 122 from disappointed ambition, 322 from reverses of fortune, 16 from wounded vanity, 155 from gambling, 288 from crime and remorse, 723 from domestic distress, 905 from poverty, 16 from fanaticism.

In considering the influence of mental causes, we shall, in the first instance, point out the effects of certain passions and dispositions of the individual on the body; then investigate the operations of education, irreligion, and certain unhealthy conditions of the mind which predisposes the individual to derangement and suicide.

There is no passion of the mind which so readily drives a person to suicide as remorse. In these cases there is generally a shipwreck of all hope. To live is horror; the infuriated sufferer feels himself an outcast from God and man; and, though his judgment may still be correct upon other subjects, it is completely overpowered upon that of his actual distress, and all he thinks of and aims at is to withdraw as much as possible from the present state of torture, totally regardless of the future.

In England the great majority of the cases of insanity among women in our establishments devoted to

the reception of the insane, can clearly be traced to unrequited and disappointed affection. This is not to be wondered at if we consider the present artificial state of society. We make "merchandise of love;" both men and women are estimated not by their mental endowments, not by their moral worth, not by their capacity of making the domestic fireside happy, but by the length of their respective purses. Instead of seeking for a heart, we look for a dowry. Money is preferred to intellect; pure and unadulterated affection dwindles into nothingness when placed in the scale with titles and worldly honors.

JEALOUSY A MIND DISTURBER.

Few passions tend more to distract and unsettle the mind than that of jealousy. Insanity and suicide often owe their origin to this feeling. One of the most terrific pictures of the dire effects of this "green-eyed monster" on the mind is delineated in the character of Othello. In the Moor of Venice we witness a fearful struggle between fond and passionate love and this corroding mental emotion. Worked upon by the villainous artifices of Iago, Othello is led to doubt the constancy of Desdemona's affection. The very doubt urges him almost to the brink of madness; but when he feels assured of her guilt and sees the gulf into which he has been hurled, and the utter hopelessness of his condition, he abandons himself to despair.

The great increase of the crime of suicide has been referred by many able physicians of the present day to the political excitement to which the minds of the people have been exposed of late years. In despotic countries suicide and insanity are seldom heard of. The passions are checked by the nature of the government, the imagination is not elevated to an unhealthy standard, every man is compelled to follow the calling in life to which he was born and for which he had capacity, and on this account the evil and corrupt dispositions of the mind are to a certain extent kept in abeyance. In republican governments the greatest latitude is allowed to the turbulent passions; all mankind are theoretically placed on an equality, the man "whose talk is of bullocks" considers himself as fit to carry on the complicated business of government as he whose education, associations and experience tend to qualify him for the duties of a legislator.

In proportion as men are exposed to the influence of causes which excite the passions, so will they become predisposed to mental derangement in all its forms. The French and American Revolutions increased considerably the crime of suicide. It has been said that during the Reign of Terror statistical evidence does not show that self-murder was more common than at any other period. Perhaps the alleged infrequency of suicide may be attributed to the circumstance of the French people having been so busy killing others that they had no time to think of killing themselves.

More than the average number of suicides may not have really occurred during the crisis of the Revolution, but it is an undisputed fact that before and after that political convulsion, self-destruction prevailed to an alarming extent. Disappointed hopes, wounded pride and vanity, blighted ambition, loss of property, death of friends, disgust of life, all came into active operation after the turbulence and bloodshed of the Revolution had somewhat subsided.

These passions working upon minds easily excited, and not under the benign influence of religion, it is almost natural to expect that great recklessness of life should be exhibited. Such facts demonstrate to us the folly of uselessly exciting the passions of the people, and raising in their minds exaggerated expectations from political changes.

There is no more frequent cause of suicide than visceral derangement, leading to melancholia and hypochondriasis. It has been a matter of dispute with medical men whether hypochondriacal affections have their origin in the mental or physical portion of the economy. Many maintain that the mind is the seat of the disease, others that the liver and the stomach are primarily affected, and the brain only secondarily. In this disputed point, as in most others, truth will generally be found to lie between the two extremities. That cases of hypochondria and melancholia can clearly be traced to purely mental irritation can not for one moment be disputed, and that there are many instances in which the derangement appears to have commenced in one of the gastric organs is equally self-evident. Whatever may be the origin of these affections, there can be no doubt of their producing the most disastrous consequences.

HEREDITARY CHARACTER OF SUICIDE.

With reference to suicide, there is no fact that has been more clearly established than that of its hereditary character. Of all diseases to which the various organs are subject there are none more naturally transmitted from one generation to another than affections of the brain. It is not necessary that the disposition to suicide should manifest itself in every generation. It often passes over one and appears in the next, like insanity unattended with this propensity. But if the members of the family so predisposed are carefully examined, it will be found that the various shades and gradations of the malady will be easily perceptible. Some are distinguished for their flightiness of manner, others for their strange eccentricity, likings, and dislikings, irregularity of their passions, and excitable temperament, hypochondriasis and melancholia. These are often but the minute shades and variations of a hereditary disposition to suicidal madness.

A gentleman suddenly, and without any apparent reason, cut his throat. The father had always been a man of strong passions, easily roused, and when so was extremely violent. The brother was a man of impulse; he always acted by fits and starts, and therefore never could be depended upon. The sister had a strange, unnatural, and superstitious horror of particular colors and odors. A yellow dress caused a feeling approaching to syncope, and the smell of hay produced great nervous excitement. The grandfather had been convicted of homicide, and had been confined for over two years in a mad-house. Andral relates the case of a father who died from the effects of disease of the brain; the mother died sane. They had six children, three boys and three girls. Of the boys, the oldest was a man of original mind; the second was very extravagant in his habits, and was ultimately confined in a mad-house; the third was extremely violent in his temper. Of the girls, one had fits of apoplexy; one became insane; the third died of cholera, not, however, until she exhibited indications of mental aberration.

A case more singular than the last is recorded. All

the members of a particular family being hereditarily disposed, exhibited, when they arrived at a certain age, a desire to commit self-destruction. It required no exciting cause to develop the fatal disposition. No wish was expressed nor attempt made to overpower the suicidal inclination, and the greatest industry and ingenuity were exercised by the parties to effect their purpose. In two cases the propensity was subdued by proper medical and moral treatment, but, just in proportion to its being suppressed did the idea of suicide appear to fix itself resolutely in the mind. The desire came upon the individual like the attacks of intermittent fever.

A. K., a man aged 57, was twice married. He was a shoemaker by trade, but, not having received any education, his wife was compelled to keep all his accounts. He had experienced, when young, a blow on the head, which occasionally gave him pain. He became very intemperate in his habits, and at particular intervals he exhibited an uncontrollable temper, quarreled with everybody, neglected his business, abused his wife, and became extravagant and melancholy. During the paroxysm he would exclaim: "Oh, my unlucky head! I am again a lost man!" When the attack subsided he returned to his business, was affectionate to his wife and family, most humbly begged for her pardon for having ill-treated her, and expressed the greatest contrition for his conduct. These attacks came at regular intervals. He procured a piece of rope for the purpose of hanging himself, and for some months carried it about with him in his pocket for that purpose. During one of his fits he effected his object. His grandfather had strangled himself, and his brother and sister had attempted suicide.

DANGEROUS EFFECT OF FALSE PRIDE.

A common cause of suicide is a feeling of false pride. Owing to the ridiculously false views which are taken of worldly honors, the idea which a sickly sentimentality infuses into the mind, this feeling is engendered, to an alarming extent, through the different ranks of society. This constitutes one great element which is undermining and disorganizing our social condition. A fictitious value is affixed to wealth and position in the world; it is estimated for itself alone, all other considerations being placed out of view.

We can not conceive how this evil is to be obviated, unless it be possible to revolutionize the ideas which are generally attached to fame and worldly grandeur. It is difficult to persuade such persons that the end of fame is merely

"To have, when the original is dust,
A name, a wretched picture, and worse—bust."

There is a nameless, undefinable something, that the world is taught to sigh after, is always in search of, a moral *ignis fatuus*, which is dazzling to lead it from the road which points to true and unsophisticated happiness.

Among the causes which operate in producing the disposition to commit suicide, we must not omit to mention those connected with erroneous religious notions. M. Falret justly remarks that the religious systems of the Druids, Odin, and Mahommed, by inspiring a contempt for death, have made many suicides. The man who believes that death is an eternal sleep scorns to hold up against calamity, and prefers annihilation. The skeptic also often frees himself

by self-destruction from the agony of doubting. The maxim of the Stoics, that the man should live only so long as he ought, not so long as he is able, is, we may observe, the very parent of suicide.

The Brahmin, looking on death as the very entrance into life, and thinking a natural death dishonorable, is eager at all times to get rid of life. The Epicureans and Peripatetics ridiculed suicide as being death caused by fear of death.

M. Falret, however, goes perhaps too far when he asserts that the noble manner in which the gladiators died in public not only familiarized the Romans with death, but rendered the thoughts of it rather agreeable than otherwise.

Misinterpretations of passages of Scripture will sometimes lead those who are piously inclined to commit suicide. M. Gillot hung himself at the age of 75, having left in his own handwriting the following apology: "Jesus Christ has said that when a tree is old and can no longer bear fruit it is good that it should be destroyed." (He had more than once attempted his life before the fatal act.) Dr. Burrows attended a nobleman who, for fear of being poisoned, though he pretended it was in imitation of our Saviour's fast, took nothing but strawberries and water for three weeks, and these in very moderate quantities. He never voluntarily abandoned his resolution. He was at length compelled to take some nutriment, but not until inanition had gone too far; and he died completely attenuated. When sound religious principles produce a struggle in the mind which is beginning to aberrate, the contest generally ends in suicide.

CLIMATE AND ITS EFFECT ON SUICIDE.

Among the causes of suicide the foggy climate of England has been brought prominently forward. The specious and inaccurate conclusions of Montesquieu on this point have misled the public mind. The climate of Holland is much more gloomy than that of England, and yet in that country suicide is by no means common. From the following tabular statement we see that the popular notion of the month of November being the "suicide month" is founded on erroneous data. The average number of suicides in each month for years may be taken as follows:

January	213	July	301
February	218	August	296
March	275	September	246
April	374	October	198
May	328	November	131
June	336	December	217
Total	3,133		

It has been clearly established that in all the European capitals, when anything approaching to correct statistical evidence can be procured, the maximum of suicide is in the months of June and July, the minimum in October and November. Temperature appears to exercise a much more decided influence than the circumstances of moisture and dryness, storms or serenity.

M. Villeneuve has observed a warm, humid and cloudy atmosphere to produce a marked bad effect at Paris, and that so long as the barometer indicated stormy weather this effect continued. Contrary, however, to the opinion of Villeneuve, it appears that by far the fewer number of suicides occur in the autumn and winter at Paris than in the spring and summer.

When the thermometer of Fahrenheit ranges from 80 to 90 degrees, suicide is most prevalent. The English have been accused of being the beau-ideal of suicide people. The charge is almost too ridiculous to merit serious refutation. Suicide is not an offense that can be deemed cognizable by the civil magistrate. It is to be considered a sinful and vicious action. To punish suicide as a crime is to commit a solecism in legislation. The unfortunate individual by the very act of suicide places himself beyond the vengeance of the law. He has anticipated its operation. He has rendered himself amenable to the highest tribunal, namely, that of his Creator. No penal enactment, however stringent, can affect him. What is the operation of the law under these circumstances? A verdict of *felo-de-se* is returned, and the innocent relatives of the suicide are disgraced and branded with infamy, and that, too, on evidence of an *ex parte* nature. It is unjust, inhuman, unnatural and unchristian that the law should punish the innocent family of the man who in a moment of frenzy terminates his own miserable existence. It was clearly established before the alteration of the law respecting suicide, the fear of being buried in a cross-road and having a stake driven through the body had no beneficial effect in decreasing the number of suicides, and the verdict of *felo-de-se* now occasionally returned is productive of no advantage whatever, and only injures the surviving relatives.

If the view which we have taken of the cause of suicide be a correct one, no stronger argument can be urged for the impropriety of bringing the strong arm of the law to bear upon those who court a voluntary death. In the majority of cases it will be found that some heavy calamity has fastened itself upon the mind, and the spirits have been extremely depressed. The individual loses all pleasure in society, hope vanishes, and despair renders life intolerable and death an apparent relief. The evidence which is generally submitted to a coroner's jury is of necessity imperfect, and although the suicide may, to all appearance, be in possession of his right reason, and have exhibited at the moment of killing himself the greatest calmness, coolness and self-possession, this would not justify the coroner or the jury in concluding that derangement of mind was not present.

MINDS OF SELF-MURDERERS DISTORTED.

If the mind be overpowered by "grief, sickness, infirmity, or other accident," as Sir Matthew Hale expresses it, the law presumes the existence of lunacy. Any passion that powerfully exercises the mind, and prevents the reasoning faculty from performing its duty, causes temporary derangement. It is not necessary in order to establish the presence of insanity to prove the person to be laboring under a delusion of intellect—a false creation of mind. A man may allow his imagination to dwell upon an idea until it acquires an unhealthy ascendancy over intellect, and in this way a person may commit suicide from an habitual belief in the justifiableness of the act. If a man, by a distorted process of reasoning, argues himself into a conviction of the propriety of adopting a particular course of conduct without any reference to the necessary result of that train of thought, it is certainly no evidence of his being in possession of a sound mind. A person may reason himself into a belief that murder, under certain circumstances not authorized by the law, is perfectly

just and proper. The circumstances of his allowing his mind to reason on the subject is a *prima facie* case against his sanity. At least it demonstrates a great weakness of the moral constitution. A man's *moral* must be in an imperfect state of development who reasons himself into the conviction that self-murder is under any circumstances justifiable.

We dwell at some length on this subject, because we feel assured that juries do not pay sufficient attention to the influence of passion in overclouding the understanding. If the notion that in every case of suicide the intellectual or moral faculties are perverted, be generally received, it will at once do away with the verdict of *felo-de-se*. Should the jury entertain a doubt as to the presence of derangement—and such cases may present themselves—it is their duty, in accordance with the well-known principle of British jurisprudence, to give the person the benefit of that doubt, and thus a verdict of lunacy may be conscientiously returned in every case of this description.

Having, we think, clearly established that no penal law can act beneficially in preventing self-destruction—first, because it would punish the innocent for the crimes of the guilty, and, secondly, that, owing to insanity being present in every instance, the person determined on suicide is indifferent as to the consequences of his action—it becomes our province to consider what are the legitimate means of staying the progress of an offense that undermines the foundation of society and social happiness.

If we are justified in maintaining that the majority of the cases of suicide result from a vitiated condition of the moral principle, then it is certainly a legitimate mode of preventing the commission of the offense to elevate the character of man as a moral being. It is no legitimate argument against this position to maintain that insanity in all its phases marches side by side with civilization and refinement; but it must not be forgotten that a people may be refined and civilized, using these terms in their ordinary signification, who have not a just conception of their duties as members of a Christian community. Let the education of the heart go side by side with the education of the head; inculcate the ennobling thought, that we live not for ourselves, but for others; that it is an evidence of true Christian courage to face bravely the ills of life, to bear with impunity "the whips and scorn of time, the oppressor's wrong, and the proud man's contumely," and we disseminate principles which will give expansion to those faculties that alone can fortify the mind against the commission of a crime, alike repugnant to all human and Divine laws,

"And make us rather bear the ills we have,
Than fly to others that we know not of."

CHAIRMAN'S ADDRESS.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY EDWARD H. SMALL, A.M., M.D.
PITTSBURG, PA.

We are met together in the sixteenth annual meeting of the Section on Diseases of Children, which was the sixth Section to be formed in the AMERICAN MEDICAL ASSOCIATION.

This Section was organized under the chairmanship of Dr. S. C. Busey of Washington, in the city of New

York, in 1880, with an attendance of about forty members. At this first meeting but five papers were read, and the discussion was carried on by some ten gentlemen. Since then the fortunes of the Section have varied. At one time, interest in it had so declined that a motion was offered that the Section be done away with. Fortunately, this motion was not passed.

The best meeting that the Section ever held was that in Milwaukee in 1893. The program arranged for this present meeting has been gotten up to as great an extent as possible on the lines of the Milwaukee one.

Although the report of the Committee on Revision of the Constitution was not adopted at the meeting in San Francisco last June, still it has been thought best to follow the provisions of the proposed revision, as much as possible, in making arrangements for this present meeting of our Section. Accordingly I shall appoint at the close of this first session a Nominating Committee, consisting so far as may be, of ex-chairmen of the Section who are present. This committee is expected to make its report at tomorrow's afternoon session. It will then report nominations for chairman and secretary.

The Executive Committee is composed of the three last chairmen of the Section.

Provision has been made to have all the papers and discussions of the Section, together with lists of its officers and members, and the rules adopted for the conduct of its work, republished from the JOURNAL, in convenient form for preservation.

The services of a competent stenographer have been secured to take full and accurate reports of all discussions.

Letters have been sent to many physicians eminent in pediatrics throughout the country, soliciting papers for this present meeting, and it is hoped that the program made up from the papers thus obtained, and the discussions upon them will be interesting and profitable.

The rule that papers must not consume in reading more than twenty minutes, and that no member shall occupy more than fifteen minutes in the discussion of any paper or papers will be enforced.

The following resolution, adopted in 1888 was printed in the preliminary program, which was sent to all the gentlemen expected to take part in the proceedings of this Section and to others, viz.: "That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers." This was done in the hope that more members of the ASSOCIATION would identify themselves with our Section.

The General Business Committee of the ASSOCIATION is composed of the Executive Committee of the several Sections. This committee was created to take from the general sessions of the ASSOCIATION, much of its routine work, so that members of the ASSOCIATION can devote more time to the proceedings of the various Sections.

Would it not be well also to have but one annual address delivered before the general session of the ASSOCIATION—that of the President on the first day, and have the three other annual addresses (those on General Medicine, General Surgery and State Medicine) delivered before the Sections in which they respectively belong?

In San Francisco last year, on the first day of the

meeting a motion was passed that the hour of meeting of the general session be changed from 10 A.M. to 12 M., in order that all members might be able to be present. If an annual address, not to exceed one hour's time were to be given each day at 12 M., and the regular routine business also carried out, this would not leave enough time to get lunch and then return for the afternoon Section work.

An amendment is to be voted on at this meeting, offered in 1892,—“That Thursday morning's general session be omitted, and the time be devoted to sectional work.” This has the same object in view as the above suggestion.

If the three annual addresses were to be given in their respective Sections, instead of in the general sessions, then the general sessions could be held at noon each day, except the first, when the President's address is given and when the Sections do not hold any session, and the Sections could thus have a two and one-half, or three hours' session both morning and afternoon of each day.

The good to be obtained from the AMERICAN MEDICAL ASSOCIATION must come from its Sections, and all efforts should be directed to make the work of each a success.

At the Milwaukee meeting in 1893, it was moved and carried that this Section have a dinner at its next annual meeting. Unfortunately so few attended its meetings in San Francisco that the dinner was never heard of. I would be glad at any session to entertain a motion to have a dinner at our next annual meeting.

ORIGINAL ARTICLES.

THE EARLY HISTORY OF VAGINAL HYSTERECTOMY.

Delivered before the Chicago Medical Society, March 18, 1895.

BY N. SENN, M.D., Ph.D., LL.D.

PROFESSOR OF PRACTICE OF SURGERY AND CLINICAL SURGERY, RUSH MEDICAL COLLEGE; PROFESSOR OF SURGERY, CHICAGO POLICLINIC; ATTENDING SURGEON, PRESBYTERIAN HOSPITAL; SURGEON-IN-CHIEF, ST. JOSEPH'S HOSPITAL, CHICAGO.

Every great operation in surgery has a period of evolution of varying duration. Each marked advance in medicine and surgery is preceded by attempts which led to the elucidation of old ideas or the conception of new ones. All great discoveries are overshadowed by the labors of a host of earnest and progressive workers which ultimately crown the efforts of a favored few. Nearly all of the improvements in medicine and surgery which have characterized the present progressive age are only a repetition of the work of our professional ancestors. Many a so-called modern operation is only a recent and not always an improved edition of the operative technique as devised and described by one of the old masters. These remarks apply with special force to vaginal hysterectomy. The operation of removing the carcinomatous uterus through the vagina, so recently developed to its present state of perfection, was planned and performed by men who have long since departed, but whose names will always be intimately associated with the interesting history and gradual development of this operation.

There can be no doubt that the first ideas which led to the plan of removing a diseased uterus through the vagina were based upon the results which followed the unintentional removal of the uterus in cases of

mistaken diagnosis. All of the early operations were done for prolapse or inversion of the uterus. The idea of removing the uterus through the vagina originated with Soranus, who was a distinguished obstetrician in Rome during the reign of Emperor Hadrian. The first authenticated description of removal of the uterus through the vagina was given by Berengarius, of Bologna, in 1507. Like all of the early cases, we are ignorant as to the exact pathologic conditions for which this operation was made, but there can be no doubt that part of the uterus was removed. J. Schenck a Grafenberg (1617) relates a number of cases in which the uterus was removed through the vagina, in whole or in part, by ignorant persons who had not the faintest ideas as to the nature of the difficulty or of the extent and gravity of the operation. In 1792 Laumonier removed an inverted uterus below a ligature. The patient died six weeks after operation. The post-mortem showed cicatricial obliteration of the vagina, absence of the uterus; the ovaries and tubes were found on the side of the rectum. Baudelocque examined the specimen later and found that the inversion was caused by an intra-uterine growth and explained that the operation was limited to the removal of the tumor, and that the uterus was removed later by the application of a ligature which opened the peritoneal cavity and caused the fatal suppurative peritonitis. Beyerlé, on the other hand, asserted that the entire uterus was removed at the first operation. Other cases of vaginal removal of the inverted uterus, with or without the presence of a uterine tumor, have been reported by Bardol, Marc-Antoine, Petit de Lyon and Widmann. Cases of unintentional, partial or complete vaginal hysterectomy are also related by Sclevogt, J. Ramsbotham, Fiquet and Blasius. Instances of partial or complete removal of the uterus in which the organ was rudely removed by midwives have been reported by Hildanus (1646), Wrisberg (1785) and Bernhard (1824). In the case reported by Bernhard the inverted uterus was removed by the midwife with a razor, the profuse hemorrhage was controlled by the introduction of fragments of ice into the vagina, and the woman recovered.

Cases of intentional removal of the uterus by surgeons have been recorded by Zwinger, Vieussen, Baxter, Faivre, Alexander Hunter, Joseph Clarke and Johnson. In Zwinger's case the amputation was made soon after delivery after preliminary ligation. Death two days after operation. The post-mortem showed that the middle portion of the uterus had been removed. In Baxter's case the uterus was amputated in the same manner five weeks after delivery. Recovery six weeks after operation. Faivre applied a ligature to the recently inverted uterus which sloughed and was detached on the twenty-seventh day after ligation, followed by recovery of the patient.

Johnson cut off the uterus below the ligature and his patient made a good recovery. In a second case of recent inversion of the uterus, the same surgeon applied a ligature to control the profuse hemorrhage. The hemorrhage ceased and the ligature was removed two days later. The hemorrhage returned, when the uterus was again ligated, and fourteen days later the fundus and tubes were detached in the form of a slough, after which the patient made a satisfactory recovery.

Windsor (1819) operated on a case of chronic inversion by tying a silk ligature around the uterus.

He tightened the ligature more firmly every evening and on the twelfth day after the ligature had cut its way nearly through the tissues, he cut off the uterus below the ligature without incurring any hemorrhage. The specimen removed was three inches in length and consisted of the uterus, round ligaments and a portion of the tubes and ovaries. After a protracted illness the patient ultimately made a favorable recovery. In Weber's case the inversion was caused by an intra-uterine tumor, hastened by a midwife, who made an attempt to remove the tumor by traction. Weber ligated the fundus of the uterus, tightened the ligature daily, and cut off a piece below it four and one-quarter inches in diameter, and an inch and a half in length. The specimen removed contained portions of the tubes. Eight days after the application of the ligature the ligated mass sloughed off. The woman recovered without any untoward symptoms and remained in good health a year after the operation.

Rheineck operated on a similar case. The patient was a multipara, 41 years of age. The entire uterus was removed by the use of a ligature. A careful examination after recovery of the patient showed no trace of the uterus. In many of the cases operated upon before 1800, the diagnosis was uncertain, but in most instances the operation was performed for simple or complicated inversion of the uterus.

Vaginal hysterectomy for malignant disease of the uterus dates back to the year 1812, when Paletta appears to have removed the entire organ. The extent of the disease is unknown, but the tumor occupied the lower segment of the uterus. Paletta did not know that he extirpated the entire uterus until he examined the specimen after the completion of the operation. The patient suffered for nine months from pain in the back and hips and a copious sero-sanguinolent vaginal discharge. The cervical portion of the uterus was the seat of an ulcerating tumor. The operation was performed April 13, 1812. By the use of obstetric forceps and the hand, the uterus was brought down to the vaginal outlet. The upper part of the vagina was incised with a pair of curved scissors. After separating the lower segment of the uterus a hard body could be felt at the base of the tumor. This hard body proved to be the fundus of the uterus which remained in connection with the tumor. The patient died at the end of the third day. Paletta did not intend to remove the entire uterus with the tumor, and the extent of the operation became evident only after the completion of the operation upon careful examination of the specimen removed. The more general use of improved vaginal specula about the beginning of the nineteenth century enabled the surgeons to make an earlier and more accurate diagnosis in affections involving the vaginal portion of the uterus and rendered the organ more accessible to direct surgical intervention. To Osiander, of Göttingen, more than to any one else, belongs the credit of popularizing the use of the vaginal speculum as a diagnostic resource and as an aid in operations upon the lower segment of the uterus. As early as 1808 he resorted to the speculum and curved scissors in the removal of uterine polypoid growths. To the same surgeon also belongs the honor of having devised and practiced for the first time, supravaginal amputation of the carcinomatous cervix uteri. The first operation of this kind he performed in 1801. The carcinomatous cervix as large as a child's head,

which filled the vagina, was drawn through the vaginal outlet with a pair of Smellie's obstetric forceps. The greater part of the tumor was torn away from the cervix, an accident which was followed by profuse hemorrhage. As the uterus could no longer be drawn down by the use of forceps, he inserted, with curved needles, four traction sutures at the vaginal insertion, placed at an equal distance apart. The needles and sutures were brought out through the cervical canal at a level corresponding with the internal os. By gradual and careful traction upon the sutures, the lower segment of the uterus was brought down to near the vaginal outlet. With Pott's fistula knife the carcinomatous cervix was then amputated. The hemorrhage, which was quite profuse, was controlled by applying a sponge dusted over with a styptic powder. The patient was convalescent four weeks after the operation. The experience with this case led him to devise another method to enable him to render the uterus more accessible in cases in which the cervix was so much diseased that it could not be drawn down by the use of forceps or traction sutures. This modification of his first procedure consisted in grasping the cervix with the fingers of one hand and pressure of the hand of an assistant upon the abdominal wall above the uterus, and removal of the cervix with curved scissors. For the purpose of removing carcinomatous tissue from the cavity of the uterus he invented a curved chisel. The application of Smellie's obstetric forceps, as an aid in performing vaginal hysterectomy, led to the invention of traction forceps by Museux and Récamier. The reports of Osiander's attempts to remove the carcinomatous uterus through the vagina soon reached France, and his operative procedures were modified by Dupuytren, Lisfranc and other French surgeons.

Dupuytren dragged the uterus toward the introitus vaginae with tenaculum forceps and amputated the cervix with curved scissors. Lisfranc exposed the cervix with the aid of a bivalve speculum, grasped it with his tenaculum forceps, removed the speculum and by gradual traction brought the diseased part within easy reach. In the case of fungous growth he used the fingers of the left hand in making pressure against the blades of the forceps to prevent tearing. The amputation was made with a curved bistoury guided by the fingers of the left hand.

Hatin used a bivalve speculum and a traction forceps of his own invention, the teeth of which grasped the interior of the uterus as well as the external surface of the vaginal portion. Forceps of a complicated structure for vaginal hysterectomy were also devised by Canella and Colombat. The results of partial vaginal hysterectomy for carcinoma, as practiced by Osiander and his immediate followers, were as could be expected most discouraging. Osiander's cases, twenty-three in number, died sooner or later after the operation. The work of the French and Italian surgeons yielded no better results. In all of the cases the diagnosis was made and the operations done long after the disease had passed beyond the limits of the parts removed. A speedy local recurrence and death within a year after the operation were constant occurrences in all of the cases. The local and regional dissemination of carcinoma of the uterus were not well known at that time and the operative procedure was usually limited to the part of the tumor and uterus which projected into the vagina.

Dupuytren reported twenty-nine cases of vaginal removal of the carcinomatous cervix with fifteen deaths, but a later report by Pauly left only one recovery. The unsatisfactory results of the operation induced Dupuytren later to abandon it almost entirely and to substitute for it the potential cautery. The authenticated history of intentional complete extirpation of the uterus for carcinoma dates back to 1813. In 1810, Wrisberg discussed the propriety and feasibility of vaginal hysterectomy in a prize essay read before the Vienna Royal Academy of Medicine. Two years later, Paletta removed the uterus through the vagina for carcinoma. He did not intend to remove the entire uterus, and the fact that the entire organ had been removed only became apparent after the completion of the operation by a careful examination of the specimen removed.

The first deliberate and well-planned vaginal hysterectomy for carcinoma was made in 1813 by J. C. M. Langenbeck, of Göttingen, the uncle of the late distinguished surgeon B. von Langenbeck. The paper of Wrisberg and Paletta's case encouraged him to undertake this difficult task. His patient was a Mrs. Oberschein, 50 years of age, the mother of several children, with the general health but little impaired. She had suffered for some time with a lancinating pain and a burning sensation in the region of the uterus. The uterus had gradually descended toward the vaginal outlet. The suffering became so severe that the patient begged for an operation. Uterus prolapsed. On examination the cervix was found of a stony hardness, nodular and ulcerated. The cervical canal very vascular, ulcerated and from it escaped a bloody and exceedingly fetid discharge. The irritating vaginal discharge had caused erosions of the external genital organs. The ulceration of the cervical canal extended deeply into the cavity of the uterus. Digital exploration of the cervical canal and uterine cavity revealed an ulcerated surface with great induration of the cervix and body of the uterus, and was followed by free hemorrhage. Through the inverted vagina the uterus could be felt as a firm body which could also be distinctly felt by rectal examination. As Langenbeck had no precedent to follow, he had to devise his own plan for the removal of the entire uterus upon which he had decided. The operation was performed in the following manner: the patient was placed with the pelvis upon the edge of the bed with the thighs separated and the feet resting upon two stools. The operator properly seated between the thighs dissected the vagina from the cervix, the dissection was continued until the peritoneal envelope of the uterus was reached. The dissection was made with special care not to open the peritoneal cavity by directing the edge of the knife against the uterus; and separating the tissues as far as this could be done with the handle of the scalpel. To reach the fundus of the uterus, the broad and round ligaments and the Fallopian tubes had to be divided. In his first report of this case he maintained that he removed both ovaries with the uterus, but from later information gained by examination of the specimen and repeated examinations of the patient, he corrected this statement. Two round hard excrescences connected with the uterus gave rise to this wrong impression. The last part of the operation consisted in the subperitoneal enucleation of the fundus of the uterus. He had no one to assist him except a gouty surgeon who, when called upon to render much

needed aid, could not rise from his chair. Toward the end of the operation the hemorrhage became alarming, when the following conversation, occurred: Langenbeck: "*Herr, so humpeln Sie doch jetzt herbei.*" Assistant: "*Ich kann nicht.*" With severe hemorrhage and approaching collapse of the patient and no one to assist him, prompt action on the part of the operator became a matter of urgent necessity. With the left hand, Langenbeck grasped and compressed the bleeding part, and with the right hand he passed a needle armed with a ligature through the tissues behind the bleeding point. Having only one hand at his disposal the ligature was tied by grasping one end between the teeth and the other with the right hand. At this stage the patient appeared to be dying. Dashing cold water over the face revived her. The long wide vagina was now pushed in an upward direction by introducing the whole hand. Above the vagina was a deep pocket, the walls of which were composed of the peritoneal investment of the uterus. Vagina and peritoneal pouch were continuous with each other and no opening into the peritoneal cavity could be detected. Through the peritoneum the intestinal coils could be distinctly felt. To prevent the inversion of this peritoneal bag by pressure against it of the intestines, a sponge was inserted. In spite of the critical condition of the patient at the close of the operation she made an uneventful recovery. If we remember that this, the first complete vaginal extirpation of the carcinomatous uterus was made without an anesthetic, without assistance, and without the use of hemostatic forceps, we can easily conceive the difficulties which the operator encountered and grant him willingly the well merited and hard won honor of having established an important surgical operation. Langenbeck's trials, however, only began at the completion of the operation. Death of the patient would have brought him undeserved censure; her recovery excited the envy of his colleagues which followed him to his grave.

The history of medicine and surgery is replete with similar incidents. The originator of every marked improvement in medicine and surgery has, during his lifetime, received but little recognition for his labors on part of his colleagues. Professional jealousy has always selected for its target the men conspicuous by their honest, unselfish work. Langenbeck's report of his successful operation aroused doubt and a bitter criticism among his contemporaries. Upon his return from Cassel, where the operation was performed, he visited his friend Osiander, and related to him the particulars of the operation. Osiander doubted the possibility of complete removal of the uterus and adnexa without opening the peritoneal cavity, as was first claimed by Langenbeck, and said that he would advise all of his patients who desired to have the uterus enucleated to consult Langenbeck.

Jörg doubted the veracity of the description of the operation. Langenbeck invited his friends to examine the patient after her recovery. The invitation was accepted by Mende and von Siebold. Mende made the examination twelve years after the operation. The patient was in perfect health at that time, and the most careful examination satisfied Mende that the entire uterus had been removed. Von Siebold made the examination Oct. 4, 1829. He indorsed the statements made by Mende in every respect. The testimony furnished by his trusted friends did not succeed in allaying the suspicions of a doubt-

ful profession. Unfortunately the specimen was lost at the time of operation and could not, therefore, be utilized to verify and support Langenbeck's claims. His assistant died soon after the operation, and his testimony was, therefore, not available to substantiate the operator's position. Nothing was left for Langenbeck to do but to await patiently the opportunity to fortify himself by the results of a post-mortem examination upon his patient. The patient died of senile marasmus June 17, 1839, twenty-six years after the operation. The post-mortem was made by Dr. Neuber in the presence of three other prominent physicians. The bladder, rectum and vagina were removed together and placed in alcohol. No adhesions were found in the abdominal cavity and no signs of recurrence in any part of the body. The specimen is described in Max Langenbeck's dissertation, "*De totius uteri extirpatione*," Göttingen, 1842. The upper part of the vagina and the empty peritoneal pouch formed by the enucleation of the uterus were found inverted and formed a swelling in the vagina which reached as far as the labia majora. Inspection of the peritoneal surface showed the Fallopian tubes, their cut ends terminating in the peritoneal pouch. The inverted pouch appeared between rectum and bladder as a globular depression, the surface of which did not show signs of scar tissue anywhere. Langenbeck places great stress on the peritoneal hernial protrusion, as a positive demonstration that the uterus was enucleated without opening the peritoneal cavity. Both ovaries were found in their normal relations with the fimbriated extremities of the tubes. The description of the operation as given by Langenbeck is corroborated by the results of the post-mortem, and the case will always remain in history as the first intentional complete vaginal extirpation of the uterus.

The second complete extirpation of the uterus per vaginam was performed by Sauter Jan. 28, 1822. Billroth and others have repeatedly wrongly quoted Sauter's name as the originator of the operation of vaginal hysterectomy when, as the records show, his operation was performed nine years later. Sauter's case differs from Langenbeck's, in that the uterus was not prolapsed and the peritoneal cavity was freely opened during the operation. The patient was 50 years of age, and the cervix was found extensively ulcerated. Sauter intended to make an artificial prolapse, as suggested by Wenzel, by the employment of tenaculum forceps, and then remove the uterus by enucleation after the example of Langenbeck. In the attempt to bring the uterus down with the curved index finger, the papillomatous excrescences broke off, which gave rise to considerable hemorrhage. The vagina was now cut off from the cervix by a circular incision and another attempt made to bring the uterus down by traction forceps, one blade of which was inserted into the cervical canal and the other placed upon one side of the cervix. Making in this manner strong traction upon the uterus, the attempt was made to separate the bladder from the uterus by the finger and handle of scalpel, but this did not succeed. The piece of the cervix grasped with the forceps was torn off and after working for half an hour he concluded to remove the uterus in its position by the use of a curved scalpel. Two fingers of the left hand served as a guide to the knife, and with it the uterus was detached from the bladder. The whole hand was then

inserted into the peritoneal cavity, and with it the fundus of the uterus was seized. In the attempt to draw the uterus down, the intestines escaped and, after replacing them, a repetition of the same manipulation caused the same accident. He finally succeeded in dragging the fundus of the uterus through the opening after which it was separated from the remaining attachments. The intestines did not prolapse after the removal of the uterus; urine escaped involuntarily. The opening contracted into a funnel-shaped space with the apex directed upward. A few days later urine escaped through the vagina, showing that the bladder had been injured during the operation. After closure of the peritoneal cavity the opening in the bladder was discovered. The patient recovered from the immediate effects of the operation, but died on June 31 of the same year.

The post-mortem showed that the peritoneal cavity was closed. A large opening in the posterior wall of the bladder communicated with the vagina. A number of limited intestinal adhesions, ovaries in their normal location, tubes indistinct.

The experience with this case led Sauter to make the following suggestions: horizontal position of the patient; complete evacuation of rectum and bladder. Pressure by the hand of an assistant over the abdomen above the pubes in the direction of the pelvis. Incision of vaginal vault between uterus and bladder with scalpel with a short convex blade. Enlargement of this opening around the whole cervix with the same knife. Section of the broad ligaments close to the uterus with curved scissors, guided by the fingers. Separation of uterus from the rectum with curved scissors; at last, bringing down of the uterus with the whole hand and separation of remaining attachments.

The third complete vaginal extirpation of the uterus was made by Elias von Siebold, April 19, 1823. The patient was 38 years old. To prevent injury to the bladder, a catheter was inserted and held in place by an assistant. The same assistant compressed the abdomen above the pubes in the direction of the pelvis. The vaginal vault close to the cervix was incised with Savigny's fistula knife, first on the right side of the cervix, guided by the two fingers of the left hand. The opening was then enlarged sufficiently for the introduction of a finger; after this, section of the vaginal insertion all around and close to the cervix; the broad ligaments were divided between two fingers close to the uterus with a small pair of polypus scissors. The uterus was now detached on the right side. To effect this also on the left side, two fingers of the right hand were inserted, and using them as a guide the opposite side was separated with Savigny's knife and Osiander's chisel. A finger was now inserted into the cervix, and with another pressure made from without, whereupon the remaining attachments of the vaginal vault on the right side were torn and the uterus slipped from between the fingers. The intestines could be felt, but did not prolapse. The uterus was now so high that it could only be felt with the tips of the fingers. Attempts to bring it down by the insertion of the assistant's fingers into the rectum and the use of Boer's excerebration forceps proved a failure. The operator satisfied himself that the only way in which the uterus could be brought down would be by the insertion of the whole hand into the peritoneal cavity. As the vaginal entrance was too narrow, the peri-

neum was incised. The opening in the vaginal vault had also to be enlarged, which was done with Savigny's knife. The hand was now inserted, the fundus of the uterus grasped, and the organ drawn down into the vagina, after which the left broad ligament was divided in the same manner as on the opposite side. Death sixty-five hours after the operation. The post-mortem showed inflammation of the small intestines; fibrous exudations upon the peritoneal surfaces; rectum and bladder intact.

The second case, operated upon after Sauter's method, was by Holscher Feb. 5, 1824, a patient upon whom Prael had performed previously Osiander's operation. The patient was placed in the dorsal horizontal position upon an obstetric chair. As the uterus could not be brought down with the hand and a brass needle twelve inches in length, the carcinomatous cervix was excised in order to reach the fundus of the uterus more readily. The vaginal vault and the broad ligaments were divided with an amputating knife, guided by two fingers, close to the uterus; first on one side, then on the other. Death in less than twenty-four hours.

Wolff operated according to Sauter's method May 5, 1824. The patient was 60 years of age and insane. In this case the operation was greatly facilitated by complete prolapse of the carcinomatous uterus and inversion of the vagina. The incision of the vaginal vault was first made in front, then on both sides. The ligaments and tubes were then brought forward and divided some distance from the uterus, after which the uterus was separated from the rectum. The wound was sutured and the inverted vagina replaced. Death two days after operation.

In 1830 Delpech combined vaginal with abdominal hysterectomy, being five years later than Langenbeck's first laparo-hysterectomy. At the vaginal vault Delpech incised the tissues between the bladder and cervix with a knife of his own invention. The separation of the loose connective tissue and the tearing of the peritoneum was done with the finger. After enlarging the opening sufficiently to insert two fingers the abdomen was opened above the pubes by making first an oval skin flap, after which the linea alba and peritoneum were incised. The operator then inserted a finger through the wound between uterus and bladder, which was used as a guide in dividing the broad ligaments, after which the uterus could be sufficiently mobilized from above to sever the remaining attachments safely.

The fifth total extirpation of the uterus after Sauter was made by Elias von Siebold upon a patient 30 years of age July 25, 1825. He rendered the uterus more accessible prior to dividing the broad ligaments by passing a silver needle with a steel point armed with a strong thread through the cervix, using the thread as a guy rope. The patient died two days after the operation.

The sixth total vaginal hysterectomy for carcinoma was made by Langenbeck upon a servant, 28 years of age, August 5, 1825. As a preliminary step, the perineum was incised for the purpose of widening the vaginal opening sufficiently to permit the introduction of the whole hand to grasp the uterus before the division of the right broad ligament. After placing the index finger of the left hand in the vaginal vault between the cervix and the rectum, it was utilized as a guide to Osiander's hysterotome, with which an incision was made into the pouch of Douglas. This

opening was dilated until the whole hand could be introduced with which the fundus was grasped, and pressed in a downward direction, placing the broad ligaments on the stretch. After section of the right broad ligament, the uterus could be brought down beyond the rima pudendi, which made it easy to divide the remaining attachments. He places great stress on opening the peritoneal cavity behind and not in front of the uterus, as by doing so the bladder is exposed to less risk of being injured. He also insists that the large pelvic vessels should be protected by making the incisions close to the uterus. As an additional safeguard to protect the bladder and the urethra, a catheter is held in proper position in the bladder by an assistant. The hemorrhage was not severe. After the completion of the operation a sponge was inserted into the vagina, and for the abdominal pain twenty leeches were applied without any material benefit following. The patient died on the second day. The post-mortem revealed that the small intestines in the pelvis were covered by coagulated blood and a plastic exudate.

The seventh total vaginal extirpation of the uterus after Sauter was made by Récamier, July 26, 1829, which, according to Gendrin, was the first operation of this kind in France. He modified Sauter's procedure only in so far that he ligated the uterine arteries in the lower part of the broad ligaments before dividing them higher up. His patient was 50 years of age. With two tenaculum forceps he gradually brought the carcinomatous cervix as far as the vulva. The vagina in front of the cervix was incised with a probe-pointed bistoury (convex), and with the index finger the loose connective tissue between bladder and cervix separated as far as the peritoneum. The opening was enlarged with the bistoury sufficiently to enable him to insert two fingers; the peritoneal cavity being opened, the fundus of the uterus was grasped and the upper part of the broad ligaments was then divided one-third from above downward, without causing much hemorrhage, after which between thumb and index finger the lower part of the broad ligament, first on the right, and afterward on the left side, was seized and with a curved tunneled needle armed with a ligature, the ligament was transfixed and tied, thus securing the uterine arteries. The broad ligaments were then divided above the ligature. The uterus could now be brought out of the vagina and its attachments with the rectum were easily separated. The operation was completed in twenty minutes. Complete healing of the wound twenty-seven days after operation.

The eighth vaginal extirpation of the entire uterus was made by Langenbeck, August 18, 1829. This was his fourth complete extirpation of the uterus, and his third *per vaginam*. It differed from his preceding cases in that the Douglas pouch was opened first and the uterus removed piecemeal to the fundus, which did not appear to be diseased. Hemorrhage slight. The patient recovered from the immediate effects of the operation, but died on the eleventh day. Intestines reddened in places. Only a small fragment of the fundus remained. A rectal fistula with irregular margins was found as the immediate cause of the fatal peritonitis.

The ninth complete vaginal removal of the uterus was performed by Roux, Sept. 20, 1830. The patient was 50 years old and the method employed Récamier's. Death soon after the operation. The same surgeon

performed his second operation five days later, following the same plan with a similar result.

The eleventh vaginal extirpation of the uterus was performed by Récamier Jan. 13, 1830, upon a woman 35 years of age. At the completion of the operation the intestines escaped into the pelvis; they were reduced and the wound sutured. The patient died on the second day from what was believed to be secondary hemorrhage from the internal spermatic artery.

Blundell made the twelfth vaginal hysterectomy Oct. 16, 1830. The woman was 47 years old. Cervix much enlarged and ulcerated. Patient's general health greatly impaired. The uterus was exposed with the rectal speculum of Weiss, which was removed after grasping the cervix with tenaculum forceps. After bringing the uterus well down into the vagina a second forceps was applied, and by an assistant making traction upon both of them the uterus was brought within easy reach. An incision was made between the cervix and rectum with an ordinary scalpel, after which the opening was enlarged with a probe-pointed bistoury. The next step in the operation consisted in making a transverse incision in front of the cervix, separation of uterus from bladder, during which the latter was opened. The fundus of the uterus was grasped with the hand, and into it was inserted a sharp hook, with which it was drawn in the direction of the vagina, after which both broad ligaments were severed. Hot fomentations and thirty leeches relieved the abdominal pain. A return of the pain was met by the application of twenty leeches. Four weeks after the operation the patient was convalescent, but the vesico-vaginal fistula remained.

Dubled suggested that after liberating the cervix by vaginal incision, and after bringing the uterus well down into the vagina by the employment of tenaculum forceps, the broad ligaments should be ligated without previous partial division, as was done by Récamier. After this has been done the uterus is so freely movable that the diseased part can be readily excised. He insisted that the operation should be limited to the removal of diseased tissue. He carried this method into effect once, but his patient died twenty-four hours after the operation. In 1839 Langenbeck performed a supravaginal amputation of the uterus for carcinoma. The patient was 44 years old. The cervix was grasped with two volsellum forceps, and by continued traction it was brought down to the vulva. A circular incision around the cervix was made and the dissection carried upward extraperitoneally as far as the body of the uterus, where the amputation was made. The patient made a good recovery, and at the time she left the hospital the wound was completely cicatrized.

I have given you this brief outline of the early history of vaginal hysterectomy, to show the value of a retrospective view in these times of unrest in medicine and surgery. In the laudable ambition to devise new operative procedures, the surgeons of the present day often ignore the work of our forefathers. New operations are devised and described which were conceived and practiced, or, at least, recommended years ago. Honesty and justice demand that credit should be given to whom it belongs. From what I have said it is evident that the uterus has been removed through the vagina for inversion and prolapse for more than a century. The credit for removing the carcinomatous cervix by the same route unquestionably belongs

to Osiander. This operation was later improved by M. Langenbeck, who made, for the first time, the supravaginal amputation of the cervix for carcinoma in 1830, an operation which was later revived and popularized by Schroeder. Langenbeck and Sauter were the pioneers in establishing vaginal hysterectomy for carcinoma. Langenbeck enucleated the uterus in 1813 and his patient recovered and finally died of senile marasmus at the age of 84. Sauter removed the entire uterus *per vaginam* successfully in 1822 by an operation which, with some slight modifications, is practiced to-day. Of the first twelve cases of complete vaginal hysterectomy, only three recovered, a mortality of 75 per cent. Extraperitoneal enucleation of the uterus has recently been described as a new operation, but those conversant with the history of surgery will always link Langenbeck's name with the origin of this operation. The great mortality which attended the first attempts to remove the uterus through the vagina were due to hemorrhage and infection. The improved means and technique in prophylactic hemostasis and the introduction of aseptic surgery encouraged Czerny to revive and improve vaginal hysterectomy in 1878. Since that time the operation has been modified in various ways, and has now become an established procedure in the treatment of well selected cases of carcinoma of the uterus, but the honest student will always connect the early history of this operation with the names of Osiander, M. Langenbeck and Sauter.

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BRIGHT LIGHT IN THE SCHOOL ROOM A
CAUSE OF MYOPIA, AND A METHOD PRO-
POSED FOR THE ESTIMATION OF
THE QUANTITY OF LIGHT.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. G. FIELD, M.D.
DES MOINES, IOWA.

The object of this paper is to ask attention, briefly, to the physiologic results of regular use of the eyes in bright light, and more especially to raise the question as to whether progressive myopia in school children is not attributable to a large extent to such use. Also to propose a method of estimating the quantity of light in a given place or room with some approach, at least, to mathematical exactness.

The prevalence of myopia among school children attracted the notice of observers more than thirty years ago. Cohn examined the eyes of 10,000 school children and reported over 2 per cent. myopic in the elementary departments, over 10 per cent. myopic in the intermediate departments, more than 19 per cent. myopic in the high schools, and more than 26 per cent. myopic in the gymnasium. The showing discloses an almost regular ratio of increase from the lower to the higher grades. More recent statistics show an increase since that time of from 25 to 50 per cent. in the number of myopic pupils in the higher German schools. In other words, the longer school life continues, the larger is the percentage of myopia. While Germany leads the world in the intensity and persistency of school work, as she does also in the percentage of myopics, the same conditions, though in a less degree, are shown by the statistics of every civilized people.

Some country schools show as low as 5 per cent. average including 1 per cent. myopic in the elementary departments, but in all, the percentage increases rapidly with the continuance of school life. The causes assigned are: 1, bad air; 2, inheritance; 3, general debility; 4, unnatural posture; 5, use of eyes during partial congestion of the blood vessels of brain; and 6, the use of eyes upon fine print or upon

objects in too near proximity. Most of these causes are amenable to improvement to a greater or less degree, and it is fair to assume that the suggestions presented have been acted upon in the sanitary management of schools. We are, therefore, at this state of the inquiry, confronted by two circumstances which stand out very conspicuously: 1, the employment of measures suggested to remedy or diminish the prevalence of myopia; and 2, its progressive increase everywhere during school life.

Cohn placed as first in the list of causes, "bad light," meaning dim light and, as far as known, the same prominence has been given to that cause by all writers and teachers down to the present time. As a matter of course, Cohn advised more light, and that advice has been followed in the construction of school houses. He recommended one square foot of glass area to five of floor area, and he believed that if school houses should be constructed with a square foot of glass area to every square foot of floor area, that the benefits would be very marked. The proportion of glass area to floor area in school houses in my own vicinity, in some cases is as high as one to five, and the intensity of the light in them is intolerable to many eyes if exposed to it for any considerable length of time without proper shading.

Another cause of myopia named and universally admitted is the use of the eyes upon fine print or upon objects in too near proximity. During a personal visitation to many of these schools a very common custom with scholars was observed—that of laying the book flat upon the desk for study with the face over it. This position necessarily brings the eyes within from five to seven inches of the printed page, and I need not say that such position would meet with universal condemnation. The use of the eyes in this position requires shortening of focus, by increasing the convexity of the crystalline lens by a prolonged contraction of the ciliary muscle, an elongation of the eyeball because of the change in the conjugate foci of the lens; in short, a strained condition of the whole accommodative apparatus of the eye—a condition of temporary myopia. Practically the same thing happens to the eye when used in a bright light even upon distant objects, the immediate effect of which is to stimulate contraction of the pupil. In contraction of the pupil, the marginal rays—those most refracted by the lens are cut off, in effect limiting the action of the lens to its central portion, and landing the image beyond the normal position or distance. The posterior wall of the retina recedes by the action of the recti muscles to receive the image, the ball is elongated, and we have again induced or temporary myopia, just as we have in near or close vision.

The fact is best illustrated by the action of the photographic lens of the rectilinear type, in which the front combination represents the cornea and anterior chamber of the eye, the posterior combination the crystalline lens and the posterior chamber, while the retina is also represented by the ground glass screen. With a large stop, we focus upon a given object and move the screen until we have the image sharp upon it. We, then, without moving the object or screen, remove the large stop and substitute a small one. We contract the light opening in the lens, just as the pupil of the eye is contracted in viewing small objects, using the eye in near vision, or by exposing it to a bright light. We now observe the image upon the screen

and find that the use of the small stop has moved the image—it is no longer sharp upon the screen, because it has receded, and we shall have to move the screen back to where the image is, to get a sharp view of it on the screen. In other words, we must elongate the camera box, just as the recti muscles elongate the eyeball in myopia, to get a sharp image upon the retina. The frequent or forced production of temporary myopia results in a condition, chronic and permanent, and too often progressive. The remedy suggests itself; a thoroughly regulated and modulated light in the school room, a proper seating and frequent interchange of pupils with reference to light, and the substitution of charts and black-boards to the greatest possible extent, for books, in the school room.

The words bright, and dim, are used in this paper as substitutes for the more commonly used words, "bad" and "good" as indicating a measure of light, and possibly they may be the better words. But after all there is a vagueness in the meaning of such words which it becomes a study that aims at, and demands, precision in terms used, as well as in methods and results. At best, only comparative or relative degrees of intensity are expressed by such words. I therefore propose a method of estimating with a very considerable degree of exactness the intensity or quantity of light, and not only of estimating it, but of recording it. It is by the use of sensitized paper. The sensitiveness of this paper depends upon the quantity of nitrate of silver contained in a given quantity of water in the bath. The standard formula is sixty grains to the ounce of water. Albuminized paper floated upon this bath and dried in the dark has a sensitiveness represented by two in the scale of a sensetometer. We have in the paper an instrument at once certain in effect, uniform in action and convenient to employ. The degree to which the paper is browned or darkened when exposed to a given light is a definite measure of the intensity of that light. I have shades of brown each resulting from exposure of different pieces of the sensitized paper one hour on a bright day, in the light of rooms in which the proportion of glass area to floor area varied from 1 to 1, to 1 to 20. (Scale color slips omitted.)

By the application of this method to the determination of quantity of light in the school room, the teacher may know not only the average light value of her room, but of the various parts of it, and at various times of day on different days. With such knowledge, she will be enabled to properly regulate the light by the use of suitable shades and also to seat her pupils in such parts of the room as are best adapted to individual needs and idiosyncrasies. In placing the slips for the estimation of the light value of a room, the mean distance of the slips from the windows is to be taken as the distant line of the area estimated. A scale similar to the one here presented should in all cases be provided for comparison in the use of such slips, and the degree of browning during one hour of exposure should range only from two to four of the scale. This will represent a safe and yet sufficient light, except in special cases and for short periods of time. The slips immersed in a combined toning and fixing bath for ten minutes and then rinsed in two or three changes of clean water become permanent.

I desire it understood, however, that this paper is not for the purpose of establishing a standard of light, for school rooms, which can only be done after

careful concerted observations and experiences, but to furnish a suggestion for the formulation of such standard. Much might be said of the wide range in the diversity of school house architecture, and the imperative need for uniformity of construction upon the best and most thoroughly matured plans under State supervision, including general rules for lighting, heating and ventilating the same. This, however, would be foreign to the scope and purpose of this paper, which seeks to draw attention to two points only:

1. That the use of the eyes in bright light, so constantly recommended as prophylactic, as a matter of fact causes temporary myopia which if persisted in as a habit, or from necessity, soon becomes chronic and permanent as is shown in the history of school life everywhere.

2. That the proper use of light as of heat and other natural agencies by the animal economy requires a means for its quantitative estimation. This can be accomplished with a considerable degree of accuracy by the use of sensitized paper.

THE GOLD IN GARBAGE.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY DOUGLAS H. STEWART, M.D.

NEW YORK.

The quest of the Middle Ages was for the stone that would turn lead into gold, but the aim of the nineteenth century seems to be the transmutation of waste into wealth. As a natural consequence, the elaborate and expensive utilization works of Europe, and the various processes of dealing with American garbage have been established.

Everybody believes in the gold in a dust heap, but as yet it has not materialized. In the light of practical experiment it seems quite as far from realization as the philosopher's stone—also once an object of universal belief. There is not, to my knowledge, a single public municipal system that is run at a profit in the disposal of garbage, no matter what its promises on paper or in the theoretical stage have been. Every system being subsidized—or costing in operating expenses from 7 cents a ton upward to a dollar or more. Every practical test points directly to a loss, and the problem seems to present only one factor for solution, viz., “how to make this loss as small as possible.” Roughly speaking, the attempts at extracting gold from garbage may be divided into four methods:

1. The most wasteful, sea disposal.
2. The most offensive, hog-feeding or fertilization.
3. The most economical to operate, reduction.
4. The most sanitary and complete, cremation.

There is still another method, proposed by an Englishman in the *Leeds Mercury*. He seriously writes about his plan—of domesticating crocodiles in England, in order to have them eat up the garbage and refuse thrown into the rivers. This is no more humorous than some of the schemes proposed for New York. For instance, bear in mind, the simple sanitary fact that water transportation and sea disposal of garbage are unqualifiedly stupid and wasteful, and repeated handlings are unnecessary and costly.

Our ex-Mayor appointed a committee of five to investigate and report on the garbage systems of the United States and England. Let me call your atten-

tion to their report which is quite as humorous as the crocodile hatchery and just as seriously intended.

1. They say: “An intolerable nuisance is created at each garbage dump, from foul odors arising from the garbage, and from the winds blowing the lighter material about, and again, while towing to sea, the escape of a considerable proportion of the material to the defilement of the harbor.

“2. Even with the most improved methods of loading, and the best character of boats, the practice of depositing the refuse at sea is reprehensible from every point of view.

“3. We believe that this material could not be deposited at sea at a less distance than two hundred miles without contaminating the Long Island beaches.

“4. The commission was very reluctant to indorse any untried system.”

You see, this is all very earnestly expressed, but here comes the humor. After condemning dumps the commission suggests building new ones—instead of doing away with them altogether. After condemning sea disposal, they provide for its continuance instead of its extinction. After condemning boats, they say, let us build propellers. After setting a two hundred-mile limit—some of them now talk fifty miles. After expressing reluctance to indorse any untried system, they do indorse an untried experiment—the garbage propellers invented by one of their number. In short, either the report does not bear out the facts or the facts do not bear out the findings. I do not mean to attack the committee at all, but simply to give you an instance of how little we inconsistent islanders of Manhattan know of the scientific position of the age on the garbage problem. And you may be surprised, but I can assure you that the report of the commission was received almost without comment and quite seriously.

New York and Brooklyn still dump their ashes into the sea—and from dock to ocean the freight is very nearly \$500,000. Occasionally the scows sink—thus in 1893 New York alone deposited eight boats and 2,557 cart loads of refuse, on the bottom of New York Bay. There was a bill introduced into the Legislature calling for an appropriation for dredging out the harbor.

It seems to be the fate of cities, located on islands, to become narrow and provincial in their ideas, and when once the conceit of having the “best in the world” is fairly fixed, their commercial position is on the wane. Therefore New York and Brooklyn, to-day, have nothing to teach other cities on the garbage question, except possibly what to avoid. The English cities show us the value of reducers. Some of our own neighboring towns furnish evidence in cremation, and others are living monuments to the results of the pig-feeding and fertilizer plan—but New York and Brooklyn have the most expensive method of making carrion soup on our neighbors' beaches.

Why there is not a perpetual injunction granted by the courts, I do not understand. The details of the garbage disposal of New York can be expressed in three words: nuisance, failure, and waste.

We come now to the second method: hoggerly and fertilization. The hogs are killed by the broken glass in household swill, and no farmer or gardener will put domestic garbage on his land more than once. It is much cheaper for him to dig a large hole back of his house and bury his own household rubbish, as it is in no sense of the word fit for a fertil-

izer. The popular belief is, that it is a rich and valuable manure, but ask your farmers what the average house production is worth per ton, and you will find, that, what everybody knows, is not so—in this case. The cities that have filtered their swill through hogs and cattle are praying for relief, and this method may be compared to sea disposal thus: less waste, more nuisance, and as great a failure.

It is a long step from the pig-stye to the third method—reduction. Perhaps one of the largest and best equipped of reductors is the Southampton. This will work at a loss of 7 cents per ton, with cheap labor, great economy, and the utilization of every possible bit of rubbish. The most popular of these machines in America seems to be the Merz.

As far as odor is concerned, the Merz has not had a fair chance, because the cities operating it would insist on storing the garbage in open sheds around the plant itself. Naturally, the neighborhood had the full benefit of the putrefaction. There is no reason why the operation should not be perfectly odorless. But in deriving gold from garbage this process is a dismal failure. It requires a large sum of money to erect a plant. One large enough for New York is estimated at nearly a million and a half of dollars. The grease obtained has so little real value that in some places it does not pay to run the extractors. In Paterson, N. J., after the first Merz plant burned, the system was replaced with the extractors omitted. The St. Paul plant which was burned has never been rebuilt. I am told that the Buffalo works are run at a profit—and yet I find the city paying an annual subsidy of \$35,000. I am informed that the St. Louis plant begins to pay, and I find the city paying \$1.80 per ton for having the garbage disposed of. I find so many complaints that it is feared that the machinery, costing \$400,000, will have to be removed. The plant pays 12 per cent., according to the builders, but the stock is selling at 60. Mr. Frenzel, of ex-Mayor Gilroy's commission, estimates the profit of the utilization companies at \$2 per ton—but there is something very strange about this, because I can not find a single municipal plant that pays. The utilization plants of Providence and Cleveland promised much, and have failed utterly.

The cremation furnaces can perform their work satisfactorily, with proper manipulation. The Engle crematory at Des Moines, burns 145 cubic yards and a dead horse in twenty-four hours at an estimated cost of 10 cents a yard. Those who are interested in the Merz process know that ten times, or even twenty times this sum, is not a high estimate for the work necessary to handle a ton through the various manipulations required.

Now it is evident that if we can "Utilize," with as small an expenditure as cremation requires, with a minimum amount of handling, and turn it into a product which has a ready sale on the spot, thus saving the cost of transportation, then we shall go far toward obtaining the hidden wealth. To do this, we must have, first, an odorless and economical furnace—one that has stood the test of long and continued experience preferred. Instead of allowing the heat to escape at a great loss, convert it into steam. Tests in England show an average temperature of 1,646 degrees in the garbage furnace—this is the result of actual measurement with the pyrometer. The result of burning one pound of garbage is sufficient to evaporate one pound of water. The steam produced is

utilized to run machinery for various mechanical purposes, such as making card-board, etc. The English people are obliged to be very economical, and the garbage shows a much smaller amount of carbohydrates and fats than ours. Hence, it seems reasonable to take for granted that the production of steam may have a greater percentage to waste burned, in this country than over there. In my search for an odorless furnace I met, among many, with the Rider, which has given satisfactory service to Allegheny and Pittsburg for about eight years. Perhaps it is the simplest and cheapest of all. A committee of investigation from Newport, R. I., had the curiosity to inquire whether the odors came out of the chimney, and one of their number, Mr. James A. Eddy, in his letter just before me states: "I went at once to the top of the stack and tested the matter, but there was no odor, gas, or offensive smell and I returned satisfied that the combustion was complete. We were all satisfied, and recommended the adoption of this furnace to our city."

Then, to my surprise, I found the Duquesne tannery running four acres of machinery with one of these furnaces, burning tan bark, but, as well, offal of various kinds. Their bills were \$4,000 a year for coal before putting in the furnace and \$100 a year after. As to the ability of garbage to make steam, that has been proved, but I will just add an instance quoted from a letter from Dr. Dunn, ex-President Pittsburg Board of Health. He went to the tannery, found the boiler pressure at eighty pounds; he stopped the fuel and had charged into the furnace three tons of decayed melons, potatoes and fruit, two tons cow manure, ten barrels cesspool matter, and two tons butcher's offal. In all about ten tons bad smelling material. This was entirely consumed in two and one-half hours, with no reduction of power, without odor or smoke, and the gauge still registering eighty pounds. After such a test, let us take for granted, that an odorless, steam-making, garbage furnace is an accomplished fact.

Now, if we can convert our garbage into power, we have something that will bring its price in large cities, everywhere and always. Have the furnaces centrally located to decrease cost of hauling. Steam rents in New York for from \$50 to \$100 a horse-power per year. Each furnace can readily make from 200 to 250 horse-power—day and night. Thus each one has an earning capacity of \$10,000 a year, on a supply of sixty tons of refuse a day.

The cost of labor and fuel is easily covered by 25 cents per ton, or \$15 a day, or \$5,475 a year, leaving a net earning margin of \$4,000 after deducting for repairs and emergencies. Of course, all expenses would be lowered by using cinders for fuel—in practical operation.

I always hesitate in giving facts and figures because they always bring to my mind Josh Billings' keen proverb: "Nothing will lie like figures except facts," or, as one medical man put it, in a city far away: "The garbage disposal here is a political reduction method by which fibs, untruths and plain lies are reduced to statistics."

If we are to have public disposal, I can find nothing better than the plans given before the Academy of Medicine, in my address delivered two days before the report of the Mayor's commission. Inventors have again and again shown to Mr. Harold P. Brown and myself, working plans of steam-making garbage

furnaces, the adoption of any one of which would eliminate scows and propellers, and save the city \$1,000 a day in cutting off this single item of expense.

The fuel value of New York garbage is largely in excess of that in European waste. As Dr. Thomas H. Manley once said to me: "Half of Vienna could live out of New York's ash barrels." In Austria, domestic economy is a stringent necessity, hence the constant presence of the vegetable can, the stale bread tin, the grease pot, and the soup kettle in the kitchen. With our population, canned soup is often bought and the hydrocarbons go into the swill pail. Here is a desperate evil, for it is an axiom of political economy that waste makes want. Unfortunately, the law can not step in and force thrift upon our citizens. Will domestic disposal of all garbage help us? It will help the city by doing away with the great expense of gathering and transportation, but, if the disposer is handy, will not our servants and our poor be more apt to put the drippings and grease into it, rather than take the trouble to fry out the fat for cooking purposes? Shall we not be saving the public purse at the expense of many private ones? The best way seems to be to keep the gold out of the garbage, rather than to attempt to get it out after it has been thrown in. And for this reason I should suggest that the public schools for girls give two hours each week to kitchen economics; let them teach only theory out of some good practical common-sense book, and you may be quite sure most of the little scholars will prove missionaries and reformers of the doctrine of thrift in the next generation, and many of them will be able to save 5 cents out of every dollar earned by the head of the house. Now, therefore, let us investigate the waste at its source—the cook. It is absurd for us to tell that domestic to save albuminoids, carbohydrates, and fats, for she could not understand, but we can find out how she manages to waste them, and how they can be utilized.

Albuminoid or nitrogenous: pieces of bread, cold rice, cold corn-meal, cold potato, cold beans, oat-meal, hominy, sour milk, beets, squash, cabbage, turnips, onions, peas, parsley, asparagus, carrots—these are all "no good," and go into the swill pail first of all.

Carbohydrates and fats: meat, poultry and fish in bits, bones, fat, drippings, and pork and sausage fat, mutton tallow, vinegar and fruit syrups, jellies, preserves—all these are thrown away.

Consult a good cook-book and see what this means: bread can be used for puddings, for griddle cakes, for stuffing meat and fish. It can be dried and powdered, serving the same culinary purposes as cracker dust. Rice, cold corn-meal, cold potatoes, cold hominy can be made into griddle cakes, genis and muffins. Sour milk makes doughnuts, gingerbread, pot cheese, and griddle cakes. The green vegetables may be made into hash and into vegetable salads. Meat, poultry, fish, and bones will make soups, gravies, and many made dishes; fat can be used for shortening bread and gingerbread. Pork fat of all kinds is useful for frying purposes. Tallow has many manifest applications. The farmers use it from head to foot—from hair oil to boot grease—not forgetting chapped hands and soap grease. The fruit skimmings and sweetened vinegar will take the place of wine in sauces. Jelly and preserves will make puddings and pies.

I should suggest a large printed card, hung over the range, for Bridget's information, and embodying

the use of every scrap which she enjoys putting into the refuse heap, and have her live up to the directions. You will reduce your garbage to such an extent that there will be little trouble in dealing with it, the effort to utilize it will not pay, and the burning of it will not be wasteful. But your citizens will lose the nervous anxious worry, and be able to lay by a "little money for the rainy day." It seems much more reasonable to stop the entrance of gold into garbage than to spend much money to recover a portion of the waste.

Since writing the above, the furnace invented by Mr. A. W. Colwell has been tried in New York. This consists of a steam-making crematory, and although it has been in operation but a short time, yet both from an economical and sanitary standpoint, it promises well. We can not sell a pound of manure in this city, hence the large "paper" earnings given to this product by the "Reduction" people are plainly nonsense. Garbage has fuel value only.

THE INFLUENCE OF ALCOHOL UPON URINARY TOXICITY, AND ITS RELATION TO THE MEDICAL USE OF ALCOHOL.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. H. KELLOGG, M.D.

BATTLE CREEK, MICH.

The biologic test for the urine, perfected by Bouchard, is a most important addition to our means of studying disease processes in the body and the effects of various infectious and toxic agents upon the animal organism. Bouchard demonstrated what had previously been suspected, that urea is not the most important toxic agent of urine, although the most abundant excretory product. His researches demonstrated the fact that urea is only very slightly toxic in character, and that it, in fact, serves a very important and useful rôle in the economy by stimulating renal activity, acting thus as a true physiologic diuretic. The experiments of Bouchard and Rogers have shown very clearly that the urine contains more than half a dozen toxic agents, most of which are far more important in character than urea. Urea is, however, a useful measure of these agents under ordinary circumstances, that is, when the urine contains only the normal toxins; but, under unusual morbid conditions produced either artificially for experimental purposes, or naturally as the result of an infection of some sort, the quantitative determination of urea is no longer a reliable guide, in fact, it may give no suggestion in relation to grave morbid processes resulting in the formation of large quantities of toxic substances and a consequent condition of general toxemia. The same is true with reference to the various other modes of examining urine in common use.

The biologic test of the urine does not require a chemic examination of the urine, hence does not depend upon the chemic recognition, by reagents, of minute quantities of chemic substances, the reactions for which may be obscured by the presence of other known or unknown substances, but makes a direct determination, both quantitatively, and, to some extent qualitatively, respecting the toxic character of the urine in both normal and pathologic conditions.

The following is the method: the urine collected for a definite time, and, if necessary, calculated for twenty-four hours is carefully neutralized and then injected at the rate of 1 c.c. per second into the venous system of a rabbit which has previously been carefully weighed; the weight of the patient must also be known. The exact quantity required to cause the death of the rabbit, and the symptoms occasioned as the result of the injection are carefully noted. The following are obtained, directly or indirectly:

1. The amount of urine required to kill a kilogram of rabbit.

2. The number of kilograms of rabbit which might be killed by the total amount of urine produced in twenty-four hours.

3. The amount of rabbit which might be killed by the quantity of toxic substances produced in twenty-four hours by each kilogram of the patient. The latter quantity is termed the urotoxic coefficient, and is represented normally by the fraction .44, that is, the quantity of urine produced in twenty-four hours by each kilogram of normal human being is capable of destroying the life of .44 kilogram of living being, consequently, if these substances were retained within the body by failure of the kidneys to eliminate them, death would result, approximately in about two and a half days. Clinical observation with reference to the effects of complete suppression of the urinary function agree with the results of experimental study.

I have employed the biologic test a very considerable number of times, some hundreds of times in all, and am fully satisfied with regard to its reliability and accuracy. It is, indeed, a most remarkably delicate test of the condition of the system in general, and of the renal function in particular. A few observations which I have made will serve to illustrate the value of these means of investigation. In a case of tuberculosis the toxicity of the urine was found to be double the normal. Among the most prominent symptoms occasioned by the injection, was a very great rise in temperature, the elevation in temperature amounting to over 3 degrees C. In a considerable number of tests made, in which the urine of a patient suffering from typhoid fever was employed, the toxicity of the urine was found to be greatly increased in every instance, and occasioned a marked elevation of temperature. In a case of intermittent fever of malarial origin, the urotoxic coefficient of 2.36 was found during the paroxysm, the coefficient of being .76 before, and .78 after. This observation seems to show that during the paroxysm of malarial fever there is produced by the parasites of this disease a febrile substance to which the febrile action is due. This subject the writer has considered at length elsewhere.

One of the most interesting observations I have made was in a case of idiopathic epilepsy; the urine employed was collected while the patient was just recovering from a succession of epileptic seizures, having been in what is known as the epileptic state, or static epilepticus for nearly thirty-six hours. The urine was found to be extremely toxic, the degree of toxicity being three times the normal. The rabbit died in convulsions which were distinctly epileptiform in character.

The biologic test applied to the urine of pneumonia, erysipelas, scarlet fever, diphtheria, and all other infectious maladies shows a marked increase in the toxicity. When the patient is doing well, that is,

when the poison is being eliminated by the kidneys. In pneumonia, for example, the toxicity of the urine may be considerably diminished during the first few days, but when the critical period is passed and favorable symptoms make their appearance the toxicity of the urine is found to be three or four times the normal.

Delicate chemic investigations of the urine which have been made by Gauthier, Brieger, and others, have revealed the presence in the urine of definite organic compounds which possess characteristic toxic properties. Chemic researches, when sufficiently refined and delicate thus agree with the biologic test, but the modes of investigation employed are too troublesome to be ordinarily used, hence the value of the biologic test.

The above mentioned observations, and many others, having fully established my confidence in the biologic test as a reliable mode of investigation, I determined to make an experiment for the purpose of determining the influence of alcohol upon urinary toxicity. The subject of the experiment was a healthy man of 30 years, weighing 66 kilos. For fifty days prior to the experiment he had taken a carefully regulated diet and the urotoxic coefficient had remained very nearly uniform. The urine carefully collected for the first eight hours after the administration of 8 ounces of brandy diluted with water, showed an enormous diminution in the urotoxic coefficient, which was, in fact, scarcely more than half the normal coefficient for the individual in question. The urine collected for the second period of eight hours showed an increase of toxicity, and that for the third period of eight hours showed still further increase of toxicity, the coefficient having nearly returned to its normal standard.

The bearing of the results of this experiment upon the use of alcohol in pneumonia, typhoid fever, erysipelas, cholera and other infectious disorders will be clearly seen. In all the maladies named, and in nearly all other infectious diseases, which includes the greater number of acute maladies, the symptoms which give the patient the greatest inconvenience, and those which have a fatal termination, when such is the result, are directly attributable to the influence of the toxic substances generated within the system of the patient as the result of the presence of the specific microbes to which the disease owes its origin. The activity of the liver in destroying these poisons, and of the kidney in eliminating them, are the physiologic processes which stand between the patient and death. In a very grave case of infectious disease, without this destructive and eliminative activity the accumulation of poison within the system would quickly reach a fatal point. The symptoms of the patient vary for better or worse just in relation to the augmentation or diminution of the quantity of toxic substances within the body.

It is the recognition of this fact which has led to the recent general revival of hydrotherapy in the treatment of acute febrile disorders. Water applied externally stimulates cutaneous elimination, and, employed freely internally by water drinking and the introduction of water in quantities into the colon to be retained for absorption, aids liver and kidney activity. If the patient dies, it is because his liver and kidneys have failed to destroy and eliminate the poisons with sufficient rapidity to prevent their producing fatal mischief among the delicate mechanisms of the body.

In view of these facts, is it not a pertinent question to ask how alcohol can be of service in the treatment of such disorders as pneumonia, typhoid fever, cholera, erysipelas and other infections, since it acts in such a decided and powerful manner in diminishing urinary toxicity,—in other words, in lessening the ability of the kidney to eliminate toxic substances? In infectious diseases of every sort, the body is struggling under the influence of toxic agents, the result of the action of microbes. Alcohol is another toxic agent of precisely the same origin. Like other toxins resulting from like processes of bacterial growth, its influence upon the human organism is unfriendly; it disturbs the vital processes: it disturbs every vital function, and, as we have shown, in a most marked degree diminishes the efficiency of the kidneys in the removal of the toxins which constitute the most active factor in the diseases named, and in others of analogous character. If a patient is struggling under the influence of the pneumococcus, or Eberth's bacillus, Koch's cholera microbe, or the pus-producing germs which give rise to erysipelatous inflammation, his kidneys laboring to undo, so far as possible, the mischief done by the invading parasites, by eliminating the poisons formed by them, what good could possibly be accomplished by the administration of a drug, one of the characteristic effects of which is to diminish renal activity, thereby diminishing also the quantity of poisons eliminated through this channel? Is not such a course in the highest degree calculated to add fuel to the flame? Is it not placing obstacles in the way of the vital forces which are already hampered in their work by the powerfully toxic agents to the influence of which they are subjected?

In his address before the AMERICAN MEDICAL ASSOCIATION at Milwaukee, Dr. Ernest Hart very aptly suggested in relation to the treatment of cholera the inutility of alcohol, basing his suggestion upon the fact that in a case of cholera the system of the patient is combating the specific poison which is the product of the microbe of this disease, and hence is not likely to be aided by the introduction of a poison produced by another microbe, namely, alcohol. This logic seems very sound, and the facts, in relation to the influence of alcohol upon urinary toxicity or renal activity, which is elucidated by our experiment, fully sustain this observation of Dr. Hart.

It is also easy to show the important bearing of the fact to which we have called attention upon the relation of alcohol to chronic disease. Alcohol is doubtless, at the present time, much less frequently prescribed as a remedy in chronic disease than a quarter of a century ago.

In a recent number of the *British Medical Journal*, Dr. Lauer Brunton, the eminent English physiologist and neurologist, in mentioning the fact that death from chloroform anesthesia rarely occurs in India, but is not infrequent in England, attributed the fact to the meat-eating habits of the English people, the natives of India being almost strictly vegetarian in diet, partly from force of circumstances doubtless, but largely also, no doubt as the result of their religious belief, the larger proportion of the population being more or less strict adherents to the doctrines of Buddha which strictly prohibit the use of flesh foods.

The theory advanced by Dr. Lauder Brunton in relation to death from chloroform poisoning, is that the patient does not die directly from the influence of chloroform upon the nerve centers, but that

death is due to the influence of chloroform upon the kidneys, whereby the elimination of the ptomaines and leucomaines naturally produced within the body ceases, their destruction by the liver also ceasing, so that the system is suddenly overwhelmed by a great quantity of poison and succumbs to its influence, its power of resistance being lessened by the inhalation of the chloroform.

The affinity between alcohol and chloroform is very great. Both are anesthetic. Both chloroform and alcohol are simply different compounds of the same radical, and the results of our experiment certainly suggest the same thought as that expressed by Dr. Brunton. How absurd, then, is the administration of alcohol in conditions in which the highest degree of kidney activity is required for the elimination of toxic agents.

Another thought is suggested in this same connection, namely, the absurdity of injecting alcohol in a case of threatened death in chloroform anesthesia. Notwithstanding the extensive use of alcohol for this purpose during many years, can any person testify that he has seen a single life saved by it? The evident danger of establishing the alcohol habit by such a use of the drug doubtless influences most intelligent physicians sufficiently to lead them to consider it better for the patient to forego any possible benefit which he might receive from the use of alcohol, rather than become a confirmed inebriate. Nevertheless there are still many practitioners who recommend to certain classes of patients the habitual use of beer or wine or some other of the so-called light liquors with the idea that by their use nutrition may be improved, and appetite, digestion, or assimilation increased, or some good be accomplished in some way which no one has attempted to explain.

In a certain proportion of these chronic cases there is a tendency to tissue degeneration. Modern investigations have given good ground for the belief that these degenerations are the result of the influence of ptomaines, leucomaines, and other poisons produced within the body upon the tissues. It is well known that many of these toxic agents, even in very small quantity give rise to degenerations of the kidney. It is this fact which explains the occurrence of nephritis in connection with diphtheria, scarlet fever, and other infectious maladies. Dana has called attention to the probable rôle played by ptomaines produced in the alimentary canal in the development of organic disease of the central nervous system.

It is thus apparent that the integrity of the renal functions is a matter of as great importance in chronic as in acute disease, hence any agent which diminishes the efficiency of these organs in ridding the system of poisons, either those normally and regularly produced, or those of an accidental or unusual character must be pernicious and dangerous in use.

In conclusion, I desire to say that this paper is not claimed to be an exhaustive study of the subject presented, but simply a preliminary report of a work which I have begun, and which I hope to continue in the same line, with the expectation of securing still other interesting and valuable results.

A Retort à la Puffendorf.—Swell of the Period: "Oh! doctor, I have sent for you, certainly; still I must confess I have not the slightest faith in modern medical science."

Doctor: "Oh! that doesn't matter in the least. You see, a mule has no faith in the veterinary surgeon, and yet he cures him all the same."—*Tagliche Rundschau*.

THE TREATMENT OF TYPHOID FEVER WITHOUT ALCOHOL.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY W. H. RILEY, M.D.

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The purpose of the present paper is to give, briefly, an outline of the method of treatment of typhoid fever as used by the writer in a considerable number of cases.

A consideration of the pathology of this disease does not properly come under this head, but we wish simply to call attention to the well-known fact that typhoid fever is a germ disease. The germ which causes this fever has been generally supposed to be the bacillus of Eberth. More recent bacteriologic studies rather indicate that the bacillus coli may also cause the disease. These germs are usually carried into the body in food or drink, and lodging in the small intestines begin to grow and multiply, and by their life produce poisonous ptomaines which are absorbed and carried by the circulation to all the organs and tissues of the body. It is these ptomaines thus carried to all parts of the body that are largely the immediate cause of the pyrexia and attending symptoms. The organisms which produce these poisons for the most part remain in the intestines, although they have also been found in the spleen.

The indications for treatment are:

1. To remove or destroy the cause (to eliminate the germs and ptomaines from the body).
2. To sustain the vital and resisting powers of the patient.

If the patient is seen early in the disease, it has been my practice to immediately put him to bed and give a free dose of magnesium sulphate. This is preferably given in the morning or forenoon, and may be repeated once or twice on successive days. Beside this the patient should have a large enema of water at a temperature of from 75 to 80 degrees Fah. and this may be repeated daily, or even oftener, for some time, if necessary, to keep the bowels empty of poisonous substances.

The salines and enemas thus used, carry out bodily a large number of germs and ptomaines that are present in the intestines; and further, the salines, by producing an increased secretion of the mucous membrane of the intestines, tend to disentangle and set free many of the germs that have found a lodging place in the walls of the intestines.

For the elimination of the ptomaines which have been absorbed into circulation and carried to the tissues, nothing is better than the internal use of water. From three to five pints should be drunk during every twenty-four hours. It should be taken in small quantities, six to eight ounces every hour or two during waking hours, except when food is taken. We will refer to this point more in detail later.

A consideration of the general care of the patient properly comes under the second head of the indications for treatment as given above. The patient should be put to bed in a large, light, well-ventilated room. At least two sides of the room should communicate directly by windows with out-of-doors, in order that the room may be properly ventilated. All unnecessary articles of furniture, such as carpets, couches, upholstered chairs, pictures, etc., should be removed.

The room should be thoroughly cleaned before the patient is put in it. There should be two beds in the room for the use of the patient. These should be preferably narrow, and so placed in the room that there is a free approach to both sides of the bed, for the convenience of the nurse in giving treatment. Iron bedsteads are preferable to wooden. The bedding should be firm, yet soft and smoothly drawn. There should be just sufficient covering to protect the body. The patient should be changed from one bed to the other daily. This may be done by placing the two beds side by side and carefully moving the patient from one to the other. The sheets on the bed from which the patient has been taken should be washed and disinfected at each change of the beds, and all other bedding should be thoroughly aired and exposed to the sunlight.

The patient should have the care of a thoroughly educated, careful and competent nurse; one who understands perfectly the various methods of using water in the treatment of fevers.

There is no other single remedy that I consider so valuable in the treatment of fever as the internal use of water. As above stated, the patient should drink six or eight ounces every hour during the waking hours, except for about two hours after food is taken. The water should be thoroughly sterilized, and as a rule may be taken either cool or hot. Ice water is objectionable. Hot water is often preferable. This is a simple remedy, but nevertheless is efficacious. It should be given to the patient whether he calls for it or not, and should be considered an important part of his treatment. When water is taken into the stomach and absorbed into the circulation, it throws into solution the ptomaines which have been absorbed from the intestines and are present in the circulation and tissues, and thereby puts them in a favorable condition for elimination. It increases the activity of the kidneys, and thus hastens and increases elimination of the poisons in the system.

In the early stage of the fever, when the pulse is full and the action of the heart increased, it is best to give the patient cool water. Later in the disease, when the action of the heart is weak and the patient feeble, it is best to give the water hot.

Winternitz, many years ago, demonstrated that hot water taken into the stomach acted as a cardiac stimulant, and the increased heart's action is immediate, or at least before the water has time to absorb, which indicates that the hot water in the stomach acts reflexly as a cardiac stimulant. The water after absorption also increases the circulation by filling the blood vessels and increasing arterial pressure. The writer has frequently noticed a decided increase in the fullness and rapidity of the pulse after a patient has drank a glassful of hot water.

The external use of water also forms an important part of the treatment. The patient should be sponged off with tepid water every hour or two when the temperature is 103 degrees or above. When the temperature is less than this, it is not necessary to sponge the body so frequently. Sometimes a hot sponge bath is more efficacious in reducing the temperature than the tepid or cool bath. The sponge bath reduces the temperature, relieves many of the distressing nervous symptoms, is refreshing to the patient, and promotes sleep. The temperature of the body may also be reduced by the use of cool compresses placed over the abdomen and changed frequently.

The matter of diet is an important factor in the treatment of typhoid fever. The diet should be aseptic, easily digested, and should contain the necessary food elements. Probably no one article of diet meets all these requirements as well as sterilized milk. The patient should take from two to three pints daily. The milk is best taken four times during the day at intervals of four hours, taking eight to ten ounces at a time. Should the patient become tired of the milk, gluten gruel may be substituted at times for the milk. A new preparation known as malted gluten, manufactured by the Sanitarium Health Food Company, Battle Creek, Mich., would probably be preferable to gluten, as it is more soluble, and consequently more readily assimilated.

The diarrhea and bowel symptoms, when present, may be relieved by the application of hot fomentations to the abdomen, warm or hot enemas, and 20 grains of subnitrate of bismuth given every four hours.

The patient should be kept as quiet as possible, and should be turned in bed at intervals, to prevent hypostatic congestion and the formation of bed-sores. The bony prominences which are apt to become eroded should be sponged frequently with a solution of tannic acid in equal parts of alcohol and water; a drachm of the tannic acid to a pint of alcohol and water is about the proper strength to use.

By the methods outlined above, that is, by the free use of water internally and externally, by keeping the intestines thoroughly emptied of poisonous material, by the free and frequent use of enemas, by proper feeding and careful attention of a good nurse to the patient and his surroundings, the duration of the fever may be shortened, and the severity of the disease lessened; heart failure and other complications will seldom occur, and the patient will in nearly every instance make a good recovery.

The best method to pursue to prevent heart failure is to keep the poisons which are generated in the bowels and absorbed into the body, and which are the direct cause of the heart failure, eliminated from the body. Should the heart become weak, it may be effectually stimulated by giving hot water to drink, applying heat to the heart in the form of a fomentation, and the application of fomentations to the upper spine.

In the treatment of a large number of cases of typhoid fever, extending over several years' practice, the writer has never made use of alcohol internally to support the action of the heart or for any other purpose.

The number of cases of death from typhoid fever coming under the writer's observation, where the method of treatment pursued has been similar to that indicated above, have been very few, and a much smaller per cent. than in practice where alcohol has been used as a "cardiac stimulant." The writer believes that the use of alcohol in the treatment of typhoid fever is not only useless, but absolutely harmful.

REPORT OF THE TREATMENT OF SIX GRAVE CASES OF TYPHOID FEVER WITHOUT ALCOHOL.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY KATE LINDSAY, M.D.
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The use of any remedy empirically declines always in proportion to increased knowledge of facts and the approach to exactness in medical science in all its branches. When the treatment of disease consisted almost entirely of a medication of symptoms and no fixed rules or indications regulated the giving of drugs, many remedies were used because of precedent and without any other virtue to recommend them for the cure of disease. At the present, when rational ideas about the causes, course, and all other phenomena of disease are found, collected and classified from actual knowledge of these subjects, and the progressive medical mind is not satisfied with the therapeutics of the past, many remedies and methods of treatment, some of them very popular, have been superseded by other and more rational methods of dealing with disease. Preventive medicine has come to the front in many departments of healing, notably in surgery, obstetrics, and the stamping out of many contagious diseases, until we know just what result may be expected from a given, proven line of treatment. No surgeon of to-day would be satisfied with what made glad the hearts of the surgeons of thirty or less years ago. When the house surgeons reported a wound discharging laudable pus freely, it was taken as an evidence that all was well with the patient, and very satisfactory to physicians and nurses. To-day a wound full of laudable pus-discharging wounds would be a signal for sanitary investigation, and an inquiry as to who had sinned, the physician or nurses. What has been the violation of the law of surgical cleanliness in the matter of the preparation for the operation and the dressing of the wound? What, or who was unclean? Patient, attendants, instruments, air, or operating room or ward? And the signal also for a thorough cleansing and disinfecting of everything, and increased care and cleanliness to prevent further extension of the wound infection is indicated.

About a quarter of a century ago the visiting obstetrician of the obstetrical ward of a large city hospital directed the house physician in a case of puerperal septicemia to give hypodermic injections of morphin until the patient was narcotized within an inch of her life, which inch slipped away within forty-eight hours, notwithstanding the house physician's faithfulness for the uterus and adnexa were exhibited to the students within that time. The uterine mucous necrosed in spots, shreds of decaying membranes and clots of blood all told the story of a toxic center from which floods of ptomaines and other morbid elements passed by way of the absorbents and blood currents to every part of the body, completely stopping all assimilation and arresting all functional activity. To-day a similar case would be treated by curetting, flushing and disinfecting, like any other abscess, getting rid of the morbid matter and microbes, and with them the heart failure and other dangerous symptoms for which the heroic doses of morphin or alcohol were given.

Now, latest investigations of the bacteriology of typhoid fever indicate that during the first ten or

More Oysters Called for in Chicago.—The poet, or song-writer, on the staff of the *Chicago Tribune* is manifestly and urgently observant of the fact that oysters may be eaten in September; he says:

"The oyster now is on our shore, Maryland, my Maryland. Li-tum-ti-tum-ti as before, Maryland, my Maryland. Rit-tooral-looral o'er and o'er, tra-la-la-la abundant store, hi-umpty bumpty send some more, Maryland, my Maryland."

fifteen days, typhoid bacilli are found in blood and excretions, later streptococci predominate, causing the pyrexia of the second, third and fourth weeks, the critical period usually in a typhoid fever case, the time when some authors consider alcohol the principal resource of the physician for impending heart failure. (See Osler's "Practice of Medicine," page 38.)

Now to do away with the necessity for the use of this very objectionable drug we have to locate the toxic centers, as in the case of the septic wound and uterus, and devise some safe method of cleansing and disinfecting it, to be as successful as a physician as the surgeon of to-day, in preventing this secondary infection, or of lessening the amount and formation of toxins to that extent that the bodily vital energies will not be overpowered in the conflict with them. The chief toxic center is evidently the intestinal tract, especially the termination of the ileum. The ulceration, necrosis, perforation and hemorrhage, are most frequently found in the last twelve inches of the small intestines, and may extend into the large intestines. The ulcerated surface and open vessels increase the facility for the poison to find an easy entrance into the structures of the body. The microbes, blood clots, necrosed tissue, and pus furnishing abundant supply of toxic matter, which, saturating the system, overpower and stop the activity of the functions of all the organs of the body, causing degeneration of tissues, and death is said to take place from heart, lung, or brain failure, when the failure involves every other organ as well.

Regarding the intestinal tract as any other abscess at this time the physician should seek for methods of treatment or remedies which will remove the morbid matter and destroy, or at least inhibit their action, thus decrease the fever and stimulate the circulation. Secondary toxic centers often develop in the course of this disease, notably in the glands, lungs and depending organs. The hypostatic congestion resulting from lying in one position causing stasis of blood, death and necrosis of tissues, both of the external and internal organs. All vessels connected with the dying tissues carrying toxins to other parts of the body, fermenting food in the stomach and bowels, suppurating glands, phlebitis of the femoral veins, are all examples of this secondary infection, and are accountable for the heart failure and collapses so often fatal during the second, third and fourth weeks of typhoid fever. The six cases I now report will be illustrations of the good effect of rational measures to prevent and meet these complications. It is not said to be the best that may be discovered in the near future, but better than the mere empirical administration of any narcotic or other drug, the action and therapeutic value of which is so much disputed as alcohol at the present time. It also indicates a line of clinical experimentation in the line of intestinal antiseptics, and cleansing and elimination of the alimentary tract, also means to avoid and overcome the blood stasis and death of tissue in the weak dependent organs of the body, liable to stagnation from obstruction or position. The old idea that in peristaltic action lay the great danger of increase of the hemorrhage and perforation of the bowels is giving way to the more rational view that gaseous distension and septic absorption are what bring about fatal results from these complications, and that the moderate peristalsis of the

intestinal walls lessens these dangers by closing the gaping ends of the injured vessels and expelling the septic matter and foul gases. To meet these indications I have found lavage of the bowels, even during hemorrhage, with water of 105 to 110 degrees, or even hotter, given in moderate quantity of from one pint to three, to give great relief by freeing the large intestines of blood clots, fecal matter, and other morbid matter, and also increasing peristaltic action in the small intestines, favoring the expulsion of gas, the heat stimulating the circulation in the peripheral vessels of the intestines, and overcoming the tendency to blood stasis.

Ice bags alternated with fomentations were used over the abdomen externally, and heat, or hot and cold to spine. The extremities were kept warm. From 10 to 30 minims of turpentine in an ounce of gum acacia or starch water increased the efficiency of the enemas and aided in expelling the gas and checking hemorrhage.

The tendency to hypostatic congestion and bed-sores was prevented by frequent change of position and the use of hot and cold to spine, by fomentations and compresses to spine, or better still, hot fine spraying, or alternate hot and cold spray. In one grave case, spraying was kept up for about twelve hours with only short intermissions. The heart was stimulated by heat over it, whenever depression and collapse threatened. From a series of 120 cases of continued fever lasting three weeks and over, not influenced in any way by quinin, the six cases reported below were selected from fifteen very grave cases. These six reached the extremely critical condition.

Case 1.—A. C., age 26; nurse; supposed to have contracted the disease from a 2-year-old child she was nursing. Temperature taken when she went to bed, Dec. 12, 1887, 103 degrees, 6 A. M. Had been feeling indisposed for about a week, with slight and increasing evening temperature and some chilly sensations, but no well-defined chill. From that date until December 24, temperature ranged very steadily between 104 degrees P. M. and 103 degrees A. M., with two or three exceptions, where it rose evenings to 105 degrees, and mornings fell for a short time to 101.5 degrees F. The 20th and 21st there was moderate hemorrhage from bowels, checked by ice to abdomen and heat to spine, and astringent enemas of moderate temperature were given. December 22, one-half pint of blood passed, also at 9 A. M. and 4 P. M.; 7 P. M. to 10 P. M. about a pint of blood clots passed. Patient now began to have marked symptoms of heart failure and indication of hypostatic congestion and bed-sores. Enemas were now given frequently of a higher temperature, and the hot applications made to spine and over abdomen. The gaseous distension was finally overcome, and with the removal of the distension and improved heart action and circulation in all parts of the body, the patient's condition began to improve, although she continued to be indifferent to her surroundings and passed all discharges in bed until December 31, when temperature was normal for the first time, and never reached 101 degrees. A very slow but steady convalescence followed, until Jan. 18, 1888, when unwise friends gave her a full meal of meat, rice pudding, and other hearty food for dinner, causing a severe pain in bowels and stomach, vomiting and purging, and an attack of acute gastritis ensued. Temperature rose from 98.2 degrees A. M. to 103 degrees 6 P. M. the same day. It ranged between 100 degrees morning and 103 degrees until January 27; at that date it reached the normal temperature morning, and evening kept below 102 degrees. February 1 patient was discharged from treatment. For several days patient was nourished by nutrient enemata during relapse. Never reached the danger line, as during the ulcerative stage of the fever.

Case 2.—C. F., young man, age 24, also nurse, contracted fever from a patient he was nursing. Had been feeling unwell for about two weeks, but did not wish to give up, as he wanted to attend college during the winter. Had had a rise of temperature ten days when he took to bed with fever 104 degrees. Had hoped the fever was malaria, and tried to

keep it off with antiperiods. Soon after going to bed the ocher-colored discharges and bloating tympanitis and muttering delirium of typhoid were well marked. Temperature followed the regular typhoid curve of 104 degrees P. M. and 103 degrees A. M. Middle of second week several severe hemorrhages occurred. Patient's condition became critical, but after free lavage of the bowels and the removal of a great amount of blood clots, sloughs, and other morbid matter his condition began to improve. Unfortunately a new nurse took charge of the case at this time, and fearful of producing another hemorrhage, allowed patient to remain on back for about twelve hours without change of position, when the hardening of the tissues over the hip bones and shoulder blades showed that there were extensive areas of dead tissue, and the patient's condition once more became critical from absorption and hypostatic congestion of lungs, spine and all depending organs. It was at this time the twelve-hour-long spray was given. Respiration became very rapid at this time, also pulse rapid and feeble. Under the spray they improved, but the respiration continued 40 and above for about a week. Extensive sloughing of the indurated tissues took place, but under the continued stimulating effect of the spray and antiseptic treatment, healthy granulations soon began to form and the patient recovered, the fever lasting from Dec. 18, 1887, the day he took to bed, until March 1, 1888. When he finally recovered there was extensive atrophy of voluntary muscles, involving the adductors of thumbs and of thighs especially. These muscles were never completely restored, either in size or function.

Case 3.—Miss E. P., college student, age 20, came into the boarding hall of college at opening of college year, middle of September, 1888. Felt tired and unable to begin her studies when the college course opened, but thought by resting a few days would be better. At the end of a week the college preceptress became anxious about her and brought her to a physician, who had her temperature taken and found it 103 degrees. The most distressing symptom at this time was an intense continuous headache, frontal and occipital, which was relieved neither by bromid, antifebrin, antipyrin, or hot and cold applications. It finally abated somewhat under the use of ice and galvanism. Opiates seemed to aggravate. The temperature course was about the same as the other two cases reported. Tympanitis, diarrhea, rash, and sloughing of Peyer's patches ensued. The hemorrhage was slight, but gaseous distension was very marked and required frequent enemata and mild salines with salol bismuth, and other eliminative and antiseptic measures to keep the patient at all comfortable. There was great nervous prostration and a tendency to hypostatic congestion, causing labored breathing and a quick, feeble pulse. The applications of hot and cold to spine were often the only thing which procured her any rest. After these treatments she would sleep for from one to four hours. There was always great tenderness of scalp and tendency of the head to draw backward. After a very critical week, the fourth of her illness since taking to bed, all the symptoms seemed to improve, and for about ten days pulse became strong, about 85 to 90; temperature near the normal line; appetite improved, and discharges from bowels became more normal; only head symptoms remained, and she had delusions of having threads or splinters in her throat. One morning in the middle of the sixth week of her illness she asked her nurse for the bed pan. The nurse went to the closet to get it, when the patient screamed out: "O, nurse, come quick, quick!" When the nurse got to her she was unconscious, face flushed and livid, complete paralysis of all the muscles of the body, and every evidence of rupture of blood vessels in the brain, and the formation of an extensive clot. She died of brain failure and compression in twenty-eight hours, being the only fatal case of the series.

Case 4.—Miss C. D., age 22, dressmaker, called at my office Oct. 12, 1888, about noon. Complained of feeling badly for about ten days. Had chilly feeling in the morning; felt hot and feverish at night; no sweating; nose bled freely. Took temperature, found it 104 degrees F. Had not sought any medical advice before. She was put to bed and treatment to reduce the fever began at once. Her case pursued a course very similar to No. 1. The free hemorrhage from bowels with evidence of secondary infection and heart failure, and to meet these indications treatment was the same, save there was no relapse. Was discharged with normal temperature Dec. 9, 1888.

Case 5.—A. S., a young girl, age 12. Very frail, orphan, parents both died young, but cause not known. Patient had complained of feeling unwell for a number of days. On Oct. 21, 1894, physician first called to see her. Temper-

ature found to be 104 degrees. As she was reported to have had a chill early in the morning of that day and also two days before to have had chill, fever and sweating, she was given a cathartic, warm bath and 12 grains of quinin in divided doses of three grains each. This treatment was continued three days without any influence on the fever whatever, which followed the regular course of evening rise to 104 degrees and morning decline to 102.5 degrees, though sometimes it rose to 106 degrees for a short time. Was very nervous. October 26, had a moderate hemorrhage from bowels; suffered greatly from distension and gas. Hemorrhages repeated the 27th; gas still very troublesome; abdomen hard; grasped throat and struggled for breath; heart's action bad, pulse quick, weak, irregular. Turpentine was now added to the enemata, 15 minims to a pint of water. This relieved the bowels of the gas, and a large amount of blood clots, fecal matter and sloughs, when patient became much more quiet. There was at this time the formation of small bed-sores, but under hot and cold sprays they soon healed. Heart when weak was stimulated by heat and electricity. The other complications were purulent otitis media of left ear, on eighteenth day with exacerbation of temperature from 99 to 106 degrees in a few hours, with free discharge of pus from ear, and disinfecting; recovery from this was complete. But the fever was prolonged, a series of boils keeping up a moderate rise of 100 to 101 degrees until Dec. 10, 1894, when patient was discharged with normal temperature, and improving rapidly.

Case 6.—Miss E. R., age 41, school teacher. Seen first Oct. 16, 1894. Seemed in a dazed condition mentally. Had been out walking, started at 9 A. M. and became confused. Remembered going into a colored church; did not remember coming out. When she came to consciousness found herself in the house of a friend. This lady stated that at 1 P. M. she came into her house, looked and acted strangely, not seeming to recognize any one, but asked if she might lie down on a couch and rest. Fell asleep and did not waken until 3 P. M., when she seemed more rational, but was surprised to find herself in her present surroundings, and as to how she got there. Returned to her boarding place looking so ill that a physician was called. It was then learned from a friend that she had been having diarrhea for two weeks, with fever every evening. Evidently a case of walking typhoid fever. The fever in this case was never high, seldom above 103 degrees F., ranged from that to 101 degrees on a few occasions. The principal feature was the disturbance of the sensation. Soon after taking to bed, passed discharges from bowels and bladder involuntarily; was not unconscious, but had many delusions, one that continued after she first suffered from it a number of days, the result of a complication. She imagined she was in bed with a corpse which always lay on her right side. This began October 29, and nurse at that time in report describes eyes as glassy and patient very delirious. A thorough physical examination of right side revealed a tumor under lower border of short ribs about the size of an orange. This continued to increase in size and to grow downward. Whole right side became edematous, and there was every evidence of a deep abscess, though exact location could not be made out. Patient was now very critical, and to complicate matters hemorrhage from the bowels, free, but not in quantities to be dangerous of itself. The usual gaseous distension and sloughing of Peyer's patches, and a complete inability of the stomach to retain food or even water. These complications were treated by lavage of bowels with the turpentine enemata. Lavage of the stomach was also given, resulting in the removal of a great amount of dark green matter. Patient could then retain a small amount of malted milk, the first nourishment by stomach for three days. But her case was now very critical, and the propriety of an operation was considered. The urine had been examined from time to time with nothing special but changes due to tissue waste from the fever. Now it contained pus, albumin, and blood corpuscles in great amount. The pus found, described in urinary reports, as in balls and bunches, and by the nurse a sediment, stated to be a quarter of an inch thick on bottom of bed pan; evidently the abscess had opened either into a ureter or the bladder. This relieved the profound nervous depression which seemed to threaten the patient's life. Respiration during the rapid filling of abscess became slow and labored, often not more than eight to ten a minute. Pulse also was slow and weak; in fact, never was 90 all through the fever which was peculiar to this case, as in all the other cases pulse was 120 to 140 and 160 during critical periods, but in this case at critical stage it went down to 65 and 70, very compressible, and almost imperceptible, with free discharge from abscess, which continued in the

amount of two to four ounces a day, as measured in the bottom of a glass jar, from Nov. 5 until Nov. 24, 1894, when it began to be less in amount, soon became intermittent and finally ceased altogether after December 3. Convalescence was slow, and patient has not fully recovered yet. April 30, 1895, but has gained her usual weight, 140 pounds. There seems to be no evidence of any return of abscess.

This patient was stimulated during stage of depression, as the others, by endeavoring to keep up the heart's action and stimulate the action of the peripheral vessels by applications of both heat and cold alternating, a hot fomentation of ten minutes followed by the short application of an ice bag, or two douche pails, one full of water 120 degrees and the other 32 to 60 degrees used alternately for a minute or two each. Sometimes a continuous hot spray was most soothing, sometimes one of 80 degrees. At the same time every effort was made to discover and cleanse, if possible, the toxic centers. Careful dieting and experiments with fluid foods, often malted or peptonized and the use of cold water treatment to reduce temperature when high, and other remedial measures in common use were applied, save narcotics and alcoholic stimulants. Knowing fully that there is much yet to learn in medicine, and knowing also that but few men, even of reputation in the profession, have faith for that future when the prevention and treatment of disease by the physician shall bring as certain results as the surgeon now expects, I will close, trusting that I have at least indicated the direction that investigations and experiments should be made if we can ever expect to successfully do away with the use of alcohol in the treatment of disease—do away with the need of this, and other harmful drugs, by substituting more rational and successful methods of treatment.

SHOULD ALCOHOL BE USED IN THE TREATMENT OF DISEASE?

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. D. DIDAMA, M.D.

SYRACUSE, N. Y.

[ABSTRACT.]

After showing that: 1, alcohol is not a food; 2, does not promote digestion; 3, does cause gastric disturbances; 4, alcohol does not increase muscular strength nor promote physical or mental endurance, Dr. Didama continued:

Observation in by-gone days and accurate recent experiments seem to establish these statements beyond successful contradiction.

It is true that, from the time when the patriarch Noah indulged in the fermented juice of grapes which grew in his own vineyard, down to the latest newspaper advertisement, tradition has claimed that wine—alcoholic wine—not only makes glad the heart of man, but gives strength to the weary and heavy-laden, endurance to the sons of toil, consolation and joy to the broken-hearted, and brilliancy to the sluggish intellect. But the testimony of army officers, of insurance companies, railroad corporations, Arctic explorers, and even football and other fighters, is practically unanimous that total abstainers bear extremes of heat and cold, sharp conflicts, long marches, exposures to storms and malaria and infection better, and recover from fatigue and illness more speedily and thoroughly than those do who bounteously or

sparingly partake of the flowing bowl. The same testimony confirms your own observation, that the likelihood of recovery from serious diseases is much diminished by addiction to the use of alcoholic beverages.

The answer of the apologists and advocates is this: Conceding that alcohol is neither directly nor indirectly a food; that it does not promote digestion nor fortify the system against the pestilence that walketh in darkness, nor against the destruction that wasteth at noonday; that its habitual use impairs not only the resisting but the recuperative power of the system; and admitting more than this, even the utmost that is charged against the drinking habit by the advocates of temperance and is well known by the medical profession, that alcohol is the prolific parent of pauperism and wretchedness, of vice and crime and disease, and that the taint of all these may be and often is transmitted to the third and fourth generation; are not the prevalent opinions true, founded on the practice of observing medical men, that the results of modern, accurate, scientific experiments prove beyond controversy that, in the treatment of disease, alcohol is not only useful but so necessary that its judicious employment more than counterbalances all the evils conceded or asserted to be outflowing from or generated by the moderate, and even the immoderate drink habit?

The prevailing opinion of the great majority of wise and otherwise physicians—an opinion founded in part on personal observation and perhaps in greater part on the oral or printed dicta of other physicians—is that alcohol is a stimulant, that it gives strength to a flagging heart, that its use is eminently proper in pneumonia and typhoid fever, when the pulse is weak, and that, in these and all other diseases, the amount administered should constantly increase as the pulse grows weaker; and also that in diphtheria heroic doses are not only justifiable but almost omnipotent in rescuing the patient from the jaws of death.

Years ago a celebrated Brooklyn physician advocated the free use of brandy in this dread disease. This practice—modified in some instances by substituting whisky or wine for brandy—has been pursued extensively throughout this country and foreign lands. An eminent doctor, of large and varied experience in a children's hospital in New York, heartily indorses the practice, and asserts that large doses of alcohol have little or no intoxicating effect on diphtheritic infants. In one of the latest books on children's diseases, a writer declares that the reason why whisky so often fails in the treatment of diphtheria is because it is not given in larger quantities.

Recent and carefully conducted experiments made by competent scientists of world-wide reputation seem to demonstrate that alcohol should be classified with ether and chloroform as an anesthetic, rather than a stimulant. Among these scientists may be mentioned Martin, Ringer, Davis, Sainsbury, Richardson, Reichert, one of whom declares that "alcohol diminishes the sensibility of vasomotor and cardiac nerves as certainly as two and two make four."

As you all probably know, Dr. H. C. Wood asserts, as a result of repeated experiments, that the injections of alcohol in advanced chloroform anesthesia failed in every instance to increase the size or strength of the pulse, and that on several occasions they aided materially in effecting its extinguishment. His em-

phatic advice is: "In accidents during anesthesia avoid the use of all drugs except strychnin, digitalis and ammonia . . . and remember that some, perhaps many, of the deaths which have been set down as due to chloroform and ether, have been produced by the alcohol which has been given for the relief of the patient."

Dr. Frank Payne, Vice-President of the London Pathologic Society, affirms that alcohol is a functional and tissue poison, and that there are no proper or necessary uses of it as a medicine.

Testimony of this sort, the result of experiment and clinical experience, is rapidly accumulating. My limited time will permit me to quote only the matured opinion of Prof. Nathan S. Davis, whose high eminence as a scientist, a lecturer in the Chicago Medical College, an author of numerous medical works, an upright, level-headed, successful and beloved physician, is known and gladly acknowledged by the profession throughout this country and in Europe. Jan. 9, 1895, was his seventy-eighth birthday anniversary. After an entire disuse of alcohol personally and in practice for forty years, and after a long series of experiments, he unhesitatingly declares that alcohol is an anesthetic instead of a stimulant; that as a result of this property it makes the one who uses it feel warmer when he is cold and cooler when he is warm without altering his temperature; that it makes him less sensitive to pain; that in collapse and shock and failing pulse it does not afford relief; that when given with strychnin and digitalis, the stimulating effect is always from these latter articles and is diminished by the alcoholic association; and that wine and beer are diluted poisons, never necessary, never advisable.

Some of the members of the ASSOCIATION have enjoyed during the past year the pleasure of inducing a considerable number of confiding and grateful patients to abstain totally from the use of alcohol as a beverage, and have themselves totally abstained from administering it as a medicine. I think it safe to affirm that the practice has been satisfactory to all the parties concerned.

In the treatment of diphtheria, it has been the custom of not a few physicians, to administer Rhine or Moselle wine in decided preference to brandy or whisky. The comparatively beneficial effects noted must be attributed to the considerable amount of vegetable acid in the wine and not to the small portion of alcohol. There is reason to hope that unfermented wine, which contains all the desirable qualities of the grape with none of its harmful properties, will supersede the intoxicating variety.

The free use of alcohol in the treatment of diphtheria, throughout Europe and in some American cities has been almost universal. The mortality, according to reported statistics, has been appalling. The deaths in the metropolis at home have been 47 per cent., while in Paris, Berlin, and other cities abroad, they have reached the enormous number of more than 60, in 100 cases.

If the antitoxin treatment, which is under hopeful but still somewhat unsettled consideration, shall be proved to possess all the merits which it discoverers and friends claim, there will be no excuse for continuing the employment of alcohol in the treatment of diphtheria.

Curiously enough, in the last report from abroad which has just been furnished by Dr. Rabot of Lyons,

the success of antitoxin in curing and preventing the dreadful disease is considered by the Doctor as specially "brilliant," the mortality in forty-seven cases being but 34 per cent., while the mortality in 1893 was 50 per cent. And the reporter significantly and jubilantly adds: "No alcohol was given."

It is just possible that some incredulous cavalier will suggest that the more favorable outcome—bad enough as it still is—was because the customary alcohol was not used; and he may even insinuate that the result might have been equally good if the antitoxin also had been omitted.

PERITONEAL SUPPORTS—(LIGAMENTUM PERITONEI).

BY BYRON ROBINSON.

PROFESSOR OF GYNECOLOGY POST-GRADUATE SCHOOL,
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(Continued from page 456.)

The mesocolon dextra et sinistra as peritoneal supports are of much importance to surgeons. The right and left colon have been declared to exist and not to exist by various writers. The following remarks I assume to make after the examination of about two hundred cadavers, the last one hundred for the special purpose of tabulating mathematically the existence and length of the right and left mesocolon. The Scotch anatomist, Symington, declares he never saw a descending mesocolon. Treves examined one hundred cadavers and asserts that there is a descending mesocolon in 36 per cent. of subjects and an ascending mesocolon in 25 per cent. of subjects. Toldt claims one descending colon in twenty subjects. Gray declares that an ascending mesocolon exists "sometimes" and a descending mesocolon more frequently. Lesshaft claims that mesocolon descendens exist on an average once in every six subjects and that the mesocolons increase with age, *i. e.*, as the viscera prolapse the mesocolons become more apparent. Abey in his excellent "Anatomie" is inclined to deny the existence of a mesentery for the vertical colons. In the seventeenth German edition of that classical work of Hyrtl, one can read on page 715: "*Man kann insofern nur unrichtig von einem mesocolon ascendens und descendens und einem mesorectum sprechen.*" (One can only incorrectly speak of a mesocolon ascendens and descendens and a mesorectum.) One of the greatest of anatomists, Henle, ascribes no mesentery to the vertical colons, asserting them to be fixed to the posterior abdominal wall by connective tissue, immovable. Quain's ninth edition states: "The investment may be complete with a resulting right mesocolon," and "the membrane (peritoneum) invests (the left colon) much in the same manner as the right." The variation of opinion in regard to the existence of the mesentery to the vertical colon is due to what one understands by a mesocolon: 1, it depends how much dragging is performed on the bowel; 2, it depends on the distended or contracted condition of the bowel; 3, it depends on how close the blades of the mesocolon must be to be named mesocolon. After the careful examination of fetuses, children and adults, I consider a mesentery to the vertical colons as an abnormality, as an exception. The solving of the problem of the existence of a mesocolon dextra et sinistra must depend on observations through fetal, adolescent and adult life. In the second half of fetal life the growing kidneys appropriate the vertical mesocolons so

much that the posterior surface of the right and left colons become more or less fixed to the connective tissue of the dorsal wall. So far as my examinations are concerned the colons never regain their mesentery. It is true that I have in perhaps 3 to 4 per cent. of cases found a partial mesocolon at the upper end of the descending colon, but in such cases the descending colon was generally in a contracted state. At the lower end of the right colon it is often very free, *e. g.*, when the cecum lies on the pelvic floor. But in such cases the peritoneum does not depart from the posterior surface of the colon for several inches above the entrance of the ileum. The lower end of the left colon is generally quite fixed where it crosses the psoas muscle. In certain very spare youthful subjects the connective tissue behind the colon, especially the left, is very loose and extensible. But such subjects lost their fat rapidly. In such cases it is easy to demonstrate a mesocolon descends by slight traction on the bowel. The degree of extensibility of both right and left mesocolon is considerable and should always be taken into account. It is a rule that the colon ascendens is minus a mesocolon at birth and the bowel is fixed to the dorsal wall. It is a very common and general rule that the colon descendens has no mesocolon at birth and that the bowel is fixed to the dorsal wall. This rule is, according to my experience, established for both vertical colons at the fourth fetal months.

The great utility of mesocolons or no mesocolons has lost its chief significance at present, on account of the impunity of safely entering the peritoneal cavity. Lumbar colotomy or colotomy by entering the bowel on its surface not covered by peritoneum is rare at present, in fact, frequently difficult to perform.

My investigations convince me that the normal vertical colons of man possess no mesentery. These portions of the large bowel are connected with the dorsal wall by connective tissue. They lost their posterior serous covering by the growing kidney having taken and appropriated it to return it no more. The transverse colon possesses a four inch mesentery, short at either end and elongated in the middle, perhaps by the expanding stomach whose blade continues on to embrace the stomach at its lower curvature. That portion of the large bowel between the lower end of the kidney and the upper end of the rectum has a peculiarly elongated mesentery known as the mesosigmoid. It suspends in its fold the sigmoid loop, the S-romanum or the pelvic loop. As the sigmoid loop with its mesentery is of growing interest to the abdominal surgeon, I carefully investigated some two hundred subjects of all ages from a four weeks' old fetus to subjects of 80 years of age. In animals, as the carnivora, there is no sigmoid as one can easily observe in the dog and cat. In the solipeds as the horse, one can see an enormous sigmoid loop with an astonishingly long mesosigmoid, with beautifully ordered nerves, lymph and blood vessels coursing through it. The mesosigmoid then belongs only to animals of certain classes which originally required a long digestive canal to retain the food a considerable time during its passage for absorptive purposes. Yet, after all, the sigmoid loop and mesosigmoid is a result of a mode of development especially due to the peculiar late use and growth of the kidney.

I shall include in the mesosigmoid all that part of

the mesocolon which lies between the lower end of the descending colon and the lower end of the mesorectum. In short, the mesorectum and the mesosigmoid will be considered as one peritoneal support and called the mesosigmoid. As Treves remarks, the sigmoid flexure and rectum said to possess a mesentery, can not be separated. All the large bowel which lies below the lower end of the descending colon and possesses a mesentery we shall designate as the sigmoid flexure, and the peritoneal support the mesosigmoid. Pittard suggested fifty years ago that we should not separate the mesorectum and mesosigmoid. In all the anatomies in command it is plain to observe how the description of the sigmoid flexure or the S-romanum has been handed down from book to book and from generation to generation—one writer copying his predecessor without a shadow of variation.

Fig. G21.

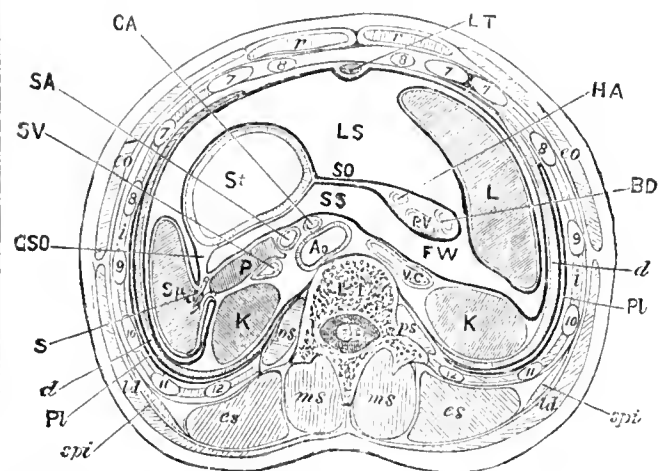


Fig. 47 (after R. J. Goodlee, 1882, in Quain) represents an instructive cross section of the abdominal cavity on a level with the foramen of Winslow. L. 1, first lumbar vertebra. The peritoneum is shown by a P s—psoas muscle; d, diaphragm; A, aorta; V, vena cava; S A, splenic artery; S V, splenic vein; C A, coronary artery; S, splenic vessels cut as they enter the spleen; H A, hepatic artery; P V, portal vein; B. D., common bile duct; L, liver; St, stomach; K, kidney; F W, Winslow's foramen; S S, bursa omentalis; P, pancreas; Sp, spleen; S O, small foramen; L T, ligamentum teres; G S O, gastro-splenic omentum; L S, great omentum. The peritoneum can be traced from the middle line anteriorly, where it is seen covering the round ligament of the liver and forming the beginning of the suspensory ligament of the liver, along the right side of the abdominal wall, over the front of the right kidney to the inferior vena cava, where it forms the posterior boundary of Winslow's hiatus. From Winslow's foramen the bursa omentalis extends over the pancreas and left kidney as far as the spleen, whence it is reflected backward along the posterior wall of the small omentum to the anterior of the foramen where it merges into the large sac. The peritoneum turns around the hepatic vessels and forms the anterior of the gastro-hepatic omentum which covers the anterior surface of the stomach and forms the gastro-splenic ligament as it reflects itself on the spleen. The spleen is nearly all enveloped by peritoneum and from its posterior border the peritoneum is reflected on the diaphragm on to the posterior dorsal wall to the middle line.

It is an anatomic literary legacy anciently started by some cloistered monk of Esculapius. It is not always the most wise to introduce new terms, but some seven years ago I began to investigate the sigmoid loop and mesosigmoid and after the examination of over two hundred cases I am convinced that the old division of the mesentery into mesosigmoid and mesorectum is artificial, confusing and unnatural. Beside one can not find any distinct anatomic division or landmark between the mesosigmoid and mesorectum, nor between the loop and rectum. The description given by some of the best English works in anatomy in regard to the sigmoid and its mesentery is to say the least meager and indefinite. "Quain," ninth edition, occupied, according to the British mind the proud position of being the best English anatomy extant. The following is the description which this

anatomy offers on the sigmoid flexure (page 616, vol. 11.): "The sigmoid flexure of the colon, situated in the left iliac fossa, consists of a double bending of the intestines upon itself in the form of the letter S, immediately before it becomes continuous with the rectum at the margin of the pelvis opposite to the left sacro-iliac articulation. It is attached by a distinct mesocolon to the left fossa and is very movable, falling into the pelvis when the bladder is empty. It is placed immediately behind the anterior wall of the abdomen or is concealed only by a few turns of the small intestine. The sigmoid flexure is the narrowest part of the colon. The description from a prominent anatomy is not only meager, but absolutely misleading. In the first place my examinations show it is seldom situated in the left iliac fossa; and, 2, that its mesentery does not attach it to the left iliac fossa; and 3, it does not assume an S-shape. So that

toward the left—the line of least resistance and forces the colon leftward with its mesentery. But the leftward moving of the descending mesocolon only takes place as far downward as the lower pole of the kidney; that portion of the mesocolon extending from the lower pole of the kidney to the rectum does not, at first, move to the left, but constitutes what we include in the mesosigmoid. Now the position of the mesosigmoid varies much as regards its position in early life. I have examined a child eighteen months old with the mesosigmoid inserted directly in the mid-dorsal line as high as the second lumbar vertebra—even higher than the lower pole of the left kidney. In others the whole mesosigmoid may move to the left, earlier. Occasionally, in adults, it was found that the mesosigmoid had moved but slightly out of its original mid-dorsal insertion. However, generally by the sixth month of gestation the mesosigmoid has begun to move definitely toward the left, *i.e.*, its mid-dorsal insertion has begun to shift its line downward and outward toward the left iliac fossa. The left blade of the mesosigmoid in my opinion, becomes displaced, drawn out with the advancing leftward mesosigmoid insertion followed by the right blade covering up the old line. The various forces at work shoving the mesosigmoid line of insertion leftward

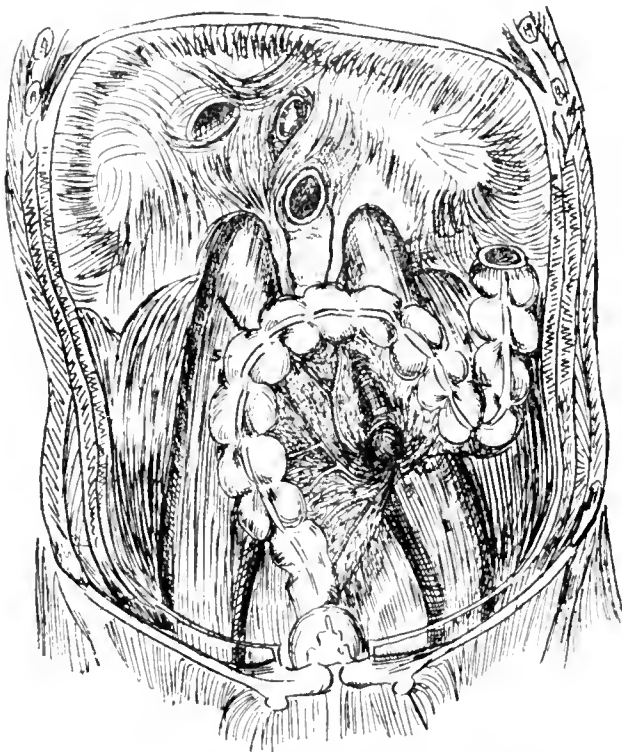


Fig. 48. This figure I sketched to illustrate the mesosigmoid, the sigmoid loop, the psoas muscle and the intersigmoid fossa. 1, psoas muscle; 2, line of insertion of mesosigmoid; 3 points to the intersigmoid fossa; 4 is placed on the iliac muscle at the junction of the lower end of the colon and upper end of the sigmoid loop; 5 is near the hook which suspends the S-iliac.

investigations in general, do not agree with Quain in situation, attachment or shape. Also I can assert that the junction of the mesosigmoid and mesorectum (or the bowels) at the left sacro-iliac joint is not what nature generally presents. No one can see a division between the sigmoid bowel and the rectum.

The first and most significant matter to investigate is the origin, cause and final location of the mesosigmoid. This is naturally determined by examining fetuses of all ages, the newborn children and the adult. In the fetus the descending mesocolon is inserted directly in the middle line of the body from the second lumbar vertebra to the end of the sacrum. At the end of the third month of gestation, one finds that the kidney is beginning to increase rapidly, insinuating itself between the blades of the descending mesocolon. As the kidney increases in size it grows

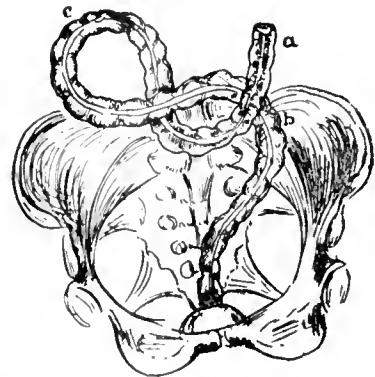


Fig. 49 I sketched from a post mortem examination of a 6-months-old child in which Dr. Waite and I performed the autopsy. We found an enormously long S-iliac, as shown in the figure, reaching into the right iliac fossa and existing in the state of a volvulus; a and b represent the mesenteric axis around which the loop c has rotated. The volvulus at the autopsy did not seem twisted tight enough to cause obstruction. The figure illustrates the notable long S-iliac found in the newborn.

are: (a), the rapidly increasing packet of small intestines; (b), the large left lobe of the liver; (c), the rapidly increasing left kidney; and (d), the increased lateral abdominal space.

It is thus noted that the mesosigmoid moves from its mid-dorsal insertion to its left iliac insertion gradually. I have actually observed in fetuses and children that it will require two years after birth in some subjects for the mesosigmoid to assume its oblique adult insertion. In one adult it could be said that it had only partially moved from its original insertion. In other adults it could be observed that the mesosigmoid had its insertion excessively to the left. Also, it was frequently noted that the line of the mesosigmoid insertion varies very much. The upper end may advance much more than the lower end or *vice versa*. The line of the insertion of the mesosigmoid in adults begins at the lower end of the ascending colon and ends at the point where the rectum leaves its mesentery. The lower end of the ascending colon is at a point where the bowel begins to pass transversely across the psoas muscle at its outer border. The lower end of the mesosigmoid is

at a point where the mesorectum ceases, or at the third sacral vertebra. The course of the line of insertion of the mesosigmoid in the adult may be described as follows: the line begins just below the lower pole of the left kidney and passes generally in a curve or transversely over the psoas muscle. Sometimes the line of the mesosigmoid insertion and the ureter converge to a point at the ureter at the right side of the psoas muscle. The line then runs irregularly midway between the right edge of the psoas muscle and the mid-dorsal line, downward into the pelvis on the anterior surface of the sacrum, varying in its point from the right to the left border of the sacral anterior surface. In fetal life the line of insertion of the mesosigmoid may pass in its middle point up to the second lumbar vertebra, or even to the lower end of the duodenum where the spermatic vessels emerge which aid in forming the conical intersigmoid fossa. The base or dorsal line of the sigmoid varies very much in its length. It may be four or twelve inches but will probably average six. This line in many adults extends directly from the lower pole of the left kidney to the point of disappearance of the mesosigmoid at the third sacral vertebra. The basal insertion of the mesosigmoid is nearer the median line than distal or periphery, *i. e.*, the S-romanum. The length of the distal line of the mesosigmoid I measured in fifty adult subjects and its average was sixteen and three-fourths inches. With a base line of six inches and a distal bowel line of sixteen inches it gives the mesosigmoid a fan or truncated cone-shape very similar to the shape of the mesenterium. The shortest adult base mesosigmoid line was eight inches, while the longest distal was twenty-eight inches in fifty subjects. The length of the mesosigmoid from the dorsal line of insertion to the bowel is an average of two and one-half inches. In fifty subjects the longest was five inches and the shortest an inch and a half.

(To be continued.)

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, June 10, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

DR. E. FRIEND read a paper on

A CASE OF LICHEN RUBER PLANUS.

I take the liberty of presenting before you this evening a patient, affected with not an altogether common, yet at the same time to my mind, rather interesting example of generalized lichen ruber planus, or as is more commonly known here in America, lichen planus. The patient was kindly referred to me at the United Hebrew Charity Dispensary, by Dr. Fischkin. Her history sheet read as follows: Mrs. Anna O., nationality American, age 40 years, occupation nurse, family history negative. Patient is of a dark complexion, dark eyes and hair, height five feet five inches. Weight 105 pounds, which is 30 pounds less than she weighed last Christmas. Previous history: during childhood, patient had measles, typhoid fever, mumps, since which time the patient has been quite well, to the time of the birth of her third child, which was twelve years ago; since this time patient has been troubled with a supposed bladder affection, which manifested itself by a frequent desire to urinate, and a burning and smarting pain while urinating. The urine remaining clear at all times. This has persisted more or less up to the present time, when patient urinates about every hour, and sometimes a "spasm" as she terms it preventing her urine passing freely. *Status Præsens:* her present disease began in January last, with a severe chill which lasted three hours, followed by fever and a tired, drowsy, sleepy feeling. The patient stated she was entertaining friends at the time

and had to desist, one of her lady friends remarking that she had never before seen Mrs. O. in an intoxicated condition. Following these symptoms, she had a severe headache, and two days afterward she noticed an eruption in the right pectoral region of the chest characterized by separate and discrete millet seed to split pea sized shining, polygonal, and round, bluish or pinkish papules, with a central depression, (so well likened by Kaposi to a piece of wax, upon which an impression had been made with point of a pin), hard and firm to the touch. The color disappearing somewhat on pressure.

The post-cervical lymphatics became and are still enlarged. This eruption spread along the right side of the chest, thence to the neck, opposite side of the chest, back, flexor surfaces of the arms, but better marked on the fore-arms, abdomen and inner and outer aspect of the thighs and legs. On the abdomen the eruption is more marked, at the waist band line, and here especially those papules undergoing involution leave a characteristic, sepia brown pigmentation and the appearance of an atrophy of the skin. The itching which was very slight during the entire course of the disease was present here to greater extent than in any other portion of the body. The inguinal lymphatics are enlarged, especially in the right inguinal region to the size of a pigeon's egg, separate, distinct and tender to the touch. In a number of places on the back, the papules are arranged in chains, or like beads on a string and correspond to Kaposi's lichen ruber moniliformis.

The physical examination reveals the mouth entirely free from any affection. Heart and lungs normal, abdominal viscera normal, with exception of the spleen, which although apparently not enlarged is quite tender, both on percussion and palpation. Vaginal examination reveals nothing abnormal with the exception of a cervix laceration, which the patient is unaware of and does not trouble her in the least. The urethra for some distance is the seat of a number of small hyperemic polypoid growths, these having been removed from time to time by a number of different physicians. Appetite is ravenous. Bowels are regular. Menstruation regular and painless. Urinary analysis negative. The patient's treatment has been the Asiatic pills one after each meal, and locally Unna's salve composed of carbolic acid, 20, corros. sublimate 1 part in benzoated oxid of zinc basis 500; she has made quite an improvement in about one week's treatment. The patient kindly allowed me to excise a section of skin of her back containing a number of typical lichen papules, for histologic examination, which I am sorry I can not present to you this evening owing to the lack of time required in preparing them.

Appendix. The histologic examination of a section of the skin involved in the bead-like formation, which was fixed in picric acid and bichlorid of mercury, hardened in alcohol, and stained in alum carmine, revealed the following pathologic changes: over each papule, the epidermis was much flattened, especially the lining layers beneath which the papillae were literally packed, with a round cell infiltration and in those papillae not the seat of such a dense infiltration, the capillaries were very much distended. This infiltration of round cells also followed along the hair follicles and sebaceous ducts, but seldom deep in the corium. There was to some extent a hypertrophy of the rete malphigii. A bacteriologic examination was made with negative results.

This case seems of particular interest in that a number of subjective and objective symptoms point toward an infectious nature of the disease, as Lassar believes, and who has found a bacillus supposed to be responsible for this disease:

1. The suddenness of its onset.
2. Beginning with a chill and followed by a marked fever, and general malaise.
3. Enlargement of the lymphatics.
4. Rapid loss in weight.
5. Marked tenderness of the spleen.

Dr. C. D. WESCOTT reported a case of

FIBROSIS OF BOTH OPTIC NERVES, FOLLOWING FRACTURE OF THE BASE OF THE SKULL.

By the courtesy of my friend, Dr. Hektoen, professor of pathologic anatomy at Rush Medical College, I am privileged to report the following rare case. I know of no case in my own experience or in my reading which is parallel:

A young, vigorous man, 23 years old, died from acute, general, serofibrinous, leptomeningitis after an illness of two days, characterized by coma, opisthotonos and other grave symptoms. The following history was obtained: one year previous he fell from a United States mail car while the train

was running at the rate of about forty miles an hour, and sustained a compound fracture of the frontal bone, on which account he was confined to his bed for seven weeks. Some bone was removed. During the first few days after the accident he is reported to have had convulsions, but since his recovery he has attended to his duties as railway mail clerk. Shortly before the fatal illness he noticed that his eyesight was rapidly failing and as near as it can be learned it was the left eye in particular that appeared to give out. At the post-mortem examination there was found a cicatrix in the left frontal region beginning about one inch above the left supra-orbital notch, and describing a semicircle toward the left, ending in the median line three inches above the point of commencement. In the forehead, corresponding to the lower portion of this scar, was a depression in the bone one inch long transversely, and half an inch wide vertically; this depression was due to a loss of substance in the bone, the entire thickness of which was replaced by firm, white, fibrous membrane adherent to the scalp and to the dura mater. The dura was also firmly adherent to the floor of the skull in the left anterior fossa and manifestly thickened in the adherent parts. There were no old fibrous adhesions between the pia and the dura. In the pia was a marked sero-fibrinous inflammation with turbid fluid in the ventricles and at the base. There were no abscesses in the brain. There was considerable deformity in the bone forming the body of the sphenoid and the cribriform plate of the ethmoid, but there was no dead bone and there was no suppurative in the pericranial cavities such as the ethmoid sinuses, the ears, etc. There seemed to be much firm fibrous tissue about the optic nerves in front of the commissure and extending through the optic foramina and sphenoidal fissures into the orbit for a little distance. As the optic nerves passed through the foramina they were imbedded in this firm scar-like tissue and appeared compressed, the left more so than the right. The commissure and optic tracts did not show any changes to the naked eye. The other organs in the body were free from any chronic disease. The sections of the nerves removed have been submitted to Dr. E. R. LeCount, for microscopic examination and the following is his report:

The right nerve (cross section) shows very slight thickening of the perineural connective tissue. The nerve bundles are completely degenerated throughout the whole diameter of the nerve, and in place of cross sections of nerve fibers are seen, instead, a granular debris and the nuclei of endoneurial connective tissue. Here and there, but seen only seldom, are cells which resemble neurilemma nuclei. The left nerve also on cross section shows a great increase in the perineural or interfascicular connective tissue. It is thickened, more fibrous, hyalin looking and homogeneous-like cicatrix tissue and the spaces formerly occupied by nerve bundles in place of being circular in shape are angular, compressed, of various shapes and very irregular. There is an excess of cells and nuclei in these spaces—none of these, however, resemble leucocytes. There is complete disappearance of nerve elements proper.

DR. A. E. HALSTEAD read an abstract of a paper on

FLOATING BODIES IN JOINTS.

Floating bodies in joints, or joint mice, are bodies usually composed of bone, cartilage, masses of fibrin or fat, or fibrous tissue, either loose in the joint or attached to some part of the joint surface by pedicles. A majority of these bodies are found in the knee joint, some in the elbow, and rarely in the ankle and wrist. The reason for the frequent occurrence in the knee is that its surface is large and, by its position, it is greatly exposed to traumatism.

Etiology—Classifications—1. Those found in otherwise healthy joints, the disease, if any, occasioned by the presence of the bodies.

2. Those found in diseased joints.

In healthy joints. (a), of purely traumatic origin. Very rare cases reported by Volker, Fischer and Feurer. (b), composed of separated pieces of cartilage or of bone that were not broken off at the time of injury, but became detached later. The osteochondritis dessicans of König and quiet necrosis of Paget. Cause unknown. (c), those originating from hemorrhage into a sound joint, as result of traumatism. Exceedingly rare. Cases reported by Gurli, Fischer, Shattock and Bowlby. (d), those caused by drawing into the joint foreign bodies embedded in the capsule, such as bullets, needle points, etc. Case reported by Shaw.

In diseased joints. 1. So-called corpora oryzoidea in tubercular hydrops articuli and hydrops fibrinosus of Volkmann and Ranke. Originate (a), as pure concretions. (b),

desquamated epithelium forming nuclei for deposit of fibrin; (c), detached villi. (d), those originating from cartilaginous metamorphosis of synovial membrane or fibrous layer of capsule drawn into the joint. Cases reported by Klein, Fischer, Delgarde and Schmidt. (e), those resulting from pathologic changes occurring in normal joint villi, with subsequent detachment of villi. (f), those which occur in arthritis deformans. Case reported by Recklinghausen.

Growth of body. Body is observed to increase in size in one of my own cases, and others reported, probably: (a), by deposition of successive layers of fibrin; (b), proliferation of cartilage or bone cells nourished by synovia.

Symptoms. (a), sudden locking of joint, usually in position of extension, any attempt at movement causing severe pain; (b), acute synovitis from one to four weeks; symptoms recurring usually three or four times a year; (c), crepitation and lengthening of femur usually present. Increased length of femur in one of my own cases of fully 3 centimeters.

Diagnosis. 1, sudden pain in otherwise healthy joint; 2, acute synovitis, with no other apparent cause, make probable diagnosis, and 3, locating floating body makes it positive.

Treatment—(pre-antiseptic)—1. Palliative: (a), fixation of loose body by compression; (b), by passing needles through the capsule; (c), by subcutaneous ligature.

2. Radical: (a), removal through direct incision; (b), incising skin and capsule at different levels; (c), subcutaneous operation performed at two sittings. Mortality was very high and complete recovery rare.

Antiseptic. By direct incision, preferably under local anesthesia, (Schleich's method .02 per cent. cocain), capsule sutured with catgut, skin with silkworm gut; no drainage or irrigation. Patient should walk in one week.

Three cases reported, two of so-called osteochondritis dessicans.

Conclusions—1, so-called osteochondritis dessicans explains most cases in normal joints; 2, few, if any, result from direct violence; 3, chief symptoms, sudden pain and locking of joint in nearly extended position, followed by acute inflammation; 4, lengthened femur may occur from irritation caused by pressure of these bodies; 5, direct incision, as soon as diagnosis is made, preferably under cocain anesthesia, is the only treatment.

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THE PRESIDENT.—Some recent investigations in reference to the physiology of joints may have an important bearing upon the production of joint bodies, or, at least, upon their growth after they have once gotten loose.¹ It seems that the serous membranes of the joints do not stand in open communication with the lymphatic vessels of the extremities, as has been thought; which means that fluids effused into the joints are not readily resorbed. This result derived from experimental study is in harmony with the fact, well-known for years, that fluid effused into a joint is much more readily gotten rid of if there is a rent in the capsule than if resorption has to take place solely from the surface of the serous membrane itself. The practical bearing of this fact upon the formation of joint bodies is this, that resorption of small masses of tissue once loosened is slow, and that resorp-

tion of fluid produced by the irritation of the synovial membrane is also slow, so that quantities of fibrin can be deposited upon the surfaces of loose bodies, and a large quantity of nutriment is supplied for the growth of these masses, thus enabling them to reach a considerable size.

DR. S. L. WEBER—There is one point in the etiology of foreign bodies in the knee joint that I wish to speak of, and I do not know that I have seen it referred to. As to the kind of bodies, the essayist has described them well. They are not of traumatic origin; that is, they are not due to blood clot. A large majority of these bodies are apparently attached to the intra-articular ligaments, very close to the villi of the joint, and they sometimes start from there. What can be the cause of that? Why does such a formation of cartilage occur within the joint? Why does it not occur in other joints as well as the knee joint? My point is this: We know the knee joint originally was a double joint, and that the ligaments running from the patella to the inner surface of the condyles are the remains of a former wall between the joints. Just the nature of the wall I do not know, but it must have been cartilaginous, possibly bony, and that in the evolution of the knee joint this cartilaginous wall has gradually been done away with, and we have now one joint instead of two. I think the formation of this cartilage in these intra-articular ligaments is a relapse to the former evolutionary type, not a degeneration. I think that point, which I have never seen made, will explain the formation of these cartilaginous bodies, or a large percentage of them as found in the knee joint, and why they occur in the knee joint and not elsewhere.

DR. HALSTEAD (closing)—The reason why these bodies occur more frequently in the knee joint than in any other is because this joint, on account of its position, is more generally exposed to trauma, and in the second place because of the large surface over which the trauma may be distributed. It is said that some of these joint bodies are due to a so-called osteochondritis dessicans. I do not think we have usually degeneration of the villi of joints, but sometimes we may have. Klein, in his histology, has shown by cuts and the text that the synovial membranes of the joints, especially the knee joint and also the villi, contain cartilage cells. I said in my paper that in most cases where villi formed loose bodies in the joint, in 95 per cent. of them there would be some inflammatory condition of the joint previous to the appearance or existence of the bodies. Cartilage cells are normally present in every joint, and we need not go back to the evolutionary period for their existence. Take any normal joint and we will find in it cartilage cells, and we know that inflammation will stimulate their growth, so that later they may become detached.

(To be continued.)

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Twenty-first Annual Meeting, held in Detroit, Sept. 3, 4, 5 and 6, 1895.

(Concluded from p. 462.)

DR. C. B. BURR, of Flint, Mich., read a paper on

THE PARANOID—A MENACE TO SOCIETY.

He made brief and pointed reference to the numerous recent murders of prominent persons by so-called "cranks." What to do with these persons is one of the problems confronting our modern civilization, and is one demanding an answer from students of the subject. We have room enough in our asylums. The trouble is, harmless lunatics are kept in confinement, while dangerous paranoiacs are allowed their liberty. These murders disturb the public but a day, and do not scare us into further provision for a safeguard. The public do not sincerely seek advice from professional sources in the matter. No one who has been threatened by a paranoiac would be willing to have his commitment settled by a jury without medical testimony as to the danger involved in granting freedom to such an individual. The paranoiac is a menace to society and should be sequestered. But doubtless the public will continue to view with indifference or approval, now and then, the execution of a criminally insane person, as "sane enough to hang," and vainly hope for a deterrent effect of this example upon other deluded minds.

DR. I. N. LOVE, of St. Louis, remarked that doubtless all of us would hesitate to offer criticism on so valuable and thorough a paper from such an authority as Dr. Burr. He then related a case in St. Louis where a man had murdered

his wife and child, having become a paranoiac through excesses and debauchery. The entire profession of St. Louis agreed that it was the work of a paranoiac, yet a country jury declared he was sane enough to hang. He emphasized the fact that often these people are stimulated to crime by the notoriety the newspapers give them, and consequently the papers should be encouraged to suppress such items.

DR. HUGH T. PATRICK, of Chicago, called attention to the fact that the fixed illusions began as early in life as 5 and 8 years, and then in such cases measures of restraint should be instituted. These illusions are not always discovered, even by the family physician.

The next paper was by DR. A. E. STERNE, of Indianapolis, entitled "Toxicity in Hysteria, Epilepsy and Neurasthenia," which will appear in full in the JOURNAL.

DR. HUGH T. PATRICK, of Chicago, followed with a paper on SOME OF THE MORE RECENT METHODS OF STAINING NERVE TISSUE.

The article was elegantly illustrated with water color drawings of each of the stains used in nerve tissue, and a most thorough and practical resumé of the subject, with its application and technique was given. He considered the method of Nissl to be the method *par excellence* for nerve cells. With it, minute changes in the cell structure could be detected which would elude any other method. The method of Bevan Lewis, while marking an advance in technique, was thought to be less perfect than claimed for it by the originator. It is, however, excellent for hypertrophied neuroglia cells. The beautiful results obtained by the Golgi method, as modified by Ramon y Cajal, were illustrated and the importance of the discoveries due to it were emphasized. Rosin's stain which is practically the Ehrlich-Biondi blood stain, gives in some cases almost ideal results. The method of Flatner—chlorid of iron and diniero-resorcin—was illustrated as applied to normal and degenerated nerve fibers, and the Doctor thought the method was to have an important future. The method of Marchi was said to excel any other for degeneration of from three weeks' to three months' duration. Allusion was also made to the developmental method of Flechsig, and to an unusual but valuable result of the Weigert-Pal stain and illustrated drawings shown.

DR. STERNE said that the carmine stain has a particular adaptability for double staining. In bringing out the anatomic details it is practically a necessity. The Nissl stain is the most exact, and for giving an idea of the ganglionic structure can not be excelled. For all purposes the Marchi method is perhaps the most reliable.

DR. PATRICK said he had simply pointed out the advantages of each method. We want for each case that which will give us the best results.

Then followed a paper by DR. A. P. BUCHMAN, of Fort Wayne, Ind., entitled

PSYCHOLOGY IN MEDICINE.

The author discussed the subjective and objective relations of mind and pathologic conditions. The unit force acting properly is health; abnormal action of this unit is disease. The structure of man is governed by a connected train of associated movements called ether, of the existence of which we can have no anatomic proof; but to which the growth of the body must bear definite relation. Fear, grief, anger or joy modify the functions of the vital centers. The sympathetic nervous system is the center of the emotions, and the cerebro-spinal system of that of abstraction. Thus we come to psycho-physiology and bio-chemistry. Thence we step to the subject of hypnotism. The different methods used in producing hypnotism were minutely described; then the possible uses and dangers of hypnotism in medicine were discussed, showing that while good might be done, there was also much danger in its use.

DR. STERNE said it was giving the hypnotizer a dangerous power. Any one can hypnotize, as only a certain mental concentration is necessary. The interest in the subject is not so much a medical as scientific one. There is frequently, if not always, an element of fraud in hypnotism. There is a chance of murderers claiming they were hypnotized.

DR. PATRICK emphasized the fact that the hypnotist has no hypnotic power. It seems almost a farce to discourage this idea, as it was exploded a century ago. It is purely a subjective influence.

DR. BURR remarked that the insane could not frequently be hypnotized. They could, if the hypnotizer had any power in reality. It is possible in epilepsy to do much with it; also in hypochondria and melancholia it might be valuable.

DR. BUCHMAN claimed the French Academy had in the past ten years positively demonstrated the existence of hypnotic power.

Dr. PATRICK said, in rebuttal, he did not claim that there was no such thing as hypnotism, but that the hypnotizer had no direct power in himself over the subject hypnotized.

Dr. C. J. HELM, of Peru, Ind., then presented a paper on "The Nervous System as a Factor in Disease." The paper was an excellent resumé of a great subject, and to make a notice of the points made without free excerpts is impossible. Slight functional disturbances, if constant and continued, may produce actual organic lesions. Change is the great remedy for these troubles, not necessarily of surroundings but of the waste places in the nervous system; give the forces some new direction. Study your patients in every phase. Get them out of the ruts they have gotten into, and you will have then cured your patients before you know it.

Dr. ROBERT H. BABCOCK, of Chicago, presented "Some Considerations with Regard to the Senile Heart." The condition is not always due to age or necessarily found in the aged. Importance should always be given to the myocardial changes. Dyspnea is a most frequent symptom of senile heart, although it occurs in other conditions as well. It finally becomes the almost surely fatal symptom—Cheyne-Stokes respiration. Various remedies were advised, and among them the hypodermic use of morphia in a single dose.

Dr. FÜTTERER, of Chicago, said we sometimes find in these cases a more or less intermittent pulse.

Dr. J. B. HERRICK, of Chicago, added his testimony with regard to arrhythmia, which he considers a frequent and most important symptom.

Dr. BABCOCK said that the intermittence is not necessarily a dangerous symptom, but at the same time any such senile heart is liable to stop during one of these diastolic irregularities coming on suddenly. In Cheyne-Stokes respiration morphia seemed to act best with small doses of atropin.

Dr. FRANK BILLINGS, of Chicago, presented a paper on "Intercostal Neuralgia." The disease is always secondary and consequently, in reality, only a symptom. It may be due to toxic forms of functional nerve disturbance, or to pressure by tumors. The functional form is most common and usually due to a defective excretion or mal-assimilation. Indigestion is a most frequent factor, whether due to the character of food ingested or to nervous conditions. Insufficient food and lack of outdoor exercise are frequent causes. Intercostal neuralgia occurs oftener in females, usually on the left side. Palpitation is usually present. Gas in the stomach with eructation is always present. In diagnosis we must always search for the cause. It may be confounded with pleurisy or muscular cardiac rheumatism. In treatment, remove the cause and give any simple restorative tonic.

Dr. W. H. PORTER, of New York, read a very exhaustive paper entitled "New Light on the Role which Iron Plays in the Physiologic Economy—How and where does the Hemoglobin come from?" It is not the product of synthesis. It is difficult to formulate a nucleo-albumin. The iron is not excreted by the salivary, gastric or sweat glands. The hair uses up some, the urine a slight amount. The bile uses most, but the total in both hair and bile is only one-tenth grain daily. Some writers say that the iron is stored up in the liver, but this is not practical. The intake and output both being very small, we must conclude that iron in the body is very stable. There is then a question whether iron should be so frequently and indiscriminately used in anemia.

Dr. JOHN NORTH, of Toledo, had almost given up the administration of iron in cases of anemia. In most cases we should correct the trouble in the alimentary canal, avoid the destruction of the nucleo-albumins, and no iron will be needed.

The paper of Dr. JOHN AULDE, of Philadelphia, on "The Abortive Treatment of Typhoid Fever," was read by the Secretary of the Section. The author reviewed the advantages of guaiacol, carbolic acid, salol, betanaphthol and others, and finally gave his own and others' experience with arsenite of copper, stating that, in his opinion, the disease could be aborted at almost any stage by the use of copper arsenite with appropriate constitutional remedies. As a rule 1-100th gr. should be given every four or six hours. The remedy may be given hypodermically if the disease be advanced to the second or third week.

Dr. GUSTAV BLECH, of Detroit, read a paper on "Medicinal Treatment of Typhoid Fever." The author opened his paper with: "There is no specific treatment for typhoid fever." Hydrozone, I-32, is a most valuable intestinal antiseptic. Irrigation of bowels with cold water is a necessary adjuvant in all cases.

The two preceding papers with that of Dr. J. E. WOODBRIDGE, of Youngstown, Ohio, on "Typhoid Fever and its Abortive Treatment," were read in succession and discussed jointly.

Dr. LOVE said the treatment suggested by Dr. Woodbridge was not original; that all physicians had used the same for years. He protested against the use of the term, abort, as he thought it could not be done. Rest is an important factor in the treatment. Typhoid fever is a matter of diagnosis. He questioned the diagnosis of typhoid in some of the cases reported by Dr. Woodbridge.

Dr. NORTH would change the word abort, to miscarriage. The germs do not enter the circulation. If we can discover something which will eliminate the germs, we can thus cut short the attack. The constant study of the one disease is the only way to progress. He does not think one can become too enthusiastic, but conclusions can be drawn too hastily.

Dr. PORTER said "abort" is an unfortunate and misleading word. We can decrease the intensity and cut shorter the duration of an attack with such remedy. It can not be abortion in any germ disease.

Dr. J. B. HERRICK said in an experience with over one thousand cases of typhoid fever, he is inclined to think that there is no specific for the condition. For the febrile condition, he does not consider anything equal to the cold bath. Even Woodbridge's treatment is an expectant one.

Dr. WOODBRIDGE, in closing, made reference to former discussions and papers by himself and others. Even if we could exclude the diagnosis of genuine typhoid in these cases, what better treatment can we find for the condition? When, however, the rose spots appear along with the usual symptoms, we must admit it is typhoid fever, and these cases can all be aborted in a few days.

Dr. E. L. SHURLY, of Detroit, presented a paper on "Treatment of Pulmonary Consumption in Hospitals." For many reasons the treatment in general hospitals is not practicable. Other patients and dangers of contagion, whether real or imaginary, are important factors. Home-sickness and poverty are also against it. Foreign hospitals for tuberculosis are successful, but the conditions are different in this country. The Harper Hospital of Detroit has been the nearest a success of any American institution. Americans are too restless and have not patience enough to test the system. The hospital must not only be thoroughly equipped, but located in an equable climate.

Dr. GUSTAV FÜTTERER, of Chicago, at the same time presented his paper on "The Direct Cause of Tuberculosis," which will appear in full in the JOURNAL.

Dr. E. B. DENCH, of New York, read the paper on

THE TREATMENT OF ACUTE INFLAMMATIONS OF THE MIDDLE EAR AND MASTOID PROCESS.

For convenience, the author anatomically divided the middle ear into two parts, by a line drawn through the styloid process. Inflammations in the middle ear produce the ordinary results of the same process elsewhere within a cavity lined by a mucous producing membrane, but because of transudation the tissue necrosis is not so extensive; yet there is enough retained to cause an outward bulging of the tympanic membrane. If seen early, free blood letting should be practiced and a single dose of an opiate given. Do not give but one dose of the opiate under any circumstances. Also apply dry heat locally. Do not use wet heat. If not seen until later, free opening is the only thing to be advised. The technique of the operation was minutely and carefully described. The more acute and severe the case, the more prompt should be the measures for relief.

An incision should be made often, even when it is known the cavity contains no fluid. The incision does not end the danger; the entire cavity must be thoroughly washed out and made antiseptic by irrigation.

"Sequels of la Grippe." This paper was read by Dr. F. C. HEATH, of Indianapolis. Several cases of eye results were given and the more common condition of ear complications noticed, with treatment considered.

In the discussion, Dr. STRAIGHT thought the stomach was the most frequently affected of all organs.

Dr. NORTH said quinin given for la grippe had done more damage than any other one thing.

Dr. WHELOCK saw two distinct kinds of reaction following in ear cases with periostitis or middle ear abscess.

Dr. J. M. BALL, of St. Louis, read a paper entitled "Artificial Ripening of Cataract." A complete history of the operations was given, and the various methods were explained. Before doing any of them, the surgeon should be sure the zonula is intact, the tension normal, and the pupil dilatatable. Division of the anterior capsule in these cases is always more or less dangerous and may be serious. Bettman's operation or direct massage or trituration is of all the most desirable. It is the least dangerous, most certain, and speedy. It has

stood the vital test of experience, and is worthy of confidence. If prolapse of the iris occurs, snip it off at once, contrary to most authority, but he had found it satisfactory and beyond expectations.

Dr. J. O. STILLSON, of Indianapolis, read a paper entitled, "Complications in Cataract, Arising from Diabetes, Albuminuria," etc. The diabetic cataract is as yet a puzzle. A serous retinitis is often a symptom of Bright's disease. Albuminuria is a frequent complement of cataract. It is not only desirable but necessary to treat these conditions if they exist, before operating for the senile cataract.

Dr. K. K. WHELOCK, of Fort Wayne, Ind., read a paper entitled "Rheumatism and Gout in its Relation to the Eye." The paper was a thoroughly practical one and presented this somewhat old but nevertheless important subject in an interesting manner. The paper elicited a warm discussion.

Dr. G. W. McCASKEY, of Fort Wayne, Ind., followed with a contribution on

BIO-CHEMISTRY IN ITS RELATION TO NERVOUS DISEASES.

In this paper the somewhat peculiar and certainly novel attempt was made to establish the general theory of the causation of nervous diseases by chemic poisons, circulating in the blood and acting by a process of selective affinity upon different parts of the nervous system. The author referred to these poisons under the following groups, the classification being entirely tentative, and based upon their source of origin instead of their ultimate chemic analysis or physiologic action: 1, bacteriologic products—ptomaines; 2, products of perverted tissue metabolism; 3, defective elimination of excretion; 4, perverted secretion of glandular organs; 5, products of imperfect digestion; 6, chemic compounds probably present in independent blood states, and of unknown origin.

Many conditions, heretofore unknown as to their etiology, will be found to be due to one of the above conditions existing in the system.

One of the most practical papers of the Section was that read by Dr. J. H. TAYLOR, of Indianapolis, entitled "How Shall We Rear Our Babies?" The suggestions and directions were for both physician and mother, and put in so pointed a manner that the paper ought to have a wide circulation.

The next paper was by Dr. FENTON B. TURCK, of Chicago, which was entitled

DISEASES OF THE MOUTH, NOSE AND THROAT, AS ETIOLOGIC FACTORS IN CHRONIC OLANULAR GASTRITIS, WITH BACTERIOLOGIC STUDIES OF THE PHARYNGEAL VAULT.

Bacteriologic study has developed the fact that upon the mucous membrane of the mouth, nose and pharynx, groups of microorganisms may form, which may also be found growing on the mucous membrane of the stomach, and certain germs that are found in the inflamed mouth may also be found growing on the walls of the stomach in gastritis. Under normal conditions the mucous membrane of the stomach does not favor colonization upon its walls; but let some etiologic factor come into play and microorganisms will develop. The mouth, nose and throat, when in a diseased state, become incubators ready to infect when the conditions of the stomach permit the development of growing microorganisms upon its walls. The author then referred to the bacteriologic studies of Miller, Wurtz and Lindet. Microorganisms of the mouth are carried by the food after mastication into the stomach; many of them are again recognized in the stomach, and in cases of gastritis are found in colonies growing upon the mucous walls. The author in his clinical and experimental work has presented similar groups of microorganisms taken from the gums and cavities in the teeth, as well as from the material removed by the gyromele (revolving sound) from the walls of the stomach. In cultures upon the prepared mucous membrane of the pig, he has been able to cultivate some of the microorganisms and find the same developing in the stomach that are found in the mouth. But in the control animal, he has not yet found microorganisms growing in colonies in the stomach.

After reporting several cases, Dr. Turck concluded that clinical observation indicates a marked relation between diseases of the mouth and post-nasal cavity and chronic inflammation in the stomach and intestines; that the invasion of the stomach from the infected mouth and pharynx is supported by the fact that many of the non-pathogenic microorganisms present the identical, biologic and physical forms in cases of gastritis the same as those found in diseases of the mouth and post-nasal cavities of the same patients. Dr. Turck exhibited a chart showing the predominating microorganisms found in eight cases that were studied bacteriologically.

Dr. LARRABEE, of Louisville said, in the discussion, that the germ theory had been superseded by germ facts as presented.

Dr. FRANK BILLINGS, of Chicago, complimented Dr. Turck on his excellent clinical and experimental work, saying that the Doctor stands at the head of his profession in the work he has accomplished. He had shown that when there is a lowered vitality of the mucous membrane of the stomach by errors of diet, a soil is produced favorable for the development of microorganisms.

Dr. H. W. LOEB, of St. Louis, read a paper entitled

EXPERIENCES WITH PAQUIN'S ANTI-TUBERCLE SERUM IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS,

in which he gave the history of nine cases of this disease, seven of which had been treated with the serum. The patients all improved greatly. One case particularly lost all dysphagia, pain in the larynx, cough and night sweats. Other patients showed a much greater improvement than under any other plan of treatment yet tried. The Doctor quoted the confirmatory evidence of Maragliano of Genoa, Cole, Semon, Wiggins and Paquin. He will continue his investigations and present further conclusions at a later date.

In the discussion, Dr. PAUL PAQUIN, of St. Louis, explained in detail the treatment which he had instituted. He said it was just in its beginning. It will have to be improved as we go along, and it will take years to do so. The best results have been obtained in the acute forms of the disease, and not in the chronic. The law underlying serumtherapy is a natural one. It is trying to fight bacteria by using nature's remedy. He had had failures with serum, but he could mention forty or more cases of recovery. He thought that in some cases it would require other treatment beside serum. He had not had good results inside of two or three months, and it frequently required five or six months, or even longer. He had made over ten thousand injections with serum in tubercular cases, but did not recall one which was attended with fatal results. He counseled study of the climate, as well as the patient, before sending a patient away. Tuberculous patients could not live in Colorado or New Mexico. They will die quicker there than anywhere.

Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., presented an article on "Yeast Nuclein and its Therapeutic Uses." Physiologically, nucleins form the chief chemic constituents of the living parts of cells; that constituent of the cell by virtue of which this histologic unit grows, develops and reproduces. The nuclein of various cells differs, and is limited only by the variety of cells. Chemically, the nucleins contain a large amount of phosphorus. Some are combined with albumin, forming the so-called nucleo-albumin. The nuclein molecule has a remarkable power of recuperation after partial decomposition. Some nucleins have germicidal properties. Experiments were made with animals, apparently proving that previous treatment by the nuclein gave immunity to the pneumococcus. Some thirty experiments were detailed and results given which seemed quite promising.

Dr. HUGH T. PATRICK, of Chicago, read a paper on

DIAGNOSIS OF HYSTERIA.

The writer dwelt particularly upon the peculiarities of hysterical anesthesia, hyperesthesia and paralyses. The principal peculiarities of the first are its distribution in the form of a glove, sleeve, or stocking, with sharply cut border and in disseminated and irregular patches. Dr. Patrick called attention to a distinguishing trait not yet described, namely, almost instantaneous shifting of the line of demarcation between the anesthetic and normal areas. This peculiar feature applies equally well to hyperesthesia. Among the hyperesthesias was described hysterical joint disease and hysterical angina pectoris, with the differential points of diagnosis between these affections and organic disease. The peculiarities of the hysterical gait were described at some length and their relation shown to the affection described by Blocq and called by him *astasia-abasia*. The writer protested against this affection being considered a nosologic entity, as it is simply an exaggeration of a common feature in hysterical paralyses. The peculiarities which distinguish an hysterical from an organic paralysis of the upper extremity were also described, and hysterical affections of the special senses were briefly alluded to.

Dr. B. M. RICKETTS, of Cincinnati, read a paper entitled

HEMORRHOIDS—PROLAPSE RECTUM—A NEW OPERATION.

The object of this paper was to present means more simple than had heretofore been offered for the radical cure of a prolapsed rectum and the obliteration of hemorrhoids. After widely dilating the sphincter with the fingers under

surgical anesthesia, a large semicircular needle is passed subcutaneously from the muco-cutaneous line to the upper border of the pile-bearing area, and then returned to make its exit at the point of entrance. The needle is then removed and the silk ligature made tight about the venus plexus, and the ends left hanging. These ligatures may be from one-half to an inch apart, as the case may require. It is not necessary to tie all the varices in this way, as the atrophic changes will necessarily obliterate the remaining ones. No tissue is sacrificed; the mucous membrane remains intact; there is no hemorrhage, no infection, no pain of consequence, and the loss of time is practically nil. The sutures are allowed to come away of their own accord. The operations made in this way for this condition have resulted in an absolute cure, and the patients have experienced but little pain during the life of the ligature.

Prolapsed rectum is treated in the same manner, except a greater number of ligatures are required. If they are properly and evenly adjusted, the atrophy of the tissues is symmetrical and the pathologic condition is relieved without stenosis.

Dr. WM. PEPPER, of Philadelphia, by request, delivered the Address on Medicine. He selected for his subject "Daniel Drake: or Then and Now," which appeared in full in the *Journal* September 14.

Dr. J. HOMER COULTER, of Chicago, read this paper:

THE DEFLECTED SEPTUM AND ITS REPAIR.

The author first dwelt upon the etiology of the condition. In stenosis of any degree there is created in each inspiration, within the cavity, a more or less complete vacuum. Thus the atmospheric pressure is to that degree increased and is a constant force of no inconsiderable gravity. He holds further that such a force would be more efficient in producing structural changes in the cartilaginous septum than would a more violent force suddenly applied, because the natural cartilaginous resiliency would more easily recover and throw off the effect of the latter.

The author then gave the points in the operation, because in the observance of these lies the success of the operator. Where the deviation is well anterior, or involving merely the alae, it is very much simplified because of convenience in operating and after-treatment as well. Until recent years but little attention was paid to the preservation of the mucous membrane, when operating on a deflected septum. A new form of punch was suggested for removing the cartilage and leaving the membrane intact.

Dr. W. F. BREAKER, of Ann Arbor, Mich., read a paper entitled "A Case of Comminuted Fracture of the Ilium with Specimen and Photographs." No reports show such an extensive fracture of the ilium as this case. It was literally shattered into pieces. The patient fell ten feet on a pile of stones, producing this fracture and also a Colles fracture with dislocation of the ulna. The patient never rallied from the shock of the accident.

Dr. HAL C. WYMAN, of Detroit, presented an article on "The Treatment of Cancer." The cure of cancer is rare, and unless the treatment is begun early, the disease terminates in death. In the treatment of cancer there is still an open field. The cure by early removal, while the disease is local, is urged and practiced by all who have opportunity. But the opportunity will not occur with sufficient frequency to stamp out the disease until the people are educated as to the facts.

Dr. LEWIS C. CLINE, of Indianapolis, Ind., read a paper on
LARYNGITIS FROM A RHINOLOGIC STANDPOINT.

The author adheres to Bosworth's classification of laryngitis, and applies the word *itis* only to inflammations of a purely catarrhal character, which excludes at once syphilis, tuberculosis and other constitutional diseases, as they are more properly called syphilis or tuberculosis of the larynx.

The cases that are least amenable to treatment are the atrophic, but much can be done to comfort and palliate these cases by attention to dress, stimulant and lubricant applications. For stimulating and astringent, he finds nothing equal to nitrate of silver, from 10 to 40 grains to the ounce, according to the indications. For overwork cases, the first law is rest, with occasional mild, stimulating applications with an atomizer. The great majority of cases that had come under his observation had had atrophic or hypertrophic rhinitis to a greater or less degree. Spurs and deflected septum are often associated with these conditions. The lesions most frequently observed are hypertrophies of the posterior ends of the inferior turbinate body, and a thickened, lumpy condition of the posterior end of the septum.

The drill, saw, snare and galvano-cautery are aids in removing these conditions in the more aggravated forms, while the application of silver and various astringents with sprays have served the author in the mild form.

Dr. J. A. WESSINGER, of Ann Arbor, Mich., contributed a paper on "The Therapeutics of Oleo-Creosote and Creosote Carbonate." He summed up his experience with these remedies in the following conclusions: 1, the dosage is practically unlimited as far as toxicity is concerned, but it is preferable to begin with a small dosage, two to three drops after eating, and increase until the desired result is obtained; 2, to be of value in tuberculosis, a clinical diagnosis must be made early; 3, while these agents are distinctly germicidal, they also serve as tissue builders; 4, creosote, carbonate and oleate have the power of increasing the number of red blood corpuscles, and they also increase the percentage of hemoglobin in the blood.

Dr. I. N. LOVE, of St. Louis, read a paper entitled:

THE BICYCLE FROM A MEDICAL STANDPOINT.

Bicyclists should understand the importance of going reasonably slow. The wheel brings into play all the muscles, and the maintaining of equipoise has beneficial results. The matter of position is important. The rider should maintain an erect posture and not assume an unsightly stoop, in imitation of the hoop snake, which takes its tail in its mouth and sails through the country. A study of the question of the wheel for women had resulted in an opinion favorable to its moderate use in cases of acute diseases. Specialists had agreed to this. Numerous cases of long-standing pelvic diseases had been benefited by a judicious use of the bicycle. Women maintain a better position than men. An hour's wheeling three times a day is ample. The costume is important from the standpoints of health and art. He objected most emphatically to bloomers, which lessened the respect of mankind for womanhood and blemished the landscape. Leggings and accordeon-plaited skirts were about the thing. Corsets should be put aside. Skirt and shirt waist were favored, and even the sweater was approved.

The discussion was opened by Dr. C. B. PARKER, of Cleveland, and continued by Dr. W. N. WISHARD, of Indianapolis; Dr. STERNE, of Indianapolis; Dr. WALKER, of Evansville, Ind. They all advocated and advised a moderate use of the wheel for both men and women.

A paper was read by Dr. T. O. SUMMERS, of St. Louis, entitled "The Physiologic Aspects of Leucocytosis," and one by Dr. A. GOLDSPOHN, of Chicago, on "The Proper Indications for Repair of Pathologic Lacerations of the Cervix Uteri, and for the Relief of Pathologic Antelexions and the Proper Operations to Meet Them."

The Nominating Committee reported as follows. The report was adopted:

President—Dr. H. O. Walker, Detroit.

First Vice-President—Dr. B. M. Ricketts, Cincinnati.

Second Vice-President—Dr. F. C. Woodburn, Indianapolis.

Secretary—Dr. H. W. Loeb, St. Louis.

Treasurer—Dr. H. N. Moyer, Chicago.

Judicial Council—Drs. W. N. Wishard, T. E. Holland, and A. P. Buchman.

The Nominating Committee also submitted the following resolutions:

Resolved, That it is the sense of this committee that the best interests of the Association will be subserved by the appointment of a permanent Executive Committee, composed of the titular officers of the Association and the ex-Presidents, and that this committee shall conduct all the business of the Association; be it further

Resolved, That we recommend the creation of the office of assistant secretary, to be appointed by the Chairman of the Committee of Arrangements, from the place in which the meeting is held.

On motion, the Association adjourned to meet in St. Paul, Minn., on the third Tuesday of October, 1896. Dr. C. A. Wheaton, of St. Paul, was selected Chairman of the Committee of Arrangements.

Tri-State Medical Association.—The semi-annual meeting of the Tri-State Medical Association was held at Cumberland, Md., September 5, with an attendance of thirty. The following officers were elected: President, C. S. Hoffman, Keyser, W. Va.; Vice-Presidents, J. M. Spear, of Cumberland; S. H. Gulp, of Bedford; Recording Secretary, Percival Lantz, of Alaska, W. Va.; Corresponding Secretary, F. W. Fochtman, of Cumberland; Treasurer, H. W. Hodgson, of Cumberland. The next meeting will be held in Cumberland some time during next December.

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE. \$5.00

SINGLE COPIES. 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, SEPTEMBER 21, 1895.

PATHOGENY OF ADDISON'S DISEASE.

Among the morbid entities whose pathogeny is still obscure, the disease first described by the English clinician ADDISON, in 1855, and since known by his name is not the least interesting. Characterized by marked emaciation, asthenia, toxemic symptoms, vomiting, diarrhea, bradycardia, etc.,—and, generally, by melanoderma or bronzing of the skin, its exact causation is still unknown, but the coöperation of physiologic chemistry and clinical and experimental pathology has furnished clues which lead us to believe that the solution of the problem is near at hand.

The theories to account for the origin of the disease may be divided into three groups—the capsular, nervous and toxic. The capsular theory, which was advanced by ADDISON, accounts for the disease by the degenerative changes in the suprarenal capsules. Shortly after the appearance of ADDISON'S work, BROWN-SÉQUARD undertook a series of experimental researches which may be summed up as follows:¹ 1, the suprarenal capsules are indispensable to life, their complete ablation is rapidly followed by death, which occurs far more rapidly than from suppression of urine; 2, these organs modify and destroy a substance which can be transformed into pigment; after destruction of the capsules this substance accumulates in the blood; 3, after destruction of both capsules, the blood becomes toxic and when injected into other animals of the same species often causes death.

BROWN-SÉQUARD'S results have been confirmed by GRATIOLET, ABELOUS and LANGLOIS and denied by

HARLEY, SCHIFF, TIZZONI, SEMMOLA and others. The failures of the latter investigators are probably due to lapse of sufficient time for death to occur and to faulty technique. It may take over a month for the fatal issue and, again, in animals usually selected for experiment, and especially guinea pigs, capsulectomy is very difficult. The inferior cava is in such close relation to the capsules that in order to avoid death from hemorrhage small pieces of the organ are often left *in situ*, which of course spoils the whole experiment.

The nervous theory is upheld by a number of distinguished investigators, among them ALEZIAS and ARNAUD, KAHLDEN, LANCEREAUX, BRAULT and PERUCHET. According to this theory, the disease is due to changes in the abdominal sympathetic, and the adrenals are either not affected at all or only indirectly. ALEZIAS and ARNAUD assert that the pericapsular nerves are at fault. These are intimately connected with the capsule and it seems reasonable to suppose that any changes in them have extended from the capsule itself. As a result of their researches, they assert that whenever the cortex of the capsule, the nervous filaments or the ganglia in this part are affected, bronzing of the skin occurs. In cases where toxemic symptoms beside are found, then we have also changes in the medulla of the organ. The nerves and ganglia to which these changes are attributed are the pericapsular ganglia, the solar plexus, the right semilunar ganglion, different branches of the abdominal sympathetic and, according to KALINDERO and BOBES, even the spinal cord itself. In forty-nine cases where changes in the sympathetic are looked for, the nerves and ganglia were found perfectly normal in twelve.

The theory which accords best with the present state of our knowledge in other directions is the toxic theory. According to this view, a toxic substance is elaborated by the capsules and when they are destroyed this collects in the system and auto-intoxication and death follow. Among the adherents of this theory we find CHARRIN, McMUNN, NOTHNAGEL, SCHAFER and OLIVER, FOA and PELLECARRI, MARINO-ZUCCO and others. As a result of experiments we know that double capsulectomy invariably results in death. In a winter frog this occurs in twelve or thirteen days; in summer frogs, when metabolism is more active, in forty-eight hours or more. If only one capsule is destroyed, or if any large portion of the other is left, the animal lives; but after extirpation of both capsules, life can only be prolonged for some days by inserting a fragment of capsule in the dorsal lymph sac of the frog. Blood taken from the decapsulated frog, paralyzed and dying, is toxic for other frogs recently operated on and rapidly produces paralysis and death.

PROFESSOR SCHAFER, in his recent masterly address

¹ L'Union Médicale, 1895, No. 26.

on "Internal Secretions," before the British Medical Association² points out that animals differ greatly in their reaction to subcutaneous injections of suprarenal capsules. The guinea pig, he states, will stand a large dose subcutaneously without showing any symptoms save, possibly, a slightly accelerated pulse. This seems to hold good for the dog and cat also, unless very large doses are used. The rabbit, on the contrary, is extremely susceptible; a large dose will kill in half an hour. SCHAFER found that intravenous injection of capsular extracts produced even more marked results. "Experiments show conclusively that the medulla of the suprarenal capsule contains a dialyzable organic principle, soluble in water and not destroyed by boiling for a short time, and which exerts a powerful physiologic action upon the muscular system in general, but especially upon the skeletal muscles, the muscular walls of the blood vessels and the muscular wall of the heart. A certain amount of action is also manifested upon some of the nerve centers in the bulb, especially the cardio-inhibitory center and, to a small extent, upon the respiratory center."

Its action on muscle is compared to different alkaloïds by various writers; by OLIVER and SCHAFER to veratrin, the contraction after excitation being greatly prolonged; the blood pressure is much greater also, and the cardiac pulsations are increased. These effects pass off in a few minutes and, as this author remarks, the question is, What becomes of this active principle? The effect passes off, he states, just as quickly if the renal arteries are clamped, showing that it is not eliminated through these organs. If the aorta and cava are tied, so no blood at all circulates in the abdominal organs, it passes off almost as quickly. What, then, becomes of it? SCHAFER decides that the most probable explanation is that this active principle is stored away and gradually rendered innocuous in certain organs—a view which is corroborated by the fact that the effects on skeletal muscles are manifested for a long time after those on the heart and vessels have ceased.

A very small amount of the extract will suffice to produce marked results. Thus .0055 gr. of dried suprarenal will produce a maximum effect upon a dog of 10 kilos. Moreover, this active principle is contained only in the capsular medulla and not in the cortex. PROFESSOR SCHAFER considers it probable that this substance is continually being secreted into the blood by the capsules and though in very minute quantities may have beneficial effects on the muscular functions and especially on those of the vascular system. It appears, then, that the toxic theory offers at present the best solution of the problem and, if it prove to be the correct one, it does not seem too much to expect that serumtherapy or its

allies may furnish a means of combating this insidious disease which, though perhaps not so prevalent as some others of "man's foes," has thus far remained invulnerable to the resources of our therapeutic armamentarium.

THE CHOLERA.

The dispatches for the week indicate the continued progress of cholera in China, Japan and the Sandwich Islands. Cholera has appeared on the U. S. steamship *Bennington* while at Honolulu. The authorities on the Pacific coast are now fully aware of the necessity for vigilance, and no danger need be feared. The action of the Government is seen in the circular published in our "Public Service" column. The application of the same general practice of disinfection of fomites, or "suspicious" baggage, that has obtained on the Atlantic coast for the past five years will be followed by the same success that obtained there.

There seems no reason to doubt the character of the fatal cases at Grimsby in England, August 30 and September 3. The first case was that of a man who had been engaged in cleaning out the cholera ship used in 1893. Beyond a mere passing notice and some criticism of the Town Council for declaring against the notification of diarrhea, the deaths have attracted little or no attention. The fact is that England has been taught enough about cholera and its cause—thanks to the persistent pounding of MR. ERNEST HART and his colleagues—not to get hysterical at its mere mention. The disease is no longer a bugbear, but a blessing in disguise, enforcing the lesson of an uncontaminated water supply and general cleanliness. The latest contribution to this lesson is furnished from Bombay. Prior to 1892 whenever a high death rate from general causes prevailed, an outbreak of cholera accompanied or followed. Since 1892, however, although the general death rate has been very high, there have been few cases of cholera. This is ascribed to the pure and plentiful water supply introduced in the year mentioned and to the general measures of cleanliness and sanitation since enforced. Moral, *re cholera Asiatica*: Don't defile the water you drink, nor the air you breathe, nor the soil you live on; so shall the Indian pestilence pass you by unharmed.

We observe with some surprise that persons who should know better, have been vigorously denouncing "quarantines" in the columns of the daily press. It would be unfortunate for the country if such views should prevail. "Quarantine" as understood and practiced in the civilized world to-day means simply *inspection and disinfection, hospitals for the sick, and cleanliness for the ship*. It is simply quarreling with an obsolete method, long since extinct, to oppose quarantines. The day of detention quarantines *per*

² British Medical Journal, Aug. 10, 1895.

se passed in this country, when the Government took command of the quarantine service as a permanent charge in 1888, on the recommendation of SURGEON-GENERAL HAMILTON and these quarantines have since been perfected on the lines then laid down, and for which a half a million was appropriated by the act of Aug. 1, 1888. Subsequent acts, establishing supervision over the ship from its point of departure, and a more rigid inspection of immigration, have greatly improved the situation.

An amusing statement is attributed to a leading hygienist, that if all the cholera germs in the world were dumped into Lake Michigan, Chicago would be in no danger. This must be erroneous for the whole world knows cholera to be waterborne. The Indian "tanks," the wells and the water supply have been the chief sources of propagation, from time immemorial. *The bacillus lives in water, and dies when it is thoroughly dried.*—That is the lesson taught by bacteriology, and a study of epidemiology.

There is no longer any use to appeal to local self-glorification by making statements directly contrary to the known truths of science. No American public should dread or fear the truth. It is concealment that is misleading and disastrous.

We doubt not that the medical officers of the Navy will be able to arrest the spread of the disease on the *Bennington*, so that when it returns to the Mare Island Navy Yard the disastrous history of the French troop ship, at Toulon, from Tonquin, may not be repeated. And we have equal faith that the Marine-Hospital Service will stamp out the disease now at Angel Island Quarantine, if the local authorities do not obstruct matters by foolish interference. It is not San Francisco but the whole country that is interested in this matter.

The only question now is the sanitary condition of "Chinatown," and that question is being settled by a house-to-house inspection of that celestial spot, by the health authorities of San Francisco. In the meantime, there is every reason, on many accounts, why all the interior cities should put themselves in good sanitary condition.

VACCINATION OF SCHOOL CHILDREN.

One by one, the courts of the different States are settling the question of the legality of compulsory vaccination of school children. Feb. 11, 1895, the general term of the Supreme Court of New York, affirmed, in *re Smith*, a decision holding constitutional, Section 200 of the Public Health Law of that State which provides that no child or person not vaccinated shall be admitted or received into any of the public schools of the State. And only recently has been made accessible, the decision of the Supreme Court of Errors of Connecticut in the case of *Bissell*

v. Davison, rendered Dec. 1, 1894, of much the same purport. In the latter case, the court holds that a statute providing that the board of school visitors of any town may require that every child shall be vaccinated before being permitted to attend the public schools, is valid, and there is no reason for implying that the power is only to be exercised when an epidemic of smallpox is reasonably to be apprehended. It does not deprive a child of his rights, without due process of law, or deny to him the equal protection of the laws, guaranteed by the Federal and State constitutions. The duty of providing for the education of the children within its limits, through the support and maintenance of public schools, is to be considered in the light of a governmental duty resting upon the sovereign State. In the performance of this duty, the State maintains and supports, at great expense, and with an ever-watchful solicitude, public schools, and secures to its youth the privilege of attendance therein. This is a privilege, rather than a right, in the technical sense of the term. This privilege is granted, and is to be enjoyed, upon such terms and under such reasonable conditions and restrictions as the law-making power, within constitutional limits, may see fit to impose; and, within those limits, the question what terms, conditions, and restrictions will best subserve the end sought in the establishment and maintenance of the schools is a question solely for the Legislature, and not for the courts. Such a statute as that under consideration is essentially a police regulation,—as much so as would be one giving the power to exclude, temporarily, scholars afflicted with infectious or contagious diseases, or coming from homes or districts where such diseases are prevalent. It is a reasonable exercise of the power to require vaccination, if such requirement can ever in the nature of things, be a reasonable one. Support for these propositions is also found in precedents established in California and Pennsylvania.

THE IMMEDIATE EFFECTS OF INJURIES OF THE BRAIN.

An interesting medico-legal point brought out in a recent murder trial, in regard to which there seems to be a lack of definite and positive statement in the text-books, is the question as to the immediate results on consciousness and motility, of gunshot wounds of the brain. A woman was shot with a pistol while in bed, and it is said she rose, spoke to her husband, and made her way to a rear porch. The prosecution claimed, and brought medical testimony to support its claim, that with such a wound she could not have walked or talked as she was said to have done. The details in the newspaper accounts as to the wound are not very exact, but it seems to have been high up in the brain; at first it was stated in the notes as one-half inch above the *crus cerebri*,

but this was corrected to corpus collosum. The ball passed through both hemispheres from right to left; the woman was unconscious when found and remained so until her death, sixteen hours later.

These rather vague particulars taken from the daily press furnish no sufficient data on which to decide this particular case, but they suggest very strongly the question whether any one can say just what will be the immediate effect of a small projectile wound of any portion of the brain above the medulla. Destruction of the pyramidal fibers could follow a wound as high as the internal capsule, but above that, many of them would undoubtedly escape, and there are numerous instances of gunshot and other wounds apparently in a situation to involve parts of the motor region that have not been directly followed by any general or even extensive paralysis. When it comes to the question of consciousness there are still more difficulties, and it is hard to say what injuries inevitably destroy it completely and at once. All we know is that the tolerance of injury by the brain is very great, that its limits have not been defined with even any approximate accuracy, and that therefore any positive statements as to just what will or will not occur are hardly justifiable in the present state of our knowledge. The most one can safely say is what is possible, hardly what is probable, and it would be well if our text-books on medical jurisprudence which are generally looked upon as authorities in this matter, stated more definitely than some of them do, the fact of the limitations of our knowledge in regard to this particular point.

THE RADICAL CURE OF HERNIA.

The operation for the radical cure of hernia has received the official approval of the War Department. From twenty to thirty men are discharged every year from our Army on account of rupture. These men become valueless as soldiers and under present laws are each entitled to a pension of \$8 per month and to a suitable truss renewed every three years. As most of the ruptured soldiers are young men with a long expectancy of life, the disability is a costly one to the Government. It remains to be seen whether the radical operation will save the injured soldiers for further military service and by so doing reduce the list of ruptured pensioners; and also whether the victims of rupture will take advantage of the opportunity afforded them of being treated for a radical cure. According to a recent circular from the office of the ADJUTANT GENERAL of the Army, cases of hernia suitable for an operation should receive surgical treatment, which, by the most approved modern methods, is successful in a large proportion of the cases operated on, and in skillful hands is attended with little risk. Operations for the radical cure of hernia will be performed, with the consent of the

soldier, by medical officers specially designated by the SURGEON GENERAL of the Army.

Medical officers will report cases of hernia considered favorable for operation to the SURGEON GENERAL. If the case is considered unsuitable for operation, or if an operation is declined by the soldier, the fact will be noted on the certificate of disability.

LESS THAN A CENT A VISIT.

Some of the cheapest styles of medical practice that can be found anywhere in the world, can be found on the "east side" of New York city. But that which cheapens the business to its minimum is a new kind of coöperative scheme of medication, on the plan of an insurance association. A writer to the New York *Herald* calls attention to some of the features of this scheme. He says:

"Nearly every head of a family, in this eastern section of the city, belongs to a secret benefit society of some sort. Until lately these societies confined their activity to life insurance, funeral benefits and sick benefits, but lately the feature of medical insurance has been added to several of them.

"The plan is to engage some young physician who for a fee of 75 cents per quarter from each member of the society undertakes to attend the member or his family in case of sickness. At first sight it seems as if this might be a profitable arrangement in the case of a society with one thousand or more members but in practice it is not so. Every member of the society has several children, one or more of whom are almost constantly ailing, and the slightest ailment furnishes an excuse to call the doctor when his visit costs nothing extra.

"One young physician who rashly entered into contracts with three of these societies, having an aggregate membership of 1,500, told me that he estimated that he got three-quarters of a cent for each call he made.

"'I can find no time for private practice,' he said. 'To-day I have had forty-two calls from my society patients, and I have an average of thirty a day. I am all worn out with the work, and when my quarter runs out nothing will induce me to renew the contract.

"'Why, if a child scratches its finger I have to go and dress it, and I have even found cases where the society members called on me to visit their neighbors, passing them off as members of their own family and charging them a small fee for the accommodation.'"

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

The program for the eighth annual meeting of the American Association of Obstetricians and Gynecologists has just been issued. The daily sessions will be held in the south parlor of the Auditorium Hotel, Chicago, Tuesday, Wednesday and Thursday, September 24, 25 and 26. The President is DR. J. HENRY CARSTENS, of Detroit; the Secretary, DR. WM. WARREN POTTER, of Buffalo.

The work of this Association has attracted a great

deal of attention, its papers and discussions being universally quoted. It enjoys the reputation of being one of the most scientific and active organizations in this country. The papers represent advanced thought in both gynecology and obstetrics. At its meetings the results of original research are reported. The discussions are free and spirited, as might be expected, when they are participated in by such men as JOSEPH PRICE, JOSEPH EASTMAN, L. S. MCMURTRY, C. A. L. REED, A. VANDER VEER, W. E. B. DAVIS, ROBERT T. MORRIS, JAMES F. W. ROSS, H. W. LONGYEAR, J. D. GRIFFITH, and others equally prominent.

The Association is called to order promptly on time at every session; the members are not restricted to time in debate, and there is a notable absence of the "mutual admiration" element in the discussions.

The profession are cordially invited to attend the meeting by the Chairman of the Committee of Arrangements, DR. J. B. MURPHY.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

This Association which now includes in its membership representatives from the whole of North America, will this year meet in Denver, Colo., October 1, 2, 3 and 4. The Local Committee of Arrangements, of which DR. HENRY SEWALL is chairman, and fifty-three other doctors, two United States Senators, the Mayor, the Governor, the Chief Justice of the State, six Judges, four ex-Governors, a member of Congress, forty-four other prominent citizens and the Ladies' Reception Committee, are the other members, have prepared a very handsome program. The illuminated cover and well executed illustrations are works of art. One can scarcely glance at this elaborate setting forth of the beauties of Colorado, without a desire to attend the meeting, participate in its exercises and see the glorious scenery for which Colorado is famous.

The usual reduction of railway fares has been promised.

CORRESPONDENCE.

Is the Journal Too Good?

MARIENVILLE, PA., July 29, 1895.

To the Editor:—The more one sees of THE JOURNAL (big capitals in *The*, please,) the more satisfaction there is in seeing it all, from title page to finis, of the highest order. The profession ought to be proud of it. Personally, I am willing to add 50 per cent. to the annual dues, if necessary, to keep it up to the highest point in medical journalism.

* * * * *

There is a point, however, worth noting. In a conversation with Trustee Dr. E. E. Montgomery, at the Philadelphia meeting, I said the only criticism I heard now about the JOURNAL was that "it was too good." There is more than "something" in that. The JOURNAL wants a big circulation. It can't reach all classes—and there are classes and classes in the profession—by a series of articles that are so good as to be exclusive to all but well posted M.D.'s. The editor, of course, desires to be a lift and help to all that come within

range. In this view, it is worth while considering if a column or two could not be set aside for notes, queries and brief articles on treatment exclusively. This or some other way that will bring the JOURNAL in touch with all classes, or as one might put it, the mass of the profession. However, as things are going now, the man who has a bound volume of the JOURNAL at the end of this year, will have a fund of information that he can't get in any \$7 to \$10 "Practice" on the market, to say nothing of surgery, etc. "Here's to you!"

"Palmarum qui meruit ferat." Very truly yours,
S. S. TOWLER, M.D.

A Way to Increase the Membership.

HUNTINGDON, PA., Sept. 16, 1895.

To the Editor:—Will you please send to my address about twenty-five blank applications for membership in the AMERICAN MEDICAL ASSOCIATION?

It seems to me, if some member, treasurer or secretary of each county medical society would distribute to each member of their society a blank application for membership in the AMERICAN MEDICAL ASSOCIATION, telling them also that in connection with their certificate of membership they would receive a weekly journal of medicine which is second to none in the United States, that there would be a larger ingathering of membership to the Association. It is for this purpose that I desire the blanks, and if you have any surplus copies of the JOURNAL I think I could use them to good advantage. Yours respectfully, G. G. HARMAN, M.D.

We have printed the foregoing letter, although it was not intended for publication, as it contains a valuable suggestion for secretaries of societies who desire to help enroll American physicians in the membership of the Great Association.

Not In the Chromo Business.

SPRINGFIELD, ILL., Sept. 9, 1895.

To the Editor:—I am in receipt of an offer, from a New York firm of medical publishers, which seems to me a stroke of enterprise that you might emulate. They will send me their journal (a weekly like our own) four months free, together with a copy of a standard medical work, price \$5, and will give unlimited credit if I become a subscriber to the aforesaid journal.

Now, will you tell me what earthly show *our* JOURNAL stands in competition with this kind of push?

As one of the stockholders of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION I feel that I have a right to protest against your old-fogy methods. You are too conservative and dignified. Haven't you got a chromo concealed somewhere about the premises that you might offer for a new subscriber? Or why not give a bicycle and the JOURNAL free for a year to any one who will take it out of the postoffice?

Possibly you think the JOURNAL worth its subscription price, and undoubtedly it is. But if we are to give it a circulation commensurate with its value we, the present subscribers who are its owners, must do something to counteract these efforts of the medical book publishers to monopolize the periodical field.

If you will send me one or two sample copies each week for a month or so, I will see what I can do among the profession here. And if each of us will do the same, I think we can offset the gift enterprise business pretty effectually.

Yours for our own JOURNAL, F. W. R.

BOOK NOTICES.

Examination of Water for Sanitary and Technic Purposes. By HENRY LEFFMANN, A.M., M.D., Ph.D. Philadelphia: P. Blakiston, Son & Company. Third Edition. 1895.

Dr. Beam, who was associated with Dr. Leffmann in the publication of the earlier editions, is now permanently residing in

a distant land and has severed his connection with the work and turned over his copyright privileges to his former associate. The new edition contains little that is not in the second edition. The spelling of certain words has been changed, so that we now have chlorin, chlorid, technic, analytic, etc. From the table of contents we would infer that there was a considerable alteration in the text, but on examination we find merely a rearrangement of the matter. A few paragraphs have been added under the heading of Biologic Examinations and their Interpretation. For instance, citation is made of Vaughan's culture of the bacteria of water at 38 degrees C., to exclude all growths except those that flourish at the body temperature. The Franklands are cited on the differentiation of the typhoid bacillus, and several methods are briefly stated from the works of various experimenters for the detection of the spirillum of cholera. The sand filters at Lawrence, Mass., are described. The author, however, is not accurate in all of his statements, as, for instance, on page 103, where he appears to consider that the object of the convention of bacteriologists lately held in New York city was merely to secure a consensus of opinion among bacteriologists as to the most satisfactory method of microbe counting. However, the book has its uses, and with exceptions noted is of considerable value.

The Diseases of Personality. By TH. RIBOT, Professor of Comparative and Experimental Psychology in the College of France. Authorized translation, second revised edition. Pp. 163. Chicago: The Open Court Publishing Company. Price, cloth, 75c; paper, 25c. 1895.

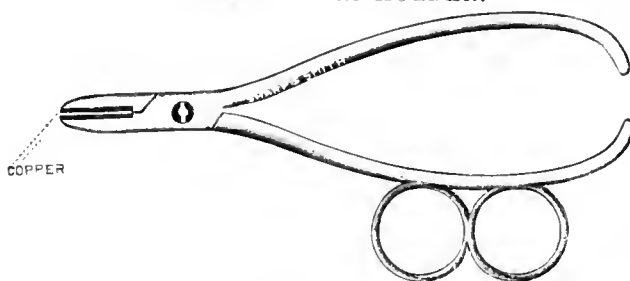
This book is one of a series of psychologic phantasies which have been published from time by the Open Court Company. Professor Ribot first published his studies of the diseases of personality in Paris, 1884. The fact that the book passed through four editions gives ample proof of its value to psychologists.

The work is divided into four chapters devoted to Organic Disorders, Affective Disorders, Disorders of the Intellect, Dissolution of Personality, respectively.

The author gives a number of observations of cases of spontaneous alterations of the "Ego," which he thinks to be a more rational basis for the study of the morbid manifestations of personality. His deductions from a psychologic standpoint are clear, logical and concise, and will be read with profit by those interested in this branch of science, and familiar with its peculiar phraseology.

NEW INSTRUMENTS.

A NEW NEEDLE HOLDER.



The above drawing illustrates a needle holder which I have found more convenient than any other which I have heretofore used. The handle is of such size and shape that it can be firmly grasped by the hand. The two rings on the lower half of the handle are for the tips of the middle and third fingers, and the instrument is easily opened by grasping the upper half of the handle between the bases of the thumb and index finger and simply opening the hand. Two pieces of copper are set between the jaws, insuring the needle against slipping.

In getting rid of the spring and lock, we are rid of parts which often annoy by getting out of order and retard our work. The grooved steel jaw is also often troublesome by breaking needles or tilting them in the wrong direction when they are firmly grasped. I believe that much more rapid work can be done with this instrument than with any other with which I am acquainted.

The figure is one-half the exact size of the holder, and was made for me by Sharp & Smith of Chicago.

JNO. MADDEN, M.D.

63 and 64 Sentinel Building, Milwaukee, Wis.

PUBLIC HEALTH.

In Honor of Jenner.—In order to fitly commemorate the centenary of vaccination, which will occur in May, 1896, the National Health Society of Russia is organizing an ambitious program. It proposes to offer four prizes for the best works on vaccination; to collect and furnish materials for a history of the practice in Russia and Western Europe; to publish a Russian translation of Jenner's works, with his biography and portrait; to give an exhibition of objects connected with vaccination and to hold a commemorative meeting on the day of the centenary, May 12. Dr. Vladimir Hubert will edit the history of the great discovery.

Oleomargarine and Natural Butter.—In order to determine the relative digestibility of oleomargarine and natural butter, Dr. Adolph Jolles (*Sitzbericht: Kaiserl. Academie in Wien*, 6th Marz, 1894) has carried out a long series of observations on dogs fed during four consecutive periods with natural butter and with margarine. All other things being equal, it was found that from 97 to 98 per cent. of the fatty matter was uniformly digested, whether it was butter or margarine which was used. During the first and third period, while butter was given, 98.4 and 97.1 per cent; during the second and fourth, while margarine was used, 97.9 and 97.3 per cent of the fatty matter given was digested. It thus appeared in this experiment, where proper care was taken to have all the conditions similar, that natural butter and manufactured margarine had practically identical coefficients of digestibility and nutritive value.¹

Lofty Stature versus Long Life.—A writer in the *National Popular Review* has been investigating the age period at death of those abnormally tall individuals who are classed as "giants," and believes he has found that all who measure over six and one-half feet have been short in their life's span. He is of opinion that there is sure to be some failing link in the physiologic chain of these abnormal beings; and this, too, independently of any of those moral inadequacies which too often exist and help to precipitate an early downfall or breakdown. He further says:

"As a rule, giants are not long lived. They have too many gauntlets to run. Being giants—that being anything over six feet six—they naturally drift into the show business and are thenceforth incarcerated in vans, close rooms and in the dingy and effluvia-laden air of the exhibition room. Their not over-resisting lungs here inhale the combined effluvia and aroma that arises from the lungs, skin and not over-clean or over-well aired clothes of their many admirers, all of which is not conducive to either health or to long life. It would seem reasonable to believe that a giant—be he seven or ten feet tall—who is well formed, and who has every organ in a just proportion to his bulk, should live as long as a small man or as long as his heredity might otherwise permit. Reasoning theoretically, this would seem probable, but when we come to analyze the subject and compare the actual facts we find that something or other always goes wrong, and, owing to many an "if," we find that our giant dies early, as a rule. Some one organ goes wrong, and the great machine comes to a stop, or some organ does not keep pace with the rest of the increase in bulk, and he goes

¹ Boston Medical and Surgical Journal, Sept. 12, 1895.

halting and squeaky, or either an overwork or an underwork here or there, and a physiologic inadequacy, of some sort is the result, with a general deterioration of the whole structure and a finally premature death."

Medicine and Hygiene at Bordeaux.—Marcel Baudouin is not at all enthusiastic over the medical exhibit in the Exposition at Bordeaux. He says in *Le Progres Medical*, he finds there only odd bits touching upon the science of medicine and hygiene and complains that the exhibit is not complete and has no definite lodging place. There are indeed, says he, under those pavilions, in the midst of the endless rows of chairs and flower beds, in those elegant palaces, striking copies, by the way, of the colossal buildings at Chicago, many surgical instruments, sanitary appliances, mountains of bottles of mineral waters, etc. And, here and there, one comes upon some show cases that interest the physician, some pictures or instruments which attract the eye of the hygienist. He refers to two reminders of the Chicago Exposition; the optometer of Dr. Clark and the Leblanc stoves, and that the exhibit of cold storage rooms for the preservation of meats, milk and other foods, is an interesting feature to scientists. The one exhibit which aroused the writer's real enthusiasm is the emergency hospital station installed in the Exposition by the Society of Ambulances of Bordeaux. Alongside of this hospital is the pavilion in which the society exhibits its apparatus and the plans of its principal stations. There is also the two-wheeled litter exhibited by this same Bordeaux society, very well built, and extremely light." This is the first wheel litter ever seen in France with pneumatic tires.

Medical Climatology of Brazil.—Rio Janeiro, the capital of Brazil, with 600,000 inhabitants, is bathed by the sea on the southeast, east and north. It is in a valley between spurs of the coast range, of which Corcovado, 800 meters, is the highest point, and the city extends upward on these slopes to a height of 750 meters. The subsoil is humid and saturated with organic matters. Dr. Fives, of Almeida, believes this has a great deal to do with the prevalence of yellow fever and all the zymotic diseases. Yellow fever is endemic in many Brazilian cities and Rio Janeiro pays a yearly tribute. This disease frequently assumes an epidemic character, when its proportions are alarming. Nevertheless, the mortality figures for 1893 are lower than those of the years immediately preceding. Next to el vomito, beri-beri and tuberculosis are potent factors in the death rate, as also all pulmonary affections, on account of the constant humidity of the soil. The following table gives an idea of the climatic conditions of the city:

	Mean Barometer.	Thermometer in the shade.	Difference bet. Maxima and Minima Thermometers.
January	754 mm. 72	26.1°	14.0°
April	758 " 71	23.0°	9.4°
July	762 " 82	19.2°	29.3°
October	756 " 71	21.2°	13.8°

A sample of the number of rainy days and quantity of rain is afforded by the following:

1886	149 rainy days	12 mm. .87 of rain.
1887	154 rainy days	13 mm. .15 of rain.
1888	169 rainy days	13 mm. .99 of rain.

In July, 1892, Drs. Francisco de Doncher, Luis Laureys and Guimaraez Bouzeau made a report to the National Congress, in which they stated the causes of the insalubrity of Rio were due to: 1, corruption of the soil; 2, insufficient water; 3, defective system of the "City Improvement Company"; 4, existence of the Manque canal in communication with the two large lagoons, which constantly communicate with the sea; 5, defective hygiene in certain private establishments. They recommended thorough drainage of the subsoil as the first step to be taken. Porto Alegre has 50,000 inhabitants, 8,000 to 10,000 of whom are foreigners. Morbidity and mortality are very high in this city; also tuberculosis, typhoid fever and gastro-enteritis. Paludism is as common as in Rio Bahia. This town is noted for the large number of aneurysms. During the twenty years from 1870 to 1890, out of 53,188 patients, 90 had aortic aneurysms, and 36, aneurysms of other arteries. Dr. Britto attributes this prevalence to mountain climbing and too elaborate diet.¹

Systematic Inspection of Canned Food Supplies.—The *Sanitary Record*, for July 26, devotes a leading article to the imperfections of legislation in Great Britain in the matter of a thoroughly organized system of inspection of food. It makes no scruple in saying that the existing laws fall ridiculously short of the requirements of the case, and that the officers responsible for the detection and prevention of adulteration are greatly hampered. The laws, it avers, seem to have been so drawn up as to protect the adulterator, and even to shield those who must know that they are engaged in the sale of foods that are unfit for human consumption. In the following paragraph, allusion is made to the defective supervision had over canned goods, a portion of which, at least, is derived from this country:

"There is positively little safeguard as regards the sale of meat and fish in tins. Yet probably the greater number of cases of poisoning from the eating of unwholesome viands are due to tinned foods. Unfortunately, there exist a number of firms in the United States and in South America who pack enormous quantities of meat and fish without taking the necessary precautions. Often the cattle or fish are in a diseased state, the cleaning and cooking is carried out in a careless way and the packing in tins is scamped. The consequence is that air sometimes gets into the tins, decomposition sets in, and the persons who consume the contents run serious risks of alkaloidal poisoning. Even tinned milk of inferior brands is frequently found to be in shockingly unwholesome condition. Of the adulteration of tinned and bottled comestibles with borax and other 'preservatives,' and of coppers and other coloring matters, we need not write on this occasion. But it is evident enough that the law as regards inspection of foods, the control of preparation and sale of viands, requires revision and strengthening, and, above all, of simplification. The practical sanitarian always feels angry when he reads that a coroner's jury has returned a verdict of accidental death, when some one has fallen a victim to the eating of unwholesome food, for he knows well enough that such deaths would become almost impossible were proper and thorough inspection feasible."

The writer of the article looks forward to the time when this subject will be adequately dealt with, and this will be when the legislators of the United Kingdom devote their energies to "really useful work."

Health Reports.—The following health reports have been received at the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Illinois: Chicago, August 1 to 31, 7 deaths.
Louisiana: New Orleans, September 1 to 7, 8 cases.
Michigan: Battle Creek, Bedford Twp., Charleston Twp., Detroit, smallpox reported present September 1 to 7.
Ohio: Dayton, September 13, 1 case.
Texas: Eagle Pass, September 9 to 15, 1 case.
West Virginia: Wheeling, September 13, 20 cases.

SMALLPOX—FOREIGN.

Batoum: August 20 to 27, 1 case.
Cairo: August 6, to 12, 2 deaths.
Constantinople: June 1 to 30, 39 deaths.
Dublin: August 24 to 31, 3 cases.
Havana: August 29 to September 5, 2 deaths.
London, Eng.: August 24 to 31, 4 deaths.
Prague: August 17 to 24, 1 case.
St. Petersburg: August 10 to 24, 3 cases.
Trieste: August 17 to 24, 2 cases.
Tuxpan: August 24 to 31, 7 deaths.
Rio de Janeiro: August 10 to 17, 67 deaths.

CHOLERA—FOREIGN.

Hawaiian Islands: Honolulu, September 5, 39 cases, 32 deaths.
Japan: Osaka, July 19 to August 1, 1076 cases, 717 deaths; Hiogo, July 19 to August 1, 246 cases, 193 deaths; August 10 to 17, 287 cases, 237 deaths.
France: Paris, August 11 to 17, 8 cases.
India: Madras, August 3 to 9, 4 deaths; Calcutta, July 27 to August 3, 11 deaths; Bombay, August 6 to 13, 4 deaths; Singapore, June 1 to 30, 80 deaths; July 22 to 29, 38 cases, 31 deaths.
Morocco: Tangier, September 11, cholera reported.

¹ Journal d'Hygiene, 1895, No. 982.

Russia; Volhynia, July 21 to August 3, 688 cases, 238 deaths.

Turkey: Constantinople, August 8, 1 case, 1 death.

Turkey in Asia: Aleppo, July 28 to August 12, 264 cases, 93 deaths; Konia, (vilayet) July 21 to August 12, 32 cases, 16 deaths; Adana, (vilayet) July 23 to August 10, 105 cases, 49 deaths; Aleppo, (vilayet) July 24 to August 12, 98 cases, 57 deaths; Diabekir, August 5 to 12, 83 cases, 66 deaths; Hisnei-Mansur, July 28 to August 10, 87 cases, 69 deaths; Homs, August 9, 1 case, 1 death; Hudavendkjar, (vilayet) July 29 to August 12, 24 cases, 22 deaths.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, August 10 to 17, 8 deaths.

Mexico: Vera Cruz, August 22 to September 5, 2 deaths.

Puerto Rico: San Juan, August 24 to 31, 1 case, 2 deaths.

Cuba: Cienfuegos, September 1 to 8, 4 cases, 2 deaths; Havana, August 29 to September 5, 80 cases, 26 deaths.

NECROLOGY.

VAN BUREN HUBBARD, M.D., surgeon and major, U. S. A., is reported by telegram, dated September 9, to have died at Fort McPherson, Ga., at which post he has been serving as post surgeon. The cause of his death is reported in the telegraphic notice as an illness of several weeks from an old trouble. The regulation military funeral was held September 8, and the body, under the escort of his brother, Dr. George C. Hubbard, was taken to Staten Island for burial. Major Hubbard was appointed to the Army from civil life and was breveted during the war for meritorious services. He was from Ohio.

FELIX WEIDMAN, M.D., of Albany, N. Y., September 10, aged 70. He was graduated from the Albany Medical College in 1847.—F. B. Haller, M.D., of Vandalia, Ill., September 14, aged 69. He was an honored member of the Illinois State Medical Society.—J. T. Strong, M.D., of Plainfield, Ind., September 10, aged 55. He was graduated from the University of Michigan and served with credit during the war.—Newton Herrick Ballou, M.D., of Lansingburg, N. Y., September 9. He was born in Sheldon, Vt., in 1816, was graduated from the Jefferson Medical College of Philadelphia in 1839. He served through the war as surgeon of the 2d Regiment, Vermont Volunteers. He had practiced medicine nearly fifty years, having spent twenty-five years in St. Albans, twenty years in Burlington, and a few years in Lansingburgh.—James Ash, M.D., of Philadelphia, September 2, aged 67. He was descended from a family which lived in this country before the Revolution, and was graduated from the Medical School of the University of Pennsylvania about fifty years ago. He practiced medicine in Germantown, Pa., until the beginning of the Civil War, when he entered the service of his country as surgeon of the 1st Excelsior Brigade of New York, retaining that position until the end of the war. He was a member of the Philadelphia County Medical Society, the Sons of the Revolution, etc.—Edward S. Donaldson, M.D., of Waupaca, Wis., September 2, aged 51.—W. P. Burts, M.D., of Ft. Worth, Texas, September 5, aged 68.—Willard Wright, M.D., of Atlantic City, N. J., September 8, aged 63. He was born in New York, and was graduated from the University of Pennsylvania. He went to Atlantic City in 1872 and took an active part in the Greeley campaign. He was elected mayor of Atlantic City five times and was appointed postmaster by President Cleveland during the latter's first term.—Charles S. Beck, M.D., of West Superior, Wis., September 4, aged 35.—V. C. McClure, M.D., of Chicago, September 16, aged 80.—George Spees, M.D., of Milwaukee, Wis., September 13, aged 62.

MISCELLANY.

Denver, Colo., Medical College.—The opening exercises of this college were held September 11.

Petroleum in Military Hospital Laundries.—According to *Public Health*, August, in one of the military hospitals of Germany, petroleum is used in washing the linen, as commonly employed in certain districts of Russia. One gram is added to

each litre of soapy water. The cleansing is said to be more easily effected, and the linen is less spoiled and becomes whiter, while the expense is less, owing to a saving in soap. The method is to be tried in other German military hospitals.

A Case to go to the Jury.—The general term of the Supreme Court of New York decided June 21, 1895, in the case of Comstock v. Green, that there was evidence to go to the jury. This was an action brought to recover for the professional services of the plaintiff, as a physician, rendered to the wife of the defendant, which were necessary for her health and comfort. The evidence in question tended to prove: 1, that the defendant's negligence and ill treatment of his wife while she was ill was such as to justify her in going away with her daughter, where she could be cared for and protected; 2, that she did go away, with the consent and approval of the defendant; 3, that she needed the medical attendance and services of the plaintiff for which the bill was rendered. Further than this, the court indicates no opinion; but, in holding as it does, it reverses the Allegheny county court.

Medical Women in America.—Commenting on the interesting address of Dr. Frances Emily White, professor of physiology in the Woman's Medical College of Pennsylvania on "The American Medical Woman," Dr. Malcolm Morris, editor of the *Practitioner*, is moved to remark that, of the leading women in the medical profession whose portraits and biographical sketches are being published in the *Woman's Medical Journal*, "there is not one whose name has," so far as he is aware, "crossed the Atlantic." This omission bids fair to be remedied before Dr. Forbes Winslow's return to Albion. Judging from the newspaper accounts the English alienist has succeeded in arousing the medical woman in America to a volubility and vehemence sufficient to carry her name across two Atlantics.

A Question of Heredity.—A writer in the *New York World* calls attention to the fact that family reunions—save those possibly of the Smith family—have few delegates bearing the true family name. His explanation of the circumstance may be judged from the following paragraph:

"A recent reunion of the Stone family held at Milford, Conn., was remarkable for its resemblance to all other family reunions in one important respect. This was that the majority of the representatives of the honored ancestor bore some other name. In other words, there were more descendants through female lines than through an exclusive male line. This of course is a mathematical certainty. In ten generations a single female descendant changes the name permanently, whereas it requires an uninterrupted succession of ten generations of male descendants to maintain the name unchanged. But this is not the main point. The main point is this: if the female ancestry as well as the male ancestry is recognized, which is only common sense, then a family reunion ought to recognize not merely all the descendants but all the ancestors as well. This country is going into the business of ancestor worship now on a scale not exceeded by China. When we get to worshipping ancestors it is just as well to bear in mind how many ancestors we have. They are many."

Photography in Colors.—At the recent Springfield, Mass., meeting of the American Association for the Advancement of Science, reference was made by Prof. W. L. Stevens to the progress that is being made in color-photographs. He expressed the opinion that the best method had been devised by F. E. Ives, of Philadelphia, who had made a camera which took three negatives at once, each sensitive to one of the three primary colors which, combined make our sensations of color. Prints on glass from these three negatives could be looked at in a special box in such a way as to reproduce in a wonderfully faithful manner all the original colors of an object or group of objects. Within a few months, however,

Mr. Ives, by means of three suitably dyed gelatine prints placed one over the other between plates of glass, has been able to produce 'a photograph which gives to the eye the natural colors of an object or landscape when hung as a transparency in the window or before a light without any special apparatus.

Physicians Alone to Report Births and Deaths.—Section 2609 of Vol. I of Hill's Annotated Statutes and Codes of the State of Washington, requiring physicians, accoucheurs and midwives to register their names and post-office address with the county auditor of the county where they reside, and requiring them to report, under penalty of \$10, to the county auditor all births and deaths which may come under their supervision, with a certificate of the cause of death and such correlative facts as the board of health may require, has been amended so as to omit all reference to accoucheurs and midwives; requiring the reports to be made on or before the 15th of every month, instead of within thirty days from date of their occurrence; and making the penalty recoverable at the suit of any member of any State or local board of health, instead of at the suit of the county auditor.

Diabetes as a Complication in Surgery.—Leon Legendre, in his inaugural thesis—*These de Paris, 1895*—rehearses the gravity of operations undertaken with diabetic patients. All suppuration in these subjects tends to assume a gangrenous form. Systematic abstention from operating seems to constitute as great a fault as too frequent surgical intervention; the just course seems to lie between these two extremes. Before performing any operation it is necessary to learn what form of diabetes is present. The "lean" form—cachectic, pancreatic—does not seem capable of disassociation; with "fat" diabetics, on the contrary, it is probable that three divisions may be established: nervous persons, who have become diabetic by reason of a moral or physical shock, and who manifest all the classical signs of a pancreatic lesion. Next, the cases in which the glycosuria is not strongly marked and is discovered by accident, so to speak; these maintain a good nutrition for a long time—their symptoms are obscure—their personal and family histories are characteristic of arthritism. Lastly, the atheromatous form of Reynier, characterized by small amount of sugar, the condition in general remaining good for a long time, with an anatomic basis consisting of atheromatous lesions in the bulbar arteries. Hence, when a diabetic patient is to be operated on it is of the greatest importance—1, to seek the origin of the diabetes; 2, to analyze the urine; 3, to ascertain the state of the reflexes. Bouchard has shown the relation between the gravity of the diabetes and the disappearance of the patellar reflexes. As regards surgical interference in diabetic patients, the following conclusions are formulated: 1, no operation of expediency should ever be performed; 2, necessity alone should force the surgeon to operative measures; 3, asepsis is more essential than antiseptics in these cases, since antiseptic agents are, as a rule, badly borne by them.

Results of Operations for Cancer of the Breast.—Messrs. Jones and Platt, surgeon and resident surgical officer respectively, publish the results of all the cases of carcinoma of the breast, 55 in number, operated on by Mr. Jones in the Manchester Royal Infirmary during the ten years 1883-1892 inclusive. The ultimate results so far as learned were—deaths soon after operation 2; patients who died without recurrence 2; patients who died from recurrence 34; now living with recurrence 8; now living and free from recurrence 6; no further information obtainable 3; total 55. From a careful consideration of the facts presented the following conclusions are drawn: 1. Cancer of the breast, although a formidable disease, is amenable to treatment by operation, and the proportion of cures so obtained may confidently be put down at 12 per cent. 2. Non-success after operation is very frequently due to the extensive character of the disease when it first comes under observation; probably if relief were sought earlier a much larger proportion of cures would

be obtained. 3. Moderate enlargement of the axillary glands is no bar to successful operation or to a successful issue, provided they are systematically and carefully removed and the axillary space carefully cleared. 4. It is wellnigh impossible to discover trifling enlargement of the axillary glands by an examination through the unbroken skin. 5. No operation for removal of cancer of the breast can be considered complete, unless the axilla be examined through the wound—the additional risk of such a procedure being very slight. 6. The large number of cases in which recurrence occurs locally, points to the necessity for very free removal of tissue; all doubtful skin must be taken away and great care must be exercised not to leave any outlying portions of breast tissue. 7. Operation is contra-indicated when the whole of the growth can not be removed or when the supra-clavicular glands are enlarged. The only condition which might render an operation justifiable under such circumstances would be the presence of a foul cancerous ulcer, the removal of which is desirable on account of the great inconvenience which it occasions.¹

Estimation of Duties on Medicines.—The collector of customs at Key West, Fla., recently wrote to the Treasury Department, stating that it has been the practice at that port, in estimating the duties on cases of medicines which arrive from Havana for immediate transportation without appraisement, to estimate the duty on each article, and that as the invoices cover a great many items which are expressed in Spanish, Latin, and botanical names, and generally indistinctly written, considerable delay occurs in the completion of the transportation papers, and inquiring whether such invoices may not be properly taken up in the entry as one case of medicines and the duty estimated on the aggregate value. The reply, made July 24, 1895, by Assistant Secretary Hamlin, is that if the merchandise is all of the same general character, and subject to the same rate of duty, it should be included in a single item in the entry and the duty estimated on the aggregate value as suggested, and that all items of the same general character and embraced in the same tariff designation should be included in a single item in the entry.

Certain Important Summer Charities of New York.—Among the summer charities of New York city, much good work is done by the Bartholdi Crèche and the Sick Children's Mission. The Bartholdi Crèche is on Randall's Island, opposite 120th Street. The distinguishing feature of this charity is to meet the needs of poor mothers and children who can not leave their homes to go all day to any of the more distant fresh air resorts. A mother can take her sick babe at a moment's notice and in a few moments reach shady groves and bracing air. Last summer 4,366 mothers and children took advantage of this outing. This year, so far, the average is 700 to 800 a week. Trained nurses and helpers are in constant attendance. Tea and pure milk are provided. The crèche is one of the very many instrumentalities working for the prevention of sickness and death among the tenement-house, children, by taking them away from the disease-breeding influences of those parts of the city where they live, and administering to them the tonic of pure fresh air. The summer work of the Children's Aid Society is the maintenance of the Children's Summer home with the Haxtun Cottage for Crippled Children, at Bath Beach, L. I., the Health Home for mothers with sick infants at Coney Island, and the Sick Children's Mission, 287 East Broadway. At the Summer Home there were in 1894 over 5,000 children, 3,775 remaining a week. At the Health Home there were more than 7,000 mothers and infants who also received medical care, 2,000 of these were kept a week, and in some instances the time was prolonged, that a permanent cure might be effected. The Sick Children's Mission employed fifteen physicians to visit the tenement houses. Nearly 4,000 children were treated, 5,200 medical and food prescriptions were filled, and 32,000 tenement houses visited. My attention was called specially to the Crippled Children's Cottage, as the unique feature of the summer work of the society. Here little cripples, mostly

¹ The Lancet, Aug. 31, 1895.

girls are treated, and in many instances cured. The summer work of the society requires \$20,000 for its support, and depends entirely upon individual gifts.

Amicrobic Suppuration.—At a recent meeting of the Paris Surgical Society, MM. Roger and Bonnet stated that it seems actually demonstrated that pus becomes sterile when inclosed in any old focus which does not communicate with the air. Microbes, virulent at first, become attenuated, then succumb, and, finally, are completely dissolved. Nevertheless, trouble may still be caused, as is shown by the following instance: a man entered the service of the authors, for pains at the upper part of the left hypochondrium, with febrile accesses returning every evening and accompanying the three classical stages of intermittent fever. A large tumor was found in the left flank, which was taken for a hypertrophied spleen and paludism was diagnosed. Quinin had no effect and the diagnosis was in doubt, when, three weeks after his admission, the patient passed a great quantity of pus in the urine. M. Tuffier, being consulted, deemed surgical intervention necessary, and made an incision in the lumbar region, which gave issue to two quarts of thick, reddish, fetid pus; the apparently normal kidney was discerned at the bottom of the wound. A diagnosis was now made of perinephric phlegmon, opening into the renal pelvis. Following the operation the patient had no more febrile exacerbations and rapidly recovered. Microscopic examination of the pus revealed no microbes—cultures were negative—inoculation on animals produced no effect. We have here, say the authors, to deal with an amicrobic suppuration—that is to say, a pus formation in which the microbes have been destroyed; nevertheless, this foyer continued to increase in area and tended to an opening into the neighboring organs; it caused violent pains and provoked an intermittent fever absolutely like that from fertile suppurations. It is absolutely impossible to ascertain whether the pyrogenic agents are still living or have been destroyed. From a theoretic point of view this is another instance of the pyretogenous rôle of microbial products, and shows that they may produce symptomatic intermittent fever, which is sometimes considered as due to the passage of bacteria into the blood. M. Rendu remarked that the most curious fact in the case was that the patient had febrile attacks daily; in the perinephric phlegmons which he had seen, the fever was manifested only in the last days.¹

The "Bicycle Face."—In the midst of the ceaseless péans of praise to the bicycle as one of the most health-giving institutions a faint voice of warning sometimes is heard. Thus a recent medical writer in the *St. James' Budget*, while not denying the undoubted virtues of bicycle exercise, points out that not all riders present that healthful appearance one might look for, and in fact there is seen among their number a type, ashen-hued and haggard, already recognized as the "bicycle face." Not so with tricycle riders—and here is where he looks for an explanation. The distinguishing feature of the bicycle, and especially of the safety, this observer claims, is the difficulty of maintaining the equilibrium. "Learning" to ride, means mastering the art of keeping the machine upright. It has a tendency to fall to one side or the other all the time, which has to be counteracted by a special effort. The learner knows it very well to his cost; but once learned, he forgets about it, and does his balancing more or less automatically. Nevertheless, the effort is still there, and puts a constant, though unconscious, effort upon his brain and nervous system. The reason why the bicycle has to be "learned" at all, is that the center of equilibrium in the brain requires to be taught the business of doing its duty under novel circumstances. The falling bicycle is maintained upright by a constant series of small muscular movements, which unconsciously adjust the weight in the proper position and are themselves controlled by a special brain-center, situated at the back of the head. The strain upon this center is incessant, though unmarked; and some people can not stand it for more than a short time. This it is that causes the headache and the nervous exhaustion. Probably it does not affect those who begin very young, and possibly

it affects those with either very tough or very dull nerves but little. Most of us, however, are obliged to live in such a way that our nervous systems become very susceptible to any unaccustomed strain, and those who are most likely to use the bicycle belong to the most susceptible classes. The nervous effort entailed by balancing the machine is too much for them. The explanation may strike some people as fantastic, but it is sound physiology, and it squares with the facts. Experienced cyclists often say that the tricycle, and even the old high bicycle—which requires less effort to balance—are less fatiguing for prolonged work, such as a tour, than the safety; yet the latter is lighter, quicker, and superior in nearly every respect, save that of stability. It is a question of balance. "Wheeling" is not a pursuit that will suit everybody.—*Western Druggist*.

Abandonment of Fort Buford, N. D.—This post, recently ordered by the Secretary of War to be discontinued, is situated on the north bank of the Missouri River, two miles below the mouth of the Yellowstone, one mile from the telegraph office and railway station on the Great Northern road and 660 miles from St. Paul, Minn. In 1866 when the post was established, it received a mail from the East once in two weeks in favorable weather, but in winter it was often cut off from communication with the outside world for six or more weeks at a time. The quarters first built were miserable adobe huts, protected from Indian assault by a stockade twelve feet high, on a plain which extended from the flood bank of the river northward to the hills, about four miles distant. Beyond the buttes or hills on the north is a rolling, barren prairie country. South of the post is the river, usually about half a mile wide, with bottom lands on either side subject to overflow and overgrown with cottonwood and willows. The site is dry with good surface drainage toward the river and toward shallow ravines on the east and the west. Water was found at a depth of fifty-two feet from the surface, underlying a thick bed of blue clay. In 1872 a permanent post was built, with the barracks of the men and the quarters of the officers facing each other on each side of a small rectangular parade ground. The former consisted of two double and three single frame buildings, each with wings for the kitchen, dining-room and store rooms. Ventilation was aided by inlets opening under the stoves and by exits in the ridge. The latter were small frame buildings of five rooms each, insufficiently heated in winter by stoves burning bituminous coal. The hospital was a two-story wooden structure consisting of an administration building and two twelve-bed wards, with kitchen and dining-room in an extension in the rear. Waste water was carried away by the natural inclination of the ground and by surface ditches. The earth closet system was used in the removal of excreta, which with all garbage, ashes and other refuse matters, were carted away daily to a dumping ground a mile distant from the post. As the well water proved to be quite hard, a systematic supply was taken from the river. This had the disadvantage of being often turbid, but when cleared of its suspended matters it was regarded as an excellent water. It was pumped from a depth of eighteen feet into a large storage tank of 56,000 gallons and distributed from an elevation of 100 feet. There was no visible source of contamination except the natural drainage of the country above the post, and no disease was ever attributed to the use of the water. Ice was cut from the river for use in summer. Gardens were cultivated in the bottom lands, producing lettuce, radishes, potatoes, cabbage, peas, turnips and beets in quantity sufficient to furnish a fair supply to the garrison during the season. The climate of this post was very trying as being one of great extremes. The mean temperature from November to February inclusive is below freezing and in February, the coldest month, the minimum may reach or exceed 40 degrees below zero, while in July and August the maximum is 100 degrees Fah. Changes of temperature are sudden, frequent and of great range, while violent winds and heavy snow storms are of common occurrence. The diseases of the post were rheumatic, catarrhal and pulmonary affections occurring mostly during the long winters, when the ordinary occupation of the troops in garrison was shoveling snow to keep the communications open for various purposes, but particularly for the delivery of fuel wherewith to keep themselves warm.

¹ *Gaz. Med. de Paris*, No. 82, 1895.

Society Notes.

TOLEDO MEDICAL ASSOCIATION.—A regular meeting of the Toledo Medical Association was held in that city September 12.—At a recent meeting of the Brown County, Wis., Medical Society, at Green Bay, the following officers were elected for the ensuing year: President, B. C. Brett; Vice-President, F. L. Lewis; Secretary, H. M. Beck. This society was organized in 1868, but since the formation of the Fox River Valley Medical Society there have been no meetings of this society until this one.—The meeting of the Cuyahoga County, Ohio, Medical Society was held September 5.—A regular meeting of the Washington County Medical Society was held in Hillsboro, Wash., September 3.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended September 7, follows: number of deaths (still-births not included): white, 51; colored, 44; total, 95. Death rate per 1,000 per annum, white, 14.13; colored, 26.03; total, 17.93. Death rate per 1,000 per annum for corresponding week last year, 15.51. Reports to the Health Department for the past week show a continued improvement in the health of the city. The deaths in the week before last were 111, and during last week they numbered 95. The death rate fell from 21.41 to 17.93, and the decrease in mortality amounted to over 14 per cent. The absence of contagious diseases in virulent form, which has prevailed during the summer months, was still manifest, there having been but one death from diphtheria and two from whooping cough reported.

HIGHEST TEMPERATURE IN SEPTEMBER FOR TWENTY-FOUR YEARS.—On the twelfth day of the present month the Weather Bureau reported the maximum temperature in Washington to be 96.2 degrees. Not since 1871 has the record for a maximum temperature been broken for the second ten days of September, and in that year on the 12th of the month, the same date of the present break of the record, the thermometer registered 94. The warm wave spread over almost the entire country, and broke records in ten cities, while in four other localities the thermometer reached the highest mark it had ever attained. At Atlantic City the thermometer was 92 degrees, 6 degrees higher than ever before, and in Baltimore it was 94, or 4 degrees in excess of previous records. A list of cities where the record of previous years was broken on the 12th inst. and the increase over previous records being given, follows: Block Island, R. I., 78-2; New York, 92-3; Harrisburg, Pa., 92-4; Philadelphia, 94-3; San Antonio, Texas, 98-2; Columbus, Ohio, 94-1; Parkersburg, W. Va., 94-2.

MEAT INSPECTION POSTPONED.—Secretary Morton has modified the order issued on August 18, concerning the inspection of meat exported, changing the date when it is to go into effect, from September 16 to October 16. It has been represented, satisfactorily, that the enforcement of the order at the time moved would cause great loss to shippers and a postponement would not be detrimental. Consequently he has extended the time.

THE WOMAN'S CLINIC.—The regular quarterly meeting of the Board of Directors of the Woman's Clinic was held on the 7th inst. The report of the various committees showed increased work and usefulness of the hospital during the past three months.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The regular monthly meeting of the Board of Directors of the Hospital was held on the 13th inst. Many improvements have been made to the building during the summer months, such as painting, changes in the heating plant, electric elevator replacing steam, and new fire escapes. The work of the hospital has steadily increased. Resolutions of regret at the loss by death of Mr. J. G. Judd, one of the directors, were passed and ordered printed.

PUBLIC WELLS.—The report of the inspector shows that during the year 194 wells were inspected, 96 were found to

be good, 41 suspicious and 57 condemned. The most interesting part of the report deals with the investigation of the action of the Potomac water on lead pipe, to determine if enough lead is dissolved by the water to be injurious to public health.

TO INCREASE THE WATER SUPPLY.—The Commissioners of the District have ordered advertisements to be made for furnishing the city with a pumping engine of 8,000,000 gallons power.

Foreign Requirements for the Practice of Medicine.

GREAT BRITAIN.

Foreign practitioners can practice medicine in Great Britain without restriction, but unless registered can not recover their fees by legal process nor give medical evidence in courts of law, nor hold public medical offices. Under the Medical Act of 1886 the General Medical Council may recognize equivalent qualifications granted in countries which treat this country with reciprocity; after certain formalities such qualifications would be registrable. At present, however, no foreign countries have arranged to treat this country with reciprocity, and, as a rule, British practitioners are required in European countries to pass an examination of greater or less severity. The following list contains particulars as to the regulations of the British Colonies as well as of foreign countries:

BRITISH COLONIES AND DEPENDENCIES—(AUSTRALASIA)

Australia.—The applicant must be registered by the Medical Board of the colony in which he proposes to practice. He may be required to prove the genuineness and authenticity of his diplomas.

New Zealand.—Certain legal formalities must be gone through, but there is no examination.

Tasmania.—A diploma must be verified by the Medical Examining Board.

DOMINION OF CANADA.

Except in British Columbia and Ontario it is necessary only to register British diplomas, but evidence of authenticity and genuineness may be required. For this registration a fee is charged, and in some cases there is also an annual tax. In British Columbia the Medical Council of the colony holds an examination, and there is a fee of \$100; in Ontario an examination is held by the College of Physicians and Surgeons of Toronto.

SOUTH AFRICA.

There is a Colonial Medical Council both in the Cape of Good Hope and Natal. British diplomas are registrable after inspection and verification.

By a resolution of the Executive Council, ratified by the Volksraad, every medical practitioner, dentist, and apothecary must be registered and licensed before he can be permitted to practice within the limits of the South African Republic. The section of the Act which applies is stringent, and runs as follows: "It shall not be allowed to any person in this Republic to have himself advertised as medical practitioner, surgeon, dentist, apothecary, chemist, or druggist unless his name appears in the Register of the Medical Board and his admission fee has been paid. Contravention of this rule will be punished with a fine of from £10 to £100, or in case of non-payment with imprisonment with or without hard labor for a period of from one to six months." Also, "Any admitted medical doctor, surgeon or dentist, apothecary, chemist or druggist shall pay the following license during the time they carry on their profession within the Republic: doctors, for a year, £25, for nine months £20, for six months £15, and for three months, £10; apothecaries, for a year, £10, for nine months £8, for six months £6, and for three months £5."

WEST INDIES.

British qualifications are everywhere recognized. In some instances registration is necessary, for which a small fee is charged.

EUROPE.

Austria.—It is necessary to pass the State examination, or obtain a University Degree in Medicine, and to become an Austrian subject. Exemptions may be granted under very special circumstances.

Belgium.—Upon the advice of a jury which has a right to grant the diploma of Doctor, the Government can give permission to practice medicine to a foreign subject who possesses a diploma in medicine, surgery, and midwifery.

Denmark.—Foreigners are required to pass the State examination.

France.—Under the new law the degree of M.D. obtained by examination before a French faculty, is indispensable. This law has recently been extended to Algiers. The examinations are precisely the same as those which have to be passed by French students, but holders of British diplomas may obtain exemption from portions of the curriculum and examination at the discretion of the Minister of Public Instruction. In no case, however, shall the exemption extend to more than three of the prescribed examinations. The examinations may be passed before any one of the following Medical Faculties: Paris, Montpellier, Nancy, Bordeaux, Lyons, Lille, or Toulouse. Before he is admitted to examination the candidate must submit his qualifications, and whatever other degrees or qualifications he may possess, to the Minister of Public Instruction, stating the Faculty before which he wishes to present himself. The examinations are conducted in the French language. Fees to the amount of £51 must be paid.

Holland.—Foreigners are required to pass the State examination.

Germany.—Any person may practice medicine, but if he has not passed the State examination he does so at his own peril, and is liable to fine and imprisonment if convicted of a mistake. A lad who intends to enter the profession of medicine must attend a gymnasium (upper school), and pass an examination in general knowledge—Latin, Greek, German, French, divinity, mathematics, physics, history and geography. After passing this examination the student may be accepted as an ordinary full student of a university. At the end of the fourth semester (second year) he can pass his first State examination (*Tutorium Physicum*), which embraces anatomy, physiology and physics, chemistry, botany and zoology. In the tenth semester he may pass the final State examination. In some universities the degree of M.D. can be obtained at the end of the eighth semester (fourth year)—that is, before the *Staatsexamen* can be passed. The degree of M.D. does not in itself confer a license to practice in the German Empire. We believe that the Universities of Leipzig, Göttingen, Heidelberg and some others do not grant the degree of M.D. except to persons who have passed the State examina-

tion. The fee for the *Tentamen Physicum* is £1 16s.; for the final State examination £10 6s. The fee to the university for the M.D. degree varies between £15 and £25.

Greece.—A State examination must be passed, but graduates of foreign schools may take their examination in French or English.

Italy.—A foreigner must (a) obtain an authorization (*abilitazione*) from one of the Royal Universities of Italy; or (b) if he desires to practice only among foreigners he is at liberty to do so.

Monaco.—The following British qualifications are, for the purposes of medical practice in the Principality of Monaco, considered equivalent to the French diploma of Doctor of Medicine: the degree of Doctor of Medicine, of the universities of "the United Kingdom of Great Britain," and the diplomas of Fellow of the Royal Colleges of Surgeons and Physicians of London, Edinburgh, Dublin, and of the Faculty of Physicians and Surgeons of Glasgow. Every application for leave to practice must be accompanied by the diplomas of the applicant or by copies of those documents, certified as correct either by a consul of the Principality or by the Mayor of Monaco. The applicants must enter into an undertaking to live in the Principality and to practice their profession during the whole or part of the months of May, June, July, August, September and October, agreeably to Article 1 of the Ordinance of May 29, 1894. Only those who send in their applications in time will be included in the official list, which is to be drawn up and distributed at the beginning of each month to all the hotels and boarding houses, where it will be posted up in a conspicuous place. This list will contain the name and nationality of the practitioners and the nature and source of their qualifications.

Portugal.—The State examination must be passed.

Romania.—A State examination must be passed (*prima voce*.)

Russia.—The State examination must be passed, but if the applicant possesses the degree of M.D. from a university of high repute, the Minister of Education may give an authorization after requiring the candidate to compose and defend a dissertation.

Norway.—The State examination must be passed.

Spain.—The State examination must be passed, but exemptions are sometimes granted on application through the British Ambassador. A license costing from £1 to £24 must be taken out. This regulation applies to Spanish colonies, (Canary Islands, etc.).

Switzerland.—A qualified English practitioner desiring to practice in Switzerland, even if he desires to practice only among his own countrymen, is required to pass the Federal examination in that country. The degree of Doctor of Medicine does not give the right to practice. The Federal examination may be passed at Basle, Zürich or Berne in German, and at Geneva or Lausanne in French. The applicant is advised to obtain from one of his teachers in this country an introduction to a professor at the university at which he proposes to pass the examination. His proper course would be to call upon the Rector of the university. We are informed that every information would be afforded, and that no difficulties are placed in the way of candidates. At the University of Zürich, the three examinations which it is necessary to pass are held as a rule at the following periods of the year. First examination: end of January and mid-September; second examination: end of January and mid-September; third examination: beginning of January, end of May and beginning of October. At Basle the next examinations are in October. At Geneva the examinations are held in the third week of October, and in the second week of July, at the opening and conclusion respectively of the winter and summer session. At Lausanne the examinations take place as follows: first and second examinations: April and October; final examination: February and March, and June and July.

Turkey.—An examination must be passed (fee, £4 10s.) at Constantinople.

SOUTH AMERICA.

Argentine Republic.—The applicant's diplomas must be verified by the Argentine Consul in this country (fee £1 4s). This should be done before leaving this country. On arriving at Buenos Ayres the indorsement of the Argentine Consul in this country must be verified by the Argentine Foreign Office. Three examinations must be passed in the University of Buenos Ayres or Cordova. First examination: anatomy with dissections, physiology, pathology, ophthalmology, and gynecology. Second examination: clinical and operative surgery, histology, materia medica, and mental diseases. Third examination: clinical medicine, pathology, midwifery, and toxicology. The fee for examination is \$300, half of which is retained in case of rejection. The examinations can be passed consecutively at a few short intervals or separately; a rejected candidate is not re-admitted to examination until after the lapse of six months. The examination is conducted *prima voce* in Spanish. Temporary authorizations to practice for six months may be obtained from the Governor of a province, and the applicant may utilize this time to improve his knowledge of Spanish. The regulations for graduates of Spanish universities are less onerous.

Brazil.—A State examination must be passed which is conducted in Portuguese or French.

Chili.—The regulations resemble those in the Argentine Republic; examination by the University of Santiago.

Peru.—An examination must be passed before the University of Lima; it is conducted in Spanish.

Uruguay.—The conditions are similar to those in the Argentine Republic; examination by the University of Montevideo.—BRITISH MEDICAL JOURNAL.

THE PUBLIC SERVICES.

Circular—Disinfection of baggage arriving from Oriental ports, at ports on the Pacific Coast.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,

WASHINGTON, D. C., Sept. 7, 1895.

To medical officers of the Marine-Hospital Service, consular officers, collectors of customs, State and local quarantine officers, steamship companies and others concerned:

On account of the officially reported prevalence of cholera in Hongkong and Yokohama, and other Chinese and Japanese ports, and in Honolulu, attention is called to article 5 of the Quarantine Regulations, Treasury Department, to be observed at foreign ports, issued April 26, 1894.

No special provisions having been reported from these ports for proper disinfection of suspected baggage, it is hereby ordered on recommendation of the Surgeon-General of the Marine-Hospital Service, that all unlabelled baggage of steerage passengers, including hand baggage, and all labelled baggage of said passengers, which in the opinion of the quarantine officer should be disinfected or re-disinfected, arriving from Oriental ports, including ports of Hawaii, at any port in the

States of Oregon, Washington, or California, shall be disinfected as provided in article 5 of the Quarantine Regulations for domestic ports, before being landed.

This regulation will also apply to any other baggage which the quarantine officer may suspect of being infected.

CHARLES S. HANLIN,
Acting Secretary.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 7, 1895, to September 13, 1895.

Capt. Charles Richard, Asst. Surgeon, so much of S. O. 112, A. G. O., May 13, 1895, as directs him to take station at St. Louis, Mo., for duty as attending surgeon and examiner of recruits, in that city, is revoked, and upon the expiration of his present leave of absence, he is ordered to Ft. Brady, Mich., for duty, relieving Capt. William B. Davis, Asst. Surgeon. Capt. Davis, on being thus relieved, will proceed to and take station in New York city, for duty as attending surgeon and examiner of recruits, relieving Capt. William H. Corbuser, Asst. Surgeon. Capt. Corbuser, on being thus relieved, is ordered to Ft. Monroe, Va., for duty at that post.

Capt. William W. Gray, Asst. Surgeon, upon the expiration of his present leave of absence, will be relieved from duty at Ft. Schuyler, N. Y., and ordered to Philadelphia, Pa., for duty as attending surgeon and examiner of recruits in that city, relieving Capt. Samuel Q. Robinson, Asst. Surgeon. Capt. Robinson, on being thus relieved, is ordered to Ft. Reno, Oklahoma, for duty, relieving Major William H. Gardner, Surgeon. Major Gardner, on being thus relieved, is ordered to Ft. Thomas, Ky., for duty, relieving Major James C. Worthington, Surgeon.

Major James C. Worthington, Surgeon, on being relieved from duty at Ft. Thomas, Ky., is ordered to Vancouver Bks., Washington, for duty, relieving Capt. William Stephenson, Asst. Surgeon. Capt. Stephenson, on being thus relieved, is ordered to the Presidio of San Francisco, Cal., for duty at that post.

The following named officers will report in person, on Monday, Sept. 23, 1895, to Col. Charles H. Alden, Asst. Surgeon-General, President of the examining board appointed to meet in Washington, D. C., for examination as to their fitness for promotion: Capt. Louis S. Tesson, Asst. Surgeon; Capt. William H. Corbuser, Asst. Surgeon; Capt. Daniel M. Appel, Asst. Surgeon; Capt. Samuel Q. Robinson, Asst. Surgeon.

First Lieut. Charles E. B. Flagg, Asst. Surgeon, so much of S. O. 202, A. G. O., Aug. 29, 1895, as relieves him from duty at Angel Island, Cal., and assigns him to duty at Ft. Hancock, Texas, is revoked.

Capt. Edward C. Carter, Asst. Surgeon, upon the abandonment of Ft. Buford, N. D., will report for duty at Ft. Harrison, Mont.

First Lieut. Charles F. Kieffer, Asst. Surgeon, when his services are no longer needed at Ft. Buford, will be relieved from duty at that post, and will report for duty at Ft. Omaha, Neb.

First Lieut. Francis A. Winter, Asst. Surgeon, so much of the order as directs him, on being relieved from duty at Ft. Hancock, Texas, by Lieut. Flagg, to report for duty at Ft. Grant, Ariz., is amended to direct him to so report upon the abandonment of Ft. Hancock.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 14, 1895.

Surgeon J. L. Neilson, detached from the U. S. R. S. "Wabash," and to the U. S. S. "Maine."

P. A. Surgeon V. C. B. Means, from Naval Hospital, New York, and to the U. S. S. "Maine."

Asst. Surgeon T. W. Richards, from the U. S. R. S. "Minnesota," and to the U. S. S. "Maine."

Surgeon D. O. Lewis, from the U. S. S. "Mohican," and to the U. S. S. "Marion."

P. A. Surgeon J. E. Page, from the U. S. S. "Philadelphia," and to the Mare Island Hospital.

Asst. Surgeon R. K. Smith, from the U. S. R. S. "Vermont," and to the U. S. S. "Philadelphia."

Medical Director A. L. Gihon, detached from the Naval Hospital, Washington, D. C., and placed on retired list September 28.

Medical Inspector Geo. A. Bright, detached from the Navy Yard, New York, and to Naval Hospital, Washington, D. C.

Medical Inspector A. F. Price, detached from Torpedo Station, and to the New York Navy Yard.

Surgeon B. F. Stephenson, detached from the Marine Rendezvous, Boston, and to the U. S. R. S. "Wabash."

P. A. Surgeon J. F. Urie, ordered to the Marine Rendezvous, Boston, Mass.

Surgeon J. M. Steele, detached from Marine Rendezvous, New York, and to the Torpedo Station, Newport.

Surgeon L. G. Heneberger, ordered to Marine Rendezvous, New York, in addition to present duties.

Asst. Surgeon J. H. Moore, detached from the U. S. S. "Atlautia," and ordered to the U. S. T. S. "Constellation."

P. A. Surgeon Philip Leach, ordered to the Naval Hospital, New York.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Atlantic Medical Weekly, Providence, R. I.; Alta Pharmacal Co., St. Louis, Mo.

Binbaugh, C. H., Parkersburg, W. Va.; Brumder, Geo., Milwaukee, Wis.

Cutter, Ephraim, New York City; Cleary, W. P., New York, N. Y.

Dolber Goodale Co., New York, N. Y.; Dunkel, E. K., Jersey City, N. J.; Dunshie, E. J., New Orleans, La.

Ellegood, Robt., Delmar, Del.; Ellegood, J. A., Wilmington, Del.; Elliott, A. R., Chicago; Eyre, Geo. G., Cape Town, So. Africa.

Gardner, R. W., New York, N. Y.; Gessner, H. B., New Orleans, La.

Herrick, S. S., San Francisco, Cal.; Herrington & Son, Elda, Ohio; Herrick, H. C., Brocton, Ill.; Hall, Geo. W., Chicago; Heinemann, Richard, Allegheny, Pa.; Hummel, A. L. (2), New York, N. Y.

Lehn & Fink, New York, N. Y.; Love, E. C., New York.

Maynard, F. B., Albany, N. Y.; Madden, Jno., Milwaukee, Wis.; Melier, K. D., St. Louis, Mo.; Montgomery, E. E., Philadelphia, Pa.; Messman, Hugo, Milwaukee, Wis.; MacLaury, D. H., New York, N. Y.; Mudd, H. H., St. Louis, Mo.; Mann, E. C., New York.

Newman, H. P., Chicago, Ill.; Norbury, Frank P., St. Louis.

Public Library, Denver, Colo.

Reeves, Jas. E., Chattanooga, Tenn.; Rosse, I. C., Washington, D. C.

Stewart, F. E., Detroit, Mich.; Sawyer, A. P., Chicago, Ill.; Sprague, W. B., Detroit; Spiegelhalter, Jos., St. Louis, Mo.

Tipton, Joseph S., Rosnoke, Va.; Tuley, H. E., Louisville, Ky.

Winn, Geo. L., Rockford, Ill.; Walker, A. B., Canton, Ohio; Würdemann, H. V., Milwaukee, Wis.; Ward, M. R., Pittsburg, Pa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, SEPTEMBER 28, 1895.

No. 13.

ORIGINAL ARTICLES.

ALCOHOLIC INTOLERANCE AND PREDISPOSITIONS.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY T. D. CROTHERS, M.D.

SUPERINTENDENT WALNUT LODGE HOSPITAL,
HARTFORD, CONN.

The fact that many persons use spirits to excess at intervals, or in moderation for a life time, and from superficial observation are apparently no worse, is both misleading and dangerous. In one case it conveys the impression that spirits are harmless in small quantities, and occasional excesses are of little injury from which restoration quickly follows. In the second case the danger of repeated pathologic disturbances are masked until organic changes take place, and most serious results follow, that are not apparent except in other departures from health.

The so-called moderate user of spirits when examined critically appears differently from what he himself or friends suppose. His fancied vigor and mental health is an illusion. His freedom from pain or discomfort is the work of narcotism and diminished nerve sensibilities. Constant dulling of the senses by the steady use of small doses of alcohol removes all warnings of danger, and increases the delusions of power and capacity to determine the relation of surroundings, and proper adjustment to them. This goes on slowly or rapidly, and the effects accumulate, always marked and along unusual lines not recognized. By and by, alterations in character and conduct appear, changes of the emotions and higher brain power, are manifest in irritability, suspicion, credulity and instability. Then neuritis, rheumatism, indigestion and various complex neurotic disturbances appear. Finally, death follows some acute inflammation or fatty degeneration of the liver or heart, or lungs. Bright's disease, heart failure or the very comprehensive term neurasthenia, are used to express states of degeneration, specifically due to alcohol and its accumulative effects on the cell and nerve organization.

Recently Dr. Pierret, of Lyons, and Dr. Lanceriaux, of Paris, have presented elaborate studies of the effects of moderate drinking of wine, beer and the stronger alcohols, confirming the conclusions of other physicians in a very marked way, showing that spirits in small quantities and taken at intervals, as at meals, or at stated times, is always injurious. This injury is poisoning, cell starvation and exhaustion which may not be prominent in some cases or appear to materially disturb the normal relations of life and living, but its accumulative degenerations after a time break out in the next generation with great certainty. This tolerance of spirits always

produces predisposition in the next or succeeding generations.

The capacity to use spirits in small quantities at intervals, becomes incapacity in the next generation. The intolerance of spirits extends from indifference up to positive repugnance and acute poisoning. Many persons manifest indifference to the taste and effects of spirits. Like tobacco, at first it is repugnant, later they are not unpleasantly affected by it in small doses. The increased action of the heart and circulation of the blood to the brain is pleasing within certain limits; beyond this, pain and suffering forbid its further use. This is a common form of intolerance. Spirits are usually taken in company, from contagion or surroundings. After a certain quantity is used, the system repels it, and headache, vertigo and distress follow.

This intolerance is overcome in some cases, and paroxysmal periodicity is the form of the inebriety that follows. In some cases a marked taste and repugnance is common. Spirits are often drunk impulsively and in large quantities, with condiments to conceal the flavor. In these cases there has been a natural intolerance formerly which has been overcome by repeated effort. In other cases, this intolerance after being held in abeyance for a time, asserts itself in an emphatic change to rigid abstinence and bitter denunciations of persons who use spirits. Many of the most dogmatic reformers who have used spirits at first, then suddenly stopped, have had naturally a constitutional intolerance of spirits. This has been overcome by circumstance, principally surroundings, ill health and want of training. Finally, from some unknown causes, this repelling diathesis has attained power to assert itself over the acquired taste and forced physiologic abstinence. To the man, it is simply an effort of the will which he thinks all persons can use, but literally it is the operation of physiologic laws, not his will.

Many very interesting cases of marked changes of living and character are made examples of theories of the will, of moral force and of faith, that are untrue and misleading.

This form of intolerance may appear after the first toxic use of spirits. The intoxication has created a profound impression of antagonism to any farther use of spirits. This is both physical and mental, the pain and suffering from the action of spirits is recalled by the memory and mind so vividly, as to repel any use of spirits again. Some persons will suffer from nausea and intense depression from the odor of spirits, and even the sight of an intoxicated man is painful. Another class, after the first intoxication, are never able to retain spirits without causing most intense irritation and nausea. I have met with cases who have used beer and wine freely for varying periods before 20, then suddenly developed an intense intolerance, and ever after suf-

ferred from severe headache when any form of spirits was taken. I have seen two cases, both direct descendants from inebriate parents, who could not bear any form of spirits. They suffered from functional paralysis of the stomach, ending in acute vomiting and cardiac feebleness. Both of these men enjoyed the odor of spirits, but could not use it in any form.

Many of these cases of intolerance for spirits are the direct descendants of inebriates. Others are from some allied neurotic families, in which unusual drug sensitiveness prevails. Functional peculiarities are always more noted among neurotics and tolerances or intolerances of various drugs. In the normal man not weighed down by abnormal heredity, spirits would be naturally more or less intolerant. This would follow from the complex physiologic action of alcohol, viz., the sudden rise of the heart's action, disturbance of sensation and perversion of nutrition that always follow from its use. In a neurotic this will be concealed or exaggerated. Concealed in the moderate drinker, and exaggerated in the violent opposition mentally and physically to its use. The *predisposition* to the use of spirits is a direct or indirect heredity, and a neurosis from some allied condition of degeneration. In other cases it is a defect due to some abnormal condition of the brain centers.

The largest number of persons in which this condition exists, experience very pleasant effects from the use of spirits. A sense of exhilaration and apparent physical and mental vigor, together with a certain nerve rest, and power of adaptability and enjoyment of the surroundings comes from its use. The ordinary depressions and reactions from the action of alcohol on the heart and nerve centers are not prominent or noticeable, and are not regarded as due to spirits. This pleasing physiologic state continues and fosters egotism and delusions of strength and power of control. The constant dulling of the senses removes all consciousness of danger and capacity to judge of their actual condition. Later, a variety of complex disorders appear, with changes of character and irregularity of conduct. If the man lives in an automatic circle these changes are unnoticed, and he may continue a long time, only increasing the spirits for its effects. If he lives in a circle of much strain and change he will become an inebriate and show marked symptoms of degeneration and disease. Acute inflammations of the liver, stomach, lungs, and heart failure are common. Rheumatism and neurotic disorders of very complex forms appear. Inebriety appears as a rule in all of these cases. Drug taking of all kinds follows naturally. The delusions which begins early in the case continue with increasing intensity. This is manifest in the warm defense of the moderate use of alcohol, and the delusion that spirits have some real virtue and power to help on toward an ideal physical and mental health.

I have seen cases in which the mind was wrecked and imbecile in all other lines, yet clear and emphatic in defense of the moderate use of spirits. This delusion clings to the mind tenaciously. When the case has recovered, and a long period of abstinence has supervened, it will appear in the efforts to use spirits again moderately. The physiologic impression coming from heredity, and fastened in the mind by the early exhilaration from the use of spirits, is seldom effaced. The brain is permanently impaired, the predisposition for alcohol, or any narcotic drugs,

has become a dominant idea that may be concealed for a time but is never broken up.

A certain number of persons realize early the physiologic defect of organization, and by the most heroic efforts, avoid wreck in total abstinence. In such cases certain physical conditions, and environment, are the real exacting causes. If these can be obviated or provided against, they can overcome this tendency—the value of institutional treatment is to teach these physical causes and the way to avoid them; to point out the danger, not from spirits and drugs alone, but the conditions which call for the seductive effects of such drugs. This is vaguely outlined in the confused literature of moralists, who speak of the battles with the demon appetite; of the sinful tendency to be overcome by prayer; of the influence of the lower nature to attain supremacy; of the natural tendency of man to go down, to become an animal, to give free reign to his lower instincts. In reality this, when seen from a higher point of view, is physical degeneration, with consciousness of its presence and tendency, and expectation of being able to control it. In a certain number of cases all consciousness of the real condition is absent. Paralysis exists from the beginning; in others only a partial palsy is present. In the former, delusional efforts for restoration, and delusional confidence in recovery, with continuous failures, are common symptoms. In the latter, successful and continued efforts along natural lines of cause and effect, are followed by both temporary and permanent restoration.

Many men in active life, are profoundly conscious of the danger of a single glass of spirits. They recognize the degenerative predisposition that is present urging them to take spirits, but overcome this tendency. Such cases often appeal to me for counsel to acquire new strength for this struggle. Suicide is the frequent ending of such cases; finding this craze for relief increasing and being overcome by it, give way to melancholy. This predisposition and central nerve degeneration not unfrequently dies out in middle or later life. Some unknown physiologic change takes place in the nerve centers and all desire or taste for spirits disappears. Conditions of ill health, surroundings and other causes are inoperative. He never drinks again. The taste of spirits is repelling and seem to have no effect. Such men often explain this as a mere effort of the will, or the power of some supernatural force, or the effect of some drug, or remedial appliance.

This predisposition in other cases never dies out, but always remains slumbering and ready to be fanned into a mild flame at any moment. In certain states of living and surroundings it never appears; in others, it is dominant beyond the power of control. Mental contagion, strain, irregularity of life and living, bring it into prominence. Again this degeneration breaks out at distinct periods of life then dies out, only to appear in some other form. The period of adolescence is often marked by alcoholic excess, which subsides in manhood, or appears in the senile stage again.

There are undoubtedly certain periods of life which are favorable for the development of these predispositions to seek relief from spirits or drugs. One of these periods is the menopause in women, and the senile stage in man. A vast region of unexplored facts stretch out in all directions from this point. Alcoholic intolerance and alcoholic predispositions

are physiologic and psychologic facts within the observation of any one. They are also unknown pathologic conditions, of both defective growth, and exhaustion and poisoning. The normal or approximately healthy man is not predisposed to use alcohol or narcotic drugs. While alcohol is not pleasing alone, when mixed in water and flavoring substances it may be tolerated, but when its effects are realized a natural intolerance begins. Unlike any other drug it conceals the conditions which it provokes, until such a time when they become fixed, then repugnance begins. This persistent concealment breaks out in the next generation as a physiologic bias and tendency to use the same drugs, to conceal the degeneration produced by the same causes. This persistent poisoning incapacitates and limits the vigor of the next life, giving it certain impulses to exhaustion; and breaking up its power of adaptability, causes pain and suffering which seeks relief in the same way. These subtle forces of heredity and morbid impulses, whose causes are only faintly comprehended, are expressed in these terms, intolerance and predisposition. Along this line we need new studies.

ALCOHOL IN THE GRIPPE.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CHARLES H. SHEPARD, M.D.

BROOKLYN, N. Y.

The present form of the gripe is an infectious disease finding its way through the respiratory mucous membrane, and the resulting toxins, by their migrations, tend to induce a lasting lassitude and depression that are characteristic symptoms in many of the cases. The primary cause of this disease is the susceptibility of the system. This is shown by the fact that some persons enjoy entire freedom, while others succumb to its influence every time it appears.

There are many conditions that favor it. What is called a poor circulation is accompanied by an inability to throw off morbid influences, and persons in that condition are likely to suffer from every epidemic. The same applies to indigestion, for when the body is not well nourished there is but feeble reactive force. Those having a torpid liver find the gripe an added burden to the discomfort of life, and those with an inactive skin are still more likely to suffer from its baneful influence, but among the more prominent causes of susceptibility may be classed the almost universal habit of drug taking, from the mild tonics, to patent medicines. Whenever one is out of order in any way, the first thing seems to be to swallow something, instead of trying to find out the cause of the trouble and seeking to obviate it by regulating the habits of life. This custom tends continually to lower the tone of the system, and the more it is indulged in the more evident becomes the apparent necessity of continuing the down-hill course. A large share of the deterioration of our people is due to the use of alcoholic tonics, or stimulants, as they are sometimes called. The majority do not look beyond the fact that they seem to feel better after their use, but this feeling comes from the benumbing action of the alcohol itself, and never from any building up action of the drug, because it has no such action. What is supposed by some to be that action is only an irritation resulting from the efforts of the

system to get rid of the drug. It only exhausts the vitality so much quicker, and therefore alcohol should always be considered a poison to the human system, and is already so considered by some of the highest medical authorities. The cells of the brain lie buried in a nutrient plasma, and their vigor depends upon the quality of this plasma. Should this become impregnated with alcohol in even a small degree, the action would necessarily be, so far, an abnormal one. These cells become exhausted from their natural activity and are then shrunken, depending for renewal on rest and the nutrient plasma by which they are surrounded. This has been demonstrated by experiments on dogs and pigeons. Out of a number, some were killed, and on examination the brain cells were found well nourished and full, while their companions, after exercise and fatigue, showed shrunken brain cells.

Irritability always follows exhaustion in a nerve cell, by whatever cause excited, and there is every reason to believe that insomnia, neurasthenia, and acute insanity are due to fatigue of the nerve cells through failure of the nutrient plasma to furnish the necessary nutriment for restoration. There is a collapse that frequently comes after the use of so-called tonics and stimulants. Outraged nature cries aloud for help. This it is that causes so many to return to their cups. The condition may be called brain and nerve exhaustion. It is found most difficult to treat by ordinary methods, because these nearly all depend upon rousing up the vitality by recourse to some new irritant or drug.

The strain upon the nervous energy of the individual in the pressure of modern civilization is so great that many, not knowing or realizing the inevitable result, and feeling that there is no time for rest and recuperation, seek in alcohol or some narcotic a surcease for their jaded feelings. This, with some more quickly than with others, is sure to bring about a condition of neurasthenia, so aptly termed by Dr. Beard a chronic functional disease of the nervous system, the basis of which is impoverishment of the nervous tissue in excess of repair, which may exist without any evidence of profound organic complication. We have daily before our eyes a profusion of examples of the various forms of nervous prostration. Experts can readily recognize in their patients underlying symptoms of nerve exhaustion, which their personal record showed had long antedated the expression of any distinct climax of disease.

It is difficult for the ordinary mind to see the end from the beginning, for while some individuals, probably from inheritance from a sound ancestry, are enabled to ignore the laws of health for a long time, the superficial observer can point to them with pride and say: "They do no harm, in moderation." Even the Royal Commission of England reports that the temperate use of opium in India should be viewed in the same light as the temperate use of alcohol in England, which according to their measure is harmful or harmless according to the amount and discretion with which it is used. This is altogether too much of a commercial report. It needs a commission from America, France, or possibly Germany, to get a perfectly unbiased opinion. The question of the toleration of narcotics is not settled and never will be until it is settled right. The consensus of medical opinion is coming more and more to the conclusion that alcohol is only and always a poison, and

therefore has no place in the human economy. Such authority as Dr. Forel, the famous specialist of the University of Zurich, says: "Alcohol, even when diluted as in wine, beer and cider, is a poison which changes pathologically the tissues of the body and leads to fatty degeneration. I am one who assigns but a very subordinate position to alcohol as a medicine."

For these reasons we contend that alcohol has no place in the treatment of grippé; on the contrary, it is because of the too frequent use of this and other narcotics that epidemics, particularly the grippé, make such fearful headway in our land, and such must inevitably be the rule until our people study the laws of health and obey them.

The injurious and deteriorating effect of the use of any narcotic, tobacco not excepted, is daily demonstrated to those who have eyes to see. Too frequently there is to be found in the daily papers an account of the physical wreck of some young man from the excessive use of the drug. As the future of our nation depends upon the young, too much can not be done to save them from physical degeneracy. Tea and coffee also belong in the same category of irritant drugs, which by rousing the vital forces to get rid of the poison, provoke the action which is mistakenly supposed to be an added force, whereas that action is only one of self-preservation. It will readily be seen how much supporting or building-up of the system there is in such substances by trying to live on them to the exclusion of other things. The result would quickly prove the absurdity of the idea.

Having demonstrated that alcohol is in no sense a relief or remedy for the grippé, it may be well to consider briefly what remedies are offered for this disease, and the reasons why they are used, and also, what is more desirable, present a sure method of prevention and help. For instance, quinin is ranked as a powerful germ destroyer, and its use is considered by many as of paramount importance. Quinin is essentially a nerve poison and capable of producing a profound disturbance of the nervous centers. Practicing physicians are familiar with instances that are rightly accused by patients as having permanently damaged one or another of the nerve functions. A drug of such potency for evil ought to be employed with the greatest care, and never when a milder agency will equally well or better secure the result. Its tolerance by a patient is simply a test of the power of resistance of his nervous system. The increased nervousness of some portions of our population is undoubtedly due to a previous saturating of the system with this recognized anti-periodic. Exceedingly pernicious is the practice that has obtained in some sections of dosing children with this drug. It is sure to lay the foundation of a miserable neurasthenic condition in after life. Attention to the digestive tract by following hygienic and dietetic treatment is the all-important and all-sufficient course to pursue in such cases. Strychnin has been used to some extent. The drug antipyrin is also used, and whenever there is a fever that remedy tends to reduce it, and thus seems to have a good effect, but its action may be more dangerous than the grippé itself. The value of such supposed remedies depends entirely upon the vital reaction of the patient. Again, it is recommended as a *sine qua non* that the patient should be confined to the house or bed, with absolute rest, according to the severity of the attack. Certainly,

the isolation of cases tends to restrict the spread of the disease, but when the best conditions are secured such a course is unnecessary.

The value of rest and passive exercise is receiving universal recognition as a means of forestalling the cause of disease and building up physiologic barriers against its invasion. Brain workers should secure at least one month's vacation out of the twelve. There is no new order of sleep, of rest, or of nutrition. Chemistry can never supply this need, and as all nerve derangement is indicative of innutrition, the first step toward recovery is rest of mind and body.

The remedy that does not draw upon the vitality, but rather conserves its force, and relieves the tortured body by simple elimination, is the most desirable, and this we find fulfilled in the Turkish bath. Its first effect is to quicken the circulation and render the skin active. By this means the reactive power of the system is brought up to its highest vigor, and the action of every function is made more acute. The heat of the bath is a perfect germ destroyer, and during the sweating stage there is a continuous elimination of all poisons, and the process needs only to be persevered in and repeated until the body is freed and regains its normal tone.

Those who have had the privilege of using the hot air treatment in such cases find that it conserves all the vital powers and restores normal action by encouraging a return of the circulation to its natural condition, both in frequency and fullness, and thus gradually and surely secures the desired result. Thus the action of the Turkish bath will not only cure, but what is more important, its frequent use will prevent such diseased conditions. When a person recovers under the use of drugs he is weakened by the drain upon his vitality; on the contrary, by the Turkish bath treatment, his whole system is invigorated, and he is better able to resist all disease.

Those who are in a position where they can not take advantage of the Turkish bath, should bear in mind its vital principle, which is sweating produced by heat. A simple but effectual manner of securing this sweating is by means of the hot sitz bath, hot foot bath, or drinking hot water and going to bed and covering the body with extra clothing. After a profuse sweating, carefully bathe the body in tepid water, gradually cooling it to a normal temperature and avoiding unnecessary exposure. Many cases have been relieved by this simple treatment persevered in. By all means should the patient sleep in pure air and eat as little as possible, and that only when hungry. It is also expedient to secure an abundance of rest after the bath.

An interesting statement in this connection was published in the *London Standard*, Jan. 2, 1890, written by a late surgeon of the Gold Coast of Africa, in which he says: "From what I have witnessed on the continent and in London, the present epidemic which is causing so much consternation, does not appear to be true influenza. Some of the worst cases remind me of a disease I saw some years ago among the natives of the swamps of the Niger, which in them often develops into fatal inflammation of the lungs. Irrespective of disinfectants and inhalations there is a simple, effective and ready remedy, the juice of oranges in large quantities, not of two or three, but of dozens. The first unpleasant symptoms disappear, and the acid citrate of potash of the juice, by a sim-

ple chemic action, decreases the amount of fibrin in the blood to an extent which prevents the development of pneumonia."

In our opinion, therefore, the wise man is he who, with a cheerful spirit, a well-nourished and properly clothed body, uniformly seeks the purifying and invigorating influence of the Turkish bath, and when any such epidemic appears he needs only a little more fervency in his devotions to the religion of cleanliness. It is an important work for us to educate the people to see and understand the far-reaching effectiveness of the Turkish bath, and when large public Turkish baths are demanded by the community, and built by the city, and the people shall have learned to live more in accordance with the laws of health, our land will be freed, not only from the gripe, but from all other forms of pestilence.

Experience proves that the effect of alcohol on the tissues of the body is in every way deteriorating, while experience also proves in the most convincing manner, that the action of the Turkish bath continually tends to renew and build up every tissue. We know also that alcohol interferes with the nutritive processes and hinders elimination, while the Turkish bath promotes the natural action of the nutritive powers, and by throwing off the *débris*, or used-up tissue, from the system, creates a demand and leaves room for a new supply. Again, it is a fact that alcohol benumbs the nerves and interferes with the coördinating powers of the brain itself, the more alcohol the more disturbance is produced, while the action of the Turkish bath soothes irritated nerves and gives clearer and more powerful mental vision, because it renders more pure the blood that furnishes nutriment to the brain.

It would seem evident to the average intelligence that the Turkish bath is a far more rational remedy for the gripe than drugs or alcohol.

81 Columbia Heights.

FATALITY OF SURGICAL OPERATIONS IN ALCOHOLISM.

Read in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY I. N. QUIMBY, M.D.

JERSEY CITY, N. J.

I thought it might be of some interest to call the attention of this Section of our Association to a form of rheumatism which has frequently come under my observation during the last twenty years, and which has not been fully, I think, recognized as a distinctive form of that disease by the profession. I have had some twenty cases of this form of rheumatism during the above mentioned period.

Not to take up the time of the Section, I will only describe two or three typical cases to illustrate the few remarks I have to make. This form of rheumatism apparently arises wholly from the moderate but continuous use of fermented and distilled liquors and has been aptly termed alcoholic rheumatism.

I think too many of us in our daily rounds in the treatment of the more common forms of diseases, are too apt, for want of time or patient investigation, to fall in the habit of a sort of routine way of diagnosis and treatment, the result of which is often unfortunate to patient and physician. The first case I will describe is somewhat unique.

In the fall of 1875, I was called to see Mr. M., a builder by profession, aged 48, who gave me the following history:

He had always been healthy and apparently well, but had been for the previous fifteen years a moderate but continuous user of fermented and distilled liquors, when he was taken with what was described as an acute attack of rheumatism in his left shoulder and elbow joint, with some hoarseness. After several weeks of treatment with colchicum, iodid of potassium, etc., he recovered from the attack of rheumatism, but the hoarseness, which was considerable, still continued to a greater or less degree. He remained in apparent good health for about six or seven months when he was again similarly attacked with rheumatism but with increased amount of hoarseness, articulating with difficulty. The patient was treated again in about the same way by the same physician, but was relieved less promptly and was left with increased amount of hoarseness. On the third attack, which occurred three or four months after the second attack, I was called to the case, not so much on account of the rheumatism, but on account of the severe attack of aphonia.

No doubt but what there are cases of laryngeal rheumatism occasionally occurring, owing to its complex anatomic structure, and its location between the pharynx and the bronchi, both of which are susceptible of inflammation, separately or in connection with an attack of articular rheumatism, from which he had been suffering for over a year, not being able to speak above a whisper. The laryngeal trouble apparently was the most prominent feature of the present attack.

The patient had been treated by a competent and experienced physician using the most approved remedies for rheumatism and its concomitants at that time.

I felt that there was some complication in the disease or deficiency in treatment, which caused a frequent return of the rheumatism, and this continuous and persistent aphonia; therefore, after a thorough examination of the case and analysis of the urine, and satisfying myself that there was no tumor pressing on the trachea or larynx, and finding that he had continued his moderate yet continuous methods of drinking alcoholic liquors, I arrived at the conclusion that it was this imbibition of alcoholic narcotic irritants which was producing some pathogenic micro-organisms in the various tissues of the body, which had much to do, perhaps, with keeping up the rheumatic disturbances and the serious and persistent aphonia from which he has been suffering for over a year, not being able to speak above a whisper, and which was the most prominent feature of the present attack.

I, therefore, began a reconstructive course of treatment, not by giving the general rheumatic remedies, but those of a general tendency to restore the system to its normal condition. I directed that all alcoholic liquors of whatever nature should be immediately discontinued. This was somewhat reluctantly, but immediately complied with. Then I gave the patient 5 gr. calomel, 10 gr. bis. sub. carb. $\frac{1}{2}$ gr. ipecac, followed in a few hours by a saline solution of Rochelle salts. He was also given a saline bath, temperature 90, for ten minutes, after which he was put upon the following treatment:

Bismuth sub. carb.	2 drams.	8
Tinc. nux. vom.	2 drams.	8
Belladonna	1 gr.	06
Aqua. mint. pip.	3 oz.	95
Syr. P. V.	1 oz.	32

One teaspoonful every two hours.

A diet of a bland nature was ordered, soups, toast, milk, canned corn, a limited amount of fruits, stewed prunes and oranges, etc.

This treatment with some variation, was kept up for two or three weeks, which was followed by marked improvement, the rheumatism disappearing in the joints and the aphonia markedly relieved.

At this time the character of treatment was somewhat modified. I continued the bismuth in combination with strychnin, baths, and occasionally, say twice a week, a 5 gr. blue pill followed by the saline solution.

At the end of three more weeks of this somewhat modified treatment, the aphonia almost entirely disappeared. At the end of six months he was apparently a well man, his voice was entirely restored. This patient remained practically a well man for over five years, when he again resumed his moderate drinking, which he kept up for about two years, when his rheumatism and hoarseness reappeared, although the attack was not so persistent nor severe as formerly.

Recognizing that alcohol was the main basis of the disease, I directed him again to desist from the use of all fermented or alcoholic beverages. After acting upon the bowels pretty freely by 5 gr. calomel, bismuth and ipecac, followed by the saline solution and warm baths, I then kept him for twenty-four hours on 20 gr. doses of salicylate of soda, every two hours, which relieved the rheumatism. After which I put him upon the same general treatment as formerly, and in the course of three or four weeks he was again an apparently well man.

I treated the patient for three attacks, covering a period of about fifteen years, for practically the same disease, with the same treatment and the same result.

As he removed from our city, I lost sight of the case.

The second case I will describe is a German grocer, aged 55, who had nearly all his life been a moderate drinker of the alcoholics, mostly beer, and who has had repeated attacks for the past twelve years of articular rheumatism in both ankles with more or less edema of the feet. These attacks were frequently accompanied with severe lumbago. He had been treated by a number of physicians, and, as he said, by all kinds of medicines, including electricity and Turkish baths, etc., but without permanent relief. During all these years of suffering he had continued his moderate use of the alcoholics; none of his physicians, some four or five, had apparently realized or taken into consideration his drinking habit as a factor in the causation of his rheumatism. His last attack was in the fall of 1888, when he was taken with acute rheumatic pericarditis, at which time I was called to see the case and found the patient with anxious look and suffering a good deal of pain around the region of the heart. The action of the heart was irregular and somewhat tumultuous, and the sound lacked clearness; the pulse was 130, with strong, quick beats, his skin dry and hot and temperature 103; coated tongue, offensive breath, etc. As the pain from the pericarditis was so acute, I was obliged to resort to venesection, which gave great and

prompt relief, after which I gave an active mercurial purgative. I then put him upon bromid of amo. 10 gr., extract belladonna one-tenth gr., with nauseating doses of ipecac every two hours. The patient was kept upon this treatment until the active symptoms had subsided, when I put him upon about the same reconstructive treatment as in the former patient, previously described, interdicting all fermented and alcoholic liquors. I kept the patient upon about the same treatment, and following my advice he abstained absolutely from all alcoholic liquors, when at the end of two or three months he seemed to have entirely recovered and had not been so well, as he expressed it, in ten years.

He kept in good health and abstained from liquor from 1888 to 1892, then thought, as he said, that he was so well that he could return with impunity to his former imbibation of beer. But after indulging in his old habits for a little over a year, he was attacked again with an acute attack of rheumatism in the right knee and ankle (with slight amount of albumin in the urine) which laid him up for two or three weeks. I put him on about the same general reconstructive treatment except venesection, as previously given. This treatment was continued for a month, when he apparently had recovered again, and has remained well up to the present time, although he has been compelled to become a total abstainer, as he has found by sad but valuable experience, that when he returns to his cups his rheumatism returns, therefore one of the most valuable remedial agents for this form of rheumatism is abstinence from alcoholics.

I have described the above cases somewhat minutely as typifying some twenty other cases mentioned in this paper, and also to call the attention of the profession sharply to the fact that fermented and distilled liquor, although taken in moderation, was the principal factor in producing a microorganism, which so altered the blood and cell growth as to produce this species of alcoholic rheumatism. Alcohol has a tendency to encourage urea and uric acid in the blood and tissues, and cause a precipitation of the uric acid in the joints in acute alcoholic rheumatism. If this then is a fact, and I do not think that it can be disputed by any close observer, it would not take very much observation to recognize the fact that users of alcohol, even in a moderate way, are often very seriously affected thereby; just what form or kind of microorganism this is, or upon what organ it is deposited, or its method of generating disease, is yet far from positive solution.

We are just at the dawn of a new era and in a great field of investigation. A glimmer of light is being observed and some facts have already been brought forth by such patient investigators as Drs. Richardson, Norman Kerr, Davis, Kellogg, Crothers, Magnan and many others, who have demonstrated that alcohol in its most imperceptible action upon the tissues and cells is a great moving factor in the production of some of the most serious and complicated diseases.

What physician would be so bold or hazardous at this time as to assert that the use of alcohol even in a moderate way did not have a tendency to produce various affections, such as congestion, ulceration and thickening of the gastric mucous membrane of the stomach, which did not in its turn produce indigestion, mal-nutrition and mal-assimilation, the result of

which would have a tendency to produce disease of the kidneys, pernicious anemia, cirrhosis of the liver, fatty degeneration of the heart, tubercular disease of the lungs, cerebral spinal irritation, with softening and lessening of the resisting power of the red corpuscles of the blood, producing various affections of the respiratory, digestive and nervous systems.

It is stated by Dr. Nordan, the famous writer and philosopher, who combines scientific knowledge with literary powers and originality of thought, that there is going on a general degeneration of the race. And who is bold enough at this period of the world's history to successfully deny or refute it?

The symptoms of degeneracy are physical and mental; the physical characteristic as exhibited in the multiple and stunted growth in the first line of asymmetry, the peculiar and unequal development of the two halves of the face and cranium, the frequent imperfection in the development of the external ear which may be conspicuous for its enormous size, either clinging close to the head or protruding from it like a handle, and the lobe of which is either lacking or too largely developed and the helix of which is not properly involuted; moreover, we have the innumerable cases of strabismus, irregular angle and unequal apertures, defective and imperfect vision, hair lip, irregularity in position and form of the teeth, deficiency in the hard and soft palates, webbed and supernumerary fingers and toes. The numerous forms of neuroses, the diminished birth rate, the congenital weaknesses, which I think are becoming more general among the working classes who use alcohol, whose diseased and deformed children crowd our hospitals and charitable institutions. The increasing number of cases of apoplexy, idiocy and other mental disorders showing the rapid increase of the defective classes, are the fearful annual tribute paid to alcohol. Who can successfully estimate the affect that alcohol has had and is having, directly and indirectly upon the tissues, in producing these unequal mental and physical developments?

While there is a great difference of opinion among medical men in reference to the direct and remote effects of alcohol upon the human organism, there can be no question but that its destructive power is very great and that it is too recklessly and perniciously prescribed.

And there can be no question but that it has been fairly demonstrated that alcohol neither aids digestion, prevents disease, nor prolongs life; that it causes an unnatural flow and precipitation of the pepsin of the gastric juice of the stomach, interfering with the metabolic processes, and coagulates and hardens all the albuminoids of food, thus retarding their solvency and assimilation. That it produces temporary interstitial paralysis of the vasomotor nerves of the digestive organs, which by reflex action, prevents and perverts the proper action of the ferments of the stomach, thus interfering with the digestive and assimilative processes.

Alcohol has a great affinity for water, and when introduced into the system interferes with the normal action of the red corpuscles and robs the blood of its due proportion of oxygen; it has no normal reconstructive power; it also prevents the proper elimination of the carbonaceous and other effete matter from the blood and tissues of the body, thereby encouraging the formation of ptomaines and other deadly microorganisms yet, notwithstanding all this there

is no drug in the whole range of the Pharmacopœia that has been used with such reckless inconsistency.

If the above facts are correct, is it not about time that the whole medical profession changes its base of action and opinion in reference to the *modus operandi* of alcohol?

Chassaignac, the great French surgeon, once said that: "America at this moment wields the surgical scepter of the world." If that is so, let us endeavor to so investigate as to arrive at the exact facts, so that we may be able to disseminate the truth in reference to the destructive effect of alcohol among the people.

Let us develop a national literature which shall lead the world in this momentous question; let the medical profession of this country free itself from the old superstitions which have so long controlled it. Let the facts which recent investigations have so clearly demonstrated in reference to alcohol and its painful effects, be known. Let us promulgate these, and carefully guard the altar of scientific truth, that the world may see its light and be guided thereby.

SOME FACTORS IN THE SOLUTION OF THE ALCOHOLIC PROBLEM.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. W. GROSVENOR, M.D.

BUFFALO, N. Y.

An alcoholic problem confronts the people of these United States. Multitudes—perhaps the majority—of our population do not believe this statement. Especially is this true of our foreign-born residents. The vast majority of them have drawn alcohol from the maternal breast and have been educated to believe that alcoholic drinks are the healthiest that exist; they see no alcoholic problem.

The brewer, the distiller, the saloonist can find no alcoholic problem which will restrict their business. The ordinary merchant fails to recognize any alcoholic problem which forbids a reciprocity of business between himself and the vendor of alcoholics. The professional man searches in vain for an alcoholic problem which will offend the consciences of his clients.

The eyes of myriads of our people in looking for this problem are blinded that they see not, and their ears in listening for its goings are stopped that they hear not. If, perchance, a representative of these classes meets the alcoholic problem he is very apt to ignore it, and, like the Pharisee, passes by on the other side.

In spite of the fact that an alcoholic problem is unseen and unacknowledged to a large extent in our country, it *has* an existence and calls loudly for solution. Its existence is recognized by many philanthropists, some political economists, and hosts of our people who have at heart the welfare of our homes and nation. Its recognition as an established fact is growing into larger prominence every year.

This problem will not be rightly solved until its presence is openly acknowledged by a greater number of our framers of national thought, by our foremost scientific minds, by our leading spirits in moral and economic reforms, and by a majority of the middle class of our republic. For the solution of the alcoholic problem a vast amount of teaching must be done in order to establish the mere fact of its exist-

ence. Unless our souls are thoroughly impregnated with a belief in the need of a reform, the voices and hands which we raise in its behalf will be weak and crippled.

What is the alcoholic problem? Succinctly stated it is the *right* use of alcohol—its best use for all classes and conditions of people. For the individual it is the use which will give the greatest aid in the development of the soundest physical organism, the keenest and broadest intellect, the purest morality, which will enable a man to make the most and best of himself; in respect to home life it is the use which will produce the sweetest courtesies and the most self-denying love; in regard to society it is the use which will insure strictest fidelity to assumed trusts and the most honorable dealings between man and man; concerning citizenship it is the use from which will emanate the noblest patriotism. This is the problem presented for our solution—one of the largest and most difficult problems before the American people to-day.

The Nature of Alcohol.—Whoever undertakes to solve the alcoholic problem should know and appreciate alcohol's characteristics. In a contest at war he is most likely to win who—*ceteris paribus*—best knows the resources of the enemy. No class of scientists are more fully qualified to tell us what alcohol is and what it does, than the chemists and physiologists. Over and over again, chemists who have studied it in the laboratory and physiologists who have observed its action upon the living being have declared that *alcohol is a poison*. Scarcely an intelligent person can be found who is not ready to acknowledge that opium is a poison. He who will experiment with both opium and alcohol on his own system will discover that in many respects the action of the latter is not very unlike that of the former. Nearly every physician of a few years' practice has seen or known well-authenticated cases of sudden death caused by the ingestion of some form of alcohol. Indeed, the evidence that alcohol is a poison is overwhelming; and yet not infrequently, both in word and in print, this statement is stoutly contradicted by professional men of intelligence. To counteract any belief in a non-poisonous quality of alcohol it should be handled and treated as are other poisonous substances. Every receptacle which contains it should be distinctly lettered *poison*, and pictured with the ominous skull and cross-bones.

Alcohol is an Anesthetic.—Used on the external surface of the body, the part to which it is applied becomes less sensitive to impressions; used internally in large quantities the whole system yields to profound narcosis; the body may then be bruised and pricked with sharp instruments without expressing any signs of sensation.

Alcohol is a Paralyzant.—Under the influence of moderate quantities the senses are appreciably affected; as proved by actual experiment, vision is less acute, hearing is blunted, touch is less sensitive, taste and smell are impaired, muscular power is weakened.

Under the influence of large quantities of alcohol, the taker lies as in a deep sleep, or as almost dead.

The question whether *alcohol is a stimulant or depressant* has been energetically discussed for the last hundred years. A unanimous opinion has not been reached. Probably a diversity of opinion is largely due to a difference of meaning attached to the term

stimulant. If a stimulant is that which excites mental processes and increases muscular activity, alcohol without doubt may be called a stimulant. It is not difficult to observe that a person immediately after taking alcohol shows a quickening of thought and of muscular action. The vasomotor nerves have become partially paralyzed, the brain and muscular fibers are supplied with a greater than a normal quantity of blood, and thus activity is increased. Soon, however, the blood becoming impure, ceases properly to nourish the various organs, and brain and muscles perform their functions with abnormal slowness.

The increased activity, as well as the abnormal slowness of movement, has been caused by the paralyzing property of alcohol. In producing stimulation, alcohol acts as a sedative, and thus it should be called. Stimulation is the product of sedation.

Notwithstanding experiment has shown the reasonableness of the view here presented, it is probable that the vast majority of physicians believe the strongest quality of alcohol to be its stimulating power. So long as alcohol is called a stimulant, by chemists, physiologists and physicians this will be regarded by the laity as its leading characteristic; it will be used as a *sine qua non* for the promotion of strength. The nature of alcohol as a poison, an anesthetic, a paralyzer, a sedative has a large place as a factor in the solution of the alcoholic problem.

Taken internally, Alcohol has no Usefulness for the Healthy Human Organism.—It furnishes neither material for addition to its tissues nor heat for warming it; it is neither a tissue-forming nor a heat-producing food; it has no power to build up and sustain the physical system. Subjected to arctic cold or tropical heat, to the severest physical strain of the athlete, to the highest mental tension, to hardships on land and sea, man finds in alcohol no genuine aid. This is the teaching of reason, experiment and experience.

The internal Use of Alcohol works a Positive Injury to the Healthy Human Organism.—It vitiates all the solids and fluids of the body. The numerous diseases which are the product of its moderate and excessive ingestion, forcibly testify to the truth of this statement. The nervous, circulatory, digestive, osseous and glandular systems profoundly feel its deleterious influence.

Alcohol as a Medicine.—Since its discovery, alcohol has had a prominent place among remedial agents for the sick. In this rôle it has had its ebb and flow of popularity. Notwithstanding a large majority of physicians recommend it as a valuable medicine, it is my belief that confidence in its remedial virtues is on the wane. The London Temperance Hospital is a positive witness to the fact that all diseases can be as successfully treated and all surgical operations as successfully performed without the use of alcohol as with it. The American Temperance Hospital in Chicago forcibly teaches the same lesson. The long and successful experience of some of our most eminent medical practitioners, both in this country and Great Britain, bears unequivocal testimony to the same truth. With almost the certainty of a mathematical demonstration it has been shown that alcohol has slight, if any, utility as a necessary article of the *materia medica*. I predict that ere many decades shall have passed it will have gone the innocuous way of the physician's lancet.

The factors thus far mentioned as connected with

the solution of the alcoholic problem relate to the individual. They should awaken and foster a special interest in the practicing physician. As he goes his daily and nightly rounds he comes in contact with individual life, and this alcoholic problem in some form is apt to meet him at every turn. On him, to a large extent, depends its solution. If he believes that it exists and demands serious consideration, so will believe the families that place confidence in him; if he understands the alcoholic problem he can make his patrons understand it; if he has thoroughly studied the nature of alcohol he has the power to inspire in others an interest in its study; if he has no faith in alcohol as a constructor and sustainer of the healthy human organism, his position as a student of physiology gives him abundant opportunity to lead the indifferent and uninstructed into the same faith; if, by research and the test of experience, he has become convinced that alcohol has little or no utility as a medicine, his views will be likely to find expression in the chamber of sickness, in the medical society, in the columns of the medical journal and in every place where they are likely to produce good results; if by a life of total abstention from alcoholic beverages he shows his disbelief in their power to do good to either mind or body, his example will have marked influence on the lives of his associates. The physician who does not hold these attitudes can do no better service for himself and his clients than to study the alcoholic problem anew, stand ready to accept new light on this all-important subject and use his enlarged knowledge for the benefit of his kind.

The physician holds an important relation not only to individuals but also to communities and the nation. He is a citizen as well as a physician and as such has a responsibility to do his share in the solution of the alcoholic problem that meets him in all the walks of life.

Alcohol is an Enemy to the Home.—The American home is the bulwark against anarchy, communism, socialism and all those isms that tend to undermine a respect for law, true liberty and morality. No more potent home-breakers exist than the alcoholized father and mother.

Alcohol is Inimical to the good Order of Society.—It is the forerunner of poverty, crime and immorality. The social cup, the treating glass lead on to social discord and vicious conduct. Alcoholized society is society undermined, disorganized, ruined.

The wide-spread Use of Alcoholic Beverages in a Nation is a Menace to its Integrity and Life.—To a large extent a nation must depend for its stability upon the physical soundness of its citizens. Alcohol has been aptly termed, "the genius of degeneration." Its degenerating influence on the national body may be slow but it is sure. Several generations may pass before its work produces an effect which is glaringly visible. At length, however, the national mind will be invaded; mental processes become weakened and disordered; judgment beclouded and unbalanced; cowardice is substituted for courage; the baser faculties win control; the vision and vagaries of the national intellect, partially alienated, are transmuted into legislative enactments; the execution of law becomes feeble and erratic; the nation is hurried far along on the highroad to ruin; it stands tottering on the brink of despair and ready to plunge into the depths of disaster or destruction.

The Relation of Heredity to Alcoholism.—From the earliest historical periods, heredity has been recognized as a cause of alcoholism. Aristotle declared that a "drunken woman brings forth children like unto herself," and Plutarch declared that "drunkards beget drunkards." All along the historical road may be found abundant testimony to substantiate this truth. The evidence in favor of it is as clear and strong in respect to alcoholism as in respect to insanity. Although many of the students of the alcoholic question may not believe in the direct hereditary transmission of this disease, they acknowledge that a constitutional tendency to it may be hereditarily transmitted. Alcoholized ancestors may transmit to their descendants, not only an irresistible craving for alcohol, but also many defective conditions of mind and body. Through these defective conditions, alcoholic habits may be acquired which have their outcome in seriously degenerated descendants. Thus it is seen that from the view-point of heredity the solution of the alcoholic problem has a large place in its relation to the physical and mental soundness of the race. The alcoholic problem is a racial problem.

Permit me to call your attention to one more factor which relates to a solution of this question. *I refer to the use of alcohol in our public charitable institutions, especially in general and insane hospitals.* The annual bills for alcohol in its varied forms in many of these institutions is so large that they suggest great extravagance and ill-directed use. A large per cent. of insanity is the result of alcoholic drinking. Very many of the inmates of general hospitals are the victims, directly or indirectly, of alcoholic excesses. I fail to see the reasonableness of treating such cases with alcohol. Perhaps it is done on the principle of curing the bite with the hair of the same dog. The superintendent of the London County Asylum, Banstead, Eng., a hospital for the insane, has made this statement: "Since the withdrawal of beer from the dietary the rate of recovery has gone up. During the past year (1893) for example, the recoveries reached 46.97 per cent. . . . These inmates take their food better without the liquor."

If alcohol has little or no genuine usefulness in the treatment of disease, I can see no valid excuse for spending annually in any one of our largest hospitals several thousands of dollars for alcoholic liquors. Such expenditure for the whole country must amount to an immense sum for a single year and for a series of years doubtless mounts up into the millions. To my mind, this is a vast waste for which the taxpayer has good reason to complain.

The factors presented in this paper, as related to the solution of the alcoholic problem, are only a few of the vast number that exist and meet us at every turn of life. They have been massed here without any attempt at special discussion or detail, in order to exhibit the magnitude of this problem which reaches out into almost all avenues of individual and national life.

If science and experience teach that the internal use of alcohol is unnecessary for the healthy human organism, has scarcely any or no utility as a medicine, is a producer or instigator of scores of diseases, lays the foundation for crime and immorality, strikes with a destroying hand the home and the virtues of well-ordered society, threatens the peace, prosperity and permanency of our republic, we, as physicians

and citizens, are called to consider and intelligently act upon the questions whether it shall not be suppressed from our list of medical remedies, banished from our persons and home life as a beverage, and whether by the responsible positions we occupy we are not bound to teach by the wayside and in public the destructive nature of alcohol, and to enforce our views upon the public mind with all the energy at our command.

If, on the other hand, we have some slight belief in the efficacy of alcohol as a tissue-builder or blood warmer, we should advocate its restriction to the narrowest possible limits.

I am confident that we shall not make great advance in the solution of the alcoholic problem until, as a profession, we have earnestly declared to the people again and again, the lessons which during the last few decades have been taught by investigation in the laboratories of the chemist and physiologist and by observation at the bedside of the sick.

A new era will fully dawn upon our nation when alcohol in minimum amount is used as a remedial agent for victims of disease, and as a beverage for the healthy human organism shall cease to exist.

PRACTICAL LIFE INSURANCE EXAMINATIONS.

Read in the Section on State Medicine at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOHN L. DAVIS, M.D.

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My justification for asking your attention to a subject that may appear trite and perfectly familiar to you is the fact that while physicians are receiving as fees from insurance companies and coöperative associations about \$2,500,000 per annum, they are not in every instance giving a *quid pro quo*. I understand fully and we all agree that members of the AMERICAN MEDICAL ASSOCIATION always give a *quid* much bigger than the *quo*; but it is the doctors who are not of us that I shall describe. My remarks will not apply to the strictly technical part of the examination, for I feel that after fifteen years' work in examining applicants' lungs and hearts and kidneys I have too much yet to learn to warrant my giving you instructions in physical diagnosis. Hence for the sake of avoiding argument I will assume that every man who has a diploma is *ipse facto*, a good diagnostician. I will admit this, though the medical director of every company is chagrined, perhaps daily, to find what manner of report is submitted to his office by doctors who hold diplomas as good as his own; but in the aggregate we may say that examiners do remarkably well and no complaint as a rule is called for. So we will let that pass. That is the part of the subject not to be touched by this paper. But some suggestions will not be out of place as to the practical element in the examination, as to those features which disclose the examiner's business acumen, social tact, "horse sense" and understanding of human nature. As far as my experience goes, it is here that the doctor is possibly more often at fault than in diagnosis. The ideal examiner for an insurance company must not only be competent and skilled in diagnosis, but he must be tactful and approachable, willing to display a sympathetic camaraderie, putting the applicant at his ease and by his manner relieving him of restraint

which is inimical to a satisfactory examination; and at the same time he must sincerely appreciate the agent's position; he must do his work skillfully, but at the same time promptly and in a business-like way and by his manner, if not by word, commend the applicant's motive in taking insurance, incidentally, perhaps, speaking well of the company and a good word for the agent. And all this must be honestly done; hypocrisy will not pass; the fraud will be detected. The examiner must honestly and earnestly believe in insurance and in his company, and must fully sympathize with the agent in his difficult task. He can do all of this without sacrificing his dignity as a physician; nay, such sympathetic genuine interest in his fellow-man adds a dignity to the profession which nothing else can do.

I recently attended an underwriters' meeting and one subject under discussion was "The Fool Doctor." I can not understand why I should have been invited, when a fool doctor was discussed, but I was there. And the agents painted a picture of the doings of the fool doctor until I blushed for my profession. What does the fool doctor look like? Well, like any of us most; but it is what he does and says. He stands on the corner and tells people he is going to examine Mr. Cræsus next week for the Jumbo Tontine. Somebody gives a pointer to the agent of the Bonanza Life Company and he quietly has Mr. Cræsus examined this week, and, as insurance men say, the Jumbo Tontine holds the bag and the fool doctor wonders how it happened. But sometimes the fool doctor reaches the applicant before the other company gets him and then the conversation opens up like this: "Ah, Mr. Cræsus, I want to examine you for the Jumbo Tontine, don't ye know. I always feel a little afraid of those big companies and carry my own insurance in the Picayune Promiser which is going to do first-rate some day, and is much cheaper than the Jumbo." And so forth. Mr. Cræsus hesitates, not having been fully and soundly converted and tells the fool that he is pretty busy this morning and will call at the doctor's to-morrow; and to-morrow, you know, never comes; nor does Mr. Cræsus. In many little ways the fool doctor shows his right to the title. He forgets his pen or his bottle or his examination blank even. I have actually known an examiner to forget the examination blank. And he must call again to complete his report. And the interim between the calls! Oh, how it is fraught with dangers from within and without! Mr. Cræsus' wife may get his ear (for conversational purposes I mean); I have noticed the combination of Cræsus and the fool doctor is often completed by that kind of a wife. At all events, through some internal or external cause, Cræsus will change his mind and the other company, or I may say the goblins, "will get him if you don't watch out." All companies aim to secure as examiners, men not only of professional skill and integrity, but of sound judgment and insight into human nature; for these extra professional attainments constitute a most important safeguard for the company. Very different indeed are the relations between the examiner and applicant on the one hand, and the physician and patient on the other. The patient is anxious to fully disclose his symptoms and diseases, present and past, his habits and family tendencies; he will communicate every unfavorable element which his case involves. But when the same man is an applicant for insurance, often the most

minute and searching inquiries are needed to reveal what in the other case would have been eagerly disclosed. This reticence is in most cases explained by failure to appreciate the importance of information sought in the insurance examination. But sometimes, unfortunately, facts are withheld or misstated with the deliberate purpose of deceiving the examiner. There is need, therefore, of the greatest tact and skill in drawing out and properly weighing every feature required for a perfect report. Skill in physical examinations, integrity, good judgment and tact in dealing with men are the qualifications of a first-class examiner. Every appointee should aim to possess these requisites, realizing that a single fact improperly or incompletely set forth in the examination may involve the company in an unwarranted loss of many thousand dollars, or may, on the other hand, cause the rejection of a desirable risk who is rightfully entitled to insurance.

The examiner should at all times be mindful how fully the home office is dependent upon his individual examinations for final decision. And he should feel that in the responsible work of selecting safe risks for the company, the examiner is the direct representative of the medical department; he should realize fully that the duties of examiner and medical director are complimentary and cooperative; and, hence, our mutual relations should always be most cordial and confidential.

The examination should always be made in private. When alone with the examiner the applicant will answer more freely than otherwise on matters unfavorable to himself. Explanations of a private or personal nature should always be treated as confidential, which is impossible when a third person is present. Another reason for this requirement is that it relieves the examiner from the annoyance of outside dictation and interference with the applicant's statements. The examination is a matter strictly between the applicant and the medical representative of the company, and no third person must be permitted to interfere.

In meeting the applicant, the first essential is his identity; if not personally acquainted with him, the examiner must assure himself beyond a doubt that the man he examines is the party whose signature appears on the application. The attempt is sometimes made to substitute a healthy man for the examination which the applicant himself could not pass, owing to bad health. Hence, the need of identification.

A great deal may be learned about the applicant before the physician reaches the strictly physical examination. The examiner should note in the first place his gait, attitude, expression, manner, etc. He will observe whether the eye is bright or dull; the complexion clear and healthy or showing signs of dissipation, disease or premature decay. All of these points will be noted at a single glance by the experienced physician.

The applicant may be unduly nervous, especially if not used to being in a doctor's office. The examiner's manner should be reassuring and calculated to inspire confidence and frankness. The applicant must be at his ease during the examination, so that the pulse and respiration may be tranquil and the answers freely given without embarrassment of any kind.

As preliminary to the detailed examination it is a

good plan to question the applicant as to his residence and occupation, and learn whether the surroundings are sanitary or otherwise, whether the employment is healthful or hazardous, etc. Facts may be incidentally obtained in the party's business or domestic arrangements, suggesting the question of so-called "moral hazard." Particulars can be learned as to drinking habits and other vices tending to shorten life. Often specific questions will not elicit information nearly so well as will a frank conversation casually covering the points at issue.

There is perhaps no need of reminding physicians of the disastrous results of excessive drinking. But the practical effects of alcoholism come with such striking force in the death losses of insurance companies that a few words to the examiner on this matter will not be amiss. There is no other topic of inquiry in the examination which calls for as great skill on the examiner's part as does this question. Applicants often are apparently unaware of the amount of alcohol they are ingesting; the most detailed and careful inquiry is therefore needed to get the facts. A person who drinks and inherits the taste for liquor is not safely insurable.

A difficult question is, to what extent can a man drink without shortening his life? It is an undisputable fact, as has been proved by the experience especially of foreign companies, that total abstainers, other things equal, are the most desirable risks. It must be remembered, however, that abstainers who have formerly been hard drinkers and are "reformed" are not first-class risks; with them there remains the damage done the organs by alcohol as well as the possibility of a return to the old habit.

It has been shown by Anstie that when an ounce and a half of alcohol or less is taken in twenty-four hours it is not found in the excretions. If, however, more than this amount is taken, the excess is eliminated as alcohol, showing that whatever may be the effect of an ounce and a half, more than this amount is excessive and can not be appropriated by the tissues. Even a less amount may be dangerous, if occupation or surroundings favor a stronger habit. The form in which alcohol is ingested is an important consideration. The stronger drinks, as whisky and brandy, are usually the more dangerous; this is certainly the case when taken on an empty stomach. Furthermore, the regular drinking of a moderate amount is often not as serious as the occasional ingestion of a greater amount with a period of abstinence following, to be again followed in a few days by another round of free drinking. Examiners should, therefore, clearly state the manner of drinking, whether regular or occasional, as well as the approximate amount and kind of drink used.

Free drinking leads directly to disease of the liver, kidneys and heart inflammation, hypertrophy, fatty degeneration, etc. All organs and tissues are weakened and the free drinker is less able to resist any intercurrent disease which he contracts. He is more liable to accident, to suicide, or other violent death, and in every way is an undesirable risk. These are the dangers beyond the limit indicated. But, undoubtedly, for many men the danger line is below the figures given by Anstie.

The importance of searching inquiry into this habit is evident. No company wants heavy drinkers, whether the habit is regular or only occasional and, as a rule, the less a man drinks the more favorably

is he regarded by insurance companies. Examiners are, therefore, urged to investigate this question most thoroughly in every applicant examined, remembering that among drinkers we will accept only the most moderate, and even these are regarded with disfavor.

A few words on the family history with its bearing upon the risk is next in order; for the character of the risk is affected more or less by the mortality and morbidity of the family history. In some cases the applicant in feature and physique bears a striking resemblance to father or mother, sometimes to a more remote relative. Often, however, the resemblance is not clear or appears to be blended. Where there is close physical resemblance we may assume a corresponding similarity in internal organs and tissues, and the inference is reasonable that diseases and tissue changes will affect such persons approximately in the same way. In this assumption we have the basis for the important part which heredity plays in life insurance. Many diseases are recognized as hereditary, though when transmitted they may appear in a form or manifestation different from that experienced by the ancestor. For instance, many authentic cases are recorded illustrating the interchangeability of consumption, cancer and scrofula. In other words, hereditary transmission is not always characterized by the specific germ of the disease, but rather by a tissue weakness or susceptibility manifested by some allied pathologic condition. Diseases recognized as hereditary in the sense described are consumption, cancer, scrofula, syphilis, insanity, alcoholism, epilepsy, gout, rheumatism, diabetes and Bright's disease.

Some of these diseases are so commonly recognized as hereditary that occasionally applicants are on their guard when there is a family taint and will make every effort to conceal such instances in their report, knowing how seriously the true facts would impair the risk. Often, therefore, such innocent terms as "malaria," "typhoid fever," or even "old age" (perhaps suspiciously premature) are reported as causes of death, where the actual cause was consumption or cancer. Great pains are usually taken by the applicant to show that every case of consumption in his family is acquired—not hereditary. Sometimes an assumed ignorance will report "Don't know" as a cause of death, where the facts positively indicate transmissible disease. Experienced examiners are familiar with all such subterfuges, and know that these evasions or indefinite terms are unfortunate for the applicant and are regarded with suspicion by the company. The examiner should, therefore, use every effort to get at the facts in such cases, basing his answer upon a full inquiry into symptoms, clinical history, etc. The same care should be exercised when a member of the family is stated to be in "poor" or "moderate health"; the cause must be clearly indicated. Sometimes an evident effort is made to offset unfavorable features in the family history by attributing marvelous longevity to grandparents and other far-off ancestors.

It may not be necessary to caution examiners against relying too implicitly upon statements made about remote ancestors, unless a reliable family record is at hand. Many persons of middle age can not give trustworthy information about their grandparents.

The points suggested represent the common expe-

rience of insurance companies. The examiner should, therefore, first satisfy himself that the history reported is as full and accurate as can be had; then he should state his answers clearly and positively. If the examiner is capable and alert he will not report a death from congestion after a six weeks illness, nor a death from "pneumonia" without cough as a symptom. Though these are ostensibly statements of the applicant, it is the examiner's place to supervise them and not permit statements to be made that are obviously improbable and conflicting.

Before forwarding his report, the examiner should see that every question upon the form is answered. He should remember that this written examination is all the information the medical directors have upon which to base their action. The examiner will understand how difficult this decision sometimes is, if, having dismissed the applicant, he will put himself in the medical director's place, and with only the written examination before him try to decide the case. He will, under the circumstances, often see the need of further particulars to clear up some point at issue. Such supplemental statements are of great value, and are appreciated at the home office.

Apart from the detailed examination, anything in the applicant's appearance or manner or surroundings which impresses the examiner unfavorably should be noted. The amount of insurance desired may be far beyond the limit justified by the man's circumstances or station in life; or the examiner may feel that the party is urged to insure for speculative purposes by designing relatives or persons having no legitimate interest in his insurance. All such matters come within the scope of the report and should be fully stated. A confidential letter may be sent to the department by the examiner at any time and will be duly appreciated.

In rating a risk the examiner should bear in mind that the final decision rests with the home office. His action should be based on the applicant's personal appearance and examination together with his habits, occupation and surroundings. The bearing of his past record and family history should perhaps be left largely to the medical directors, who sum up all the items in the case. The most satisfactory classification is such as is indicated by phrases like these: "Superior, personally;" "Average, except bad surroundings;" "First-class, except for rheumatism;" "Good, aside from drinking habits."

In conclusion, attention may be called to the fact that sometimes the decision in a case made by the home office differs from that anticipated by the local examiner. It should be understood by the examiner that such differences by no means necessarily reflect upon his judgment and character as an examiner. His view is limited to the single case, or at most to a few similar cases; while the judgment of the medical directors at the home office is based upon a large aggregation of cases identical with that submitted. As a diagnostician, the examiner may be perfectly correct, but as a rule the home office with its collated evidence and statistics is in a better position than he, to judge as to how much a man's expectancy may be affected by past or present personal conditions in connection with a given family history. In other words, the examiner deals with the individual; the medical director with the class, making indeed such exceptions as large experience has seemed to warrant.

THE DEPOPULATION OF CIVILIZED NATIONS.

Read by title in the Section on State Medicine, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. B. McKLVEEN, M.D.

CHARITON, IOWA.

You see the title I have given to this paper is the depopulation of civilized nations. Probably it would be more proper to put it, the cessation of increase of population; for it is not so much the causes that depopulate, that I wish to speak of, as the causes which hinder the increase of the population.

It seems that the people of all civilized nations have in matters relating to the perpetuation of the species become subject to some influence, which as the nation becomes cultured prevents its increase. They seem to be approaching the same finale that characterizes a certain variety of butterfly which attains the perfect state and then dies.

In this country the subject does not receive the attention it merits, in fact it only attracts the notice of medical men, and then not as a condition which may confront them, but rather as a curiosity.

In France a great deal of attention has been paid to this matter. In 1891 one-fourth of the papers submitted to the Academy of Sciences were upon this subject. The result has been that active efforts have been made by legislation to increase the number of births and to protect the lives of those that may be born.

In most European countries reliable statistics exist by which we can determine the ratio between births and deaths, but in the United States we have no very exact figures with which to compare ourselves with other countries.

France in 1890 had over 100,000 more deaths than births.

England, though not so bad, showed a greater mortality than natality.

Germany makes a better showing than any nation of Europe, except Austria. In Germany the births slightly exceed the deaths.

In Austria the natality is 65 per 1,000 of the population and the mortality 49 per 1,000.

In 1880 in the United States there were born 37 per 1,000 of the population, while in 1890 the rate had fallen to 29½ per 1,000.

This condition existing as it does in times of peace, when there is neither famine nor plague to increase the mortality and with every effort made by science to lengthen life, becomes really alarming.

With compulsory vaccination to prevent smallpox, better hygienic conditions in our cities, a greater knowledge of sanitary laws and the advancement of medicine and surgery, the mortality has decreased in all countries. In France, alone, the deaths have in twenty-five years decreased over 100,000 annually.

What is the cause of this falling off in the number of births? We should expect an increase, since science has done so much to rob child-bearing of its horrors.

Demographers differ as to the cause. Among those mentioned are the late age at which the young people are now married. This decreases the fertile period; the obstacles in the way of legal formalities; the financial embarrassment of large families; the exactions of military service; the unequal emigration of adult celibates; the tendency of people to go to the cities to reside; unhygienic modes of living; the common practice of abortion.

In our own country not all of these mentioned causes can be held accountable; for instance, there are very few legal formalities connected with marriage.

Compulsory military service is unknown in our country, but in continental Europe every young man has to serve a certain part of his best days, and it is a decided hindrance to his marrying as soon as he otherwise might.

At the present time, marriages are consummated at a much later age than formerly. This is due to several reasons: the lengthened educational course is one; the young men and women of to-day are just finishing their education at an age at which their parents became father and mother.

Of course education is a good thing for the individual, but our present systems of education seem to be playing sad havoc with the birth rate and this will be more noticeable in the future, because of the fact that education is becoming more general. Another cause might be mentioned: the young men feel the necessity of having something ahead in a pecuniary way, in order that they might begin their married career in a manner commensurate to their former method of living.

We are living in an age of luxury, and things that were considered luxuries in the past are necessities at present.

Bunyan, the author of the immortal "Pilgrim's Progress," said that when he and his wife were married they had neither pot nor spoon betwixt them. How many couples at the present day would marry under such conditions, which up to fifty years ago were common enough?

At the present time, with few avenues to wealth open before him, the young man is very much older by the time he has sufficient laid by on which to marry than were his ancestors.

One of the most potent causes of the decrease in births is the tendency of people to flock to the cities. Children which are an actual source of wealth to the man in the rural districts, become a source of expense to the urban resident. This causes them from necessity to limit their families. I might mention the desire of parents to give their children exceptional educational advantages. This causes them, when only of moderate means, to wish that they have but few children, especially if they are to distribute their favors equitably.

The wealthy are best able to properly raise large families but, as a rule, they are the ones who have the fewest children. The social pleasures which the rich women can enjoy cause them to abhor maternity, because it interferes with their imagined happiness. Among the poor in the cities, children are particularly a great burden, for it is often necessary in order to live, that the wife shall leave home to labor, and this she can not do and raise a family.

1. I might here state that only one-fifth of the women are able to nurse their offspring as nature intended. No wonder that 26 per cent. of the children die in their first year, for no food man can compound is equal to that nature provides. Why this inability to nurse children? In the first place, the waists and breasts of our women are compressed by tight lacing, tight clothing, corsets, stays and all that is necessary to make a fashionable figure. This causes chronic induration of the breasts, and has a tendency to prevent secretion and in many cases abscesses form.

2. The lungs are so compressed as to prevent proper oxygenizing of the blood.

3. The abdominal and pelvic organs are so displaced that digestion is impaired and the pelvic viscera are in a state of passive congestion with all the attendant evils, rendering the woman unable to furnish the proper nourishment for her child.

Women have until very recent years been taught that they should do nothing which compelled them to come in contact with the public. Now all is changed, and we find women engaged in nearly every vocation. What is the result? They take the place formerly occupied by men, at a much reduced salary. The consequence is that thousands of men who did earn good salaries are now filling the ranks of the army of the unemployed. Five thousand clerks, bookkeepers and stenographers were fed daily at the soup kitchens in Chicago during the winter of 1893-94, whose places are now filled by women. Had these men kept their positions they would have married, perhaps had a family of two or three children. The women who engage in these vocations do so at the expense of their domestic education.

I will now mention another cause of reduced natality—a cause that, did it not exist, we should have much less reason to look with alarm upon decreasing natality. I have reference to the common crime of abortion. So prevalent is this practice that I doubt if an audience of laymen of any size can come before a speaker, but that he faces some one who is guilty of this crime.

Charpentier relates an incident of a doctor in France who was indicted for this crime and confessed to having produced over five thousand abortions. Suppose that one-half of these had attained adult life. There would be enough to make a city of 2,500 inhabitants. Again, suppose that some catastrophe should happen that would kill every one of these people. What an appalling disaster this would be! The whole world would hear of it. Pages in the newspapers would be devoted to it. Every one would mourn the loss. But when one man slaughters 5,000 of the innocents, we only know of it as an incident of medical importance.

In France the practice is much more common in proportion to the population than in our own country, due perhaps to the lower moral status of the people. It is estimated that in France alone half a million abortions are annually produced. I have never seen statistics relative to the number in our own country.

Upon what the demographer based his calculations I can not say. The figures may or may not be too great, but we do know that were there no criminal abortions produced, there would be little probability of the race becoming extinct.

I have asked a number of physicians how often they are approached by persons desirous of having them produce abortions. The average was twice a month. Were this true the country over, this would mean that the physicians of the United States were asked 3,120,000 times a year to produce abortions. The same individual may ask twenty different doctors before finding one who will do the work. Millions and millions the world over are annually produced and we hear but very little of it.

I have now spoken of the principal causes of the decrease in the number of births. I might say I have diagnosed the case. Now, what treatment should

be employed? For one thing, this crime should be denounced by the clergy. How often have those of you who attend church heard scathing denunciations from the pulpit upon such minor crimes as the use of liquor, tobacco, etc., *ad infinitum*. Did any of you ever hear the crime of abortion mentioned, and yet I doubt if any minister can look down on his congregation when two-thirds of the pews are filled, but that there is some one within hearing of his voice who is guilty of this crime. A clergyman asked a doctor I know why he did not attend church. He replied he was in better company when with the loafers on the street. "How so, doctor?" said the clergyman. "Well," answered the doctor, "when in church I see so many who are guilty of having committed abortion, which is a form of murder, who seem to take such an active part in church work that it seems like a travesty on religion, and so I stay away. When I am with the loafers I am with immoral men, but not murderers."

The doctor may have been too hard on them or else he possessed an intimate knowledge of the community, but such is often the case; those whom you least suspect are most guilty.

It should be a part of the religious and moral training of every young man and woman to be made aware of the heinousness of this crime. Every mother who calls herself a Christian should teach her sons and daughters that it is murder and nothing else. Murder in its worst form, for it is unprovoked and premeditated. Better a thousand times had she who thinks of doing this crime let nature take its course and let her bury herself in obscurity, be she single, until she can again mingle with the world. France has many public maternities where these unfortunate women can go, and they use them too, for one of every eight children born in that country are illegitimate.

A true physician should consider it an insult to be approached by any one desirous of having him produce an abortion. Some doctors in refusing seem to apologize for so doing. It is within the power of the physician to do much toward stopping this practice of abortion, by showing up the criminal phase and the physical dangers.

The newspapers, the great educators of the people, should refuse to advertise for these abortionists who by carefully worded personal notices inform the unfortunate where they can get relief. In one issue of the Chicago papers, I found over a score such notices. Although it is against all law, yet no convictions take place worth mentioning and when they do it nearly always savors of blackmail.

The educational methods should be changed, so that the student may receive physical training and hygienic knowledge. You can not have a sound mind in an unsound body. A lack of domestic education leaves the woman unfitted to make a home what a home should be, and much discomfort and unhappiness may result from such ignorance. Girls should be taught that woman's sphere is, first of all, a domestic one; her first duty is to her family and her home. What man would desire a woman who knew nothing of domestic duties?

The tendency of people to flock to the cities is one of the things that work to decrease population and one of the hardest to remedy. Farm life is gradually becoming more attractive and we may hope that the future may change this migration. Thousands in

the cities are merely existing, who have strength and ability to prosper in the country if they would be willing to sacrifice their love for the city's hustle and bustle.

In France every method has been tried to increase the birth rate. A premium paid for each child born; taxes regulated so that the man with a large family would have less to pay; maternities established, but all in vain. Despairing of attaining an increase in birth, they now seek to preserve the lives of those that are born. Laws to preserve the little ones have been passed. It is a misdemeanor punishable by very heavy fines to give a child less than a year old any solid food, save by physician's orders. I doubt if legislation will ever do much to remedy these conditions. We can at best only hope that an evolution may take place, but for the present and immediate future, I think that the theories of Darwin and Herbert Spencer will hold good.

The increase of natality is in inverse proportion to the efforts of the individual to climb the social scale, and the development of a nation in numbers is in inverse proportion to the refinement and social ambition of the individual.

ENTERIC FEVER IN INFANCY.

Read in the Section on Diseases of Children at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY WM. B. NOYES, M.D.

NEW YORK.

The subject of typhoid fever in infancy is one which has been much discussed, recently and in former years, but it is brought up again for new study because of the great uncertainty which still exists in the minds of many in regard to its occurrence, the indefiniteness of most of the literature on the subject, and the very great importance which the exact knowledge of typhoid fever must always have in all its different phases.

In medical literature, recent and old, some authorities of high repute speak of having seen scores of cases in early infancy and childhood and consider the disease not uncommon. The other extreme is represented by Northrup, of New York, who is exceedingly skeptical of its occurrence in infancy. His belief is based on his experience in the last twelve years at the New York Foundling Asylum where 1,800 children constantly under observation living inside and outside of the hospital, liable to every possible exposure which New York city can furnish, have never at any time developed a single case in children under 3 years of age.

Dr. O'Dwyer, with twenty years' experience in the same institution, has seen nothing of it. The physicians of the New York Infant Asylum, a smaller but active children's service, have never observed it. The Nursery and Child's Hospital does not record it. The Children's Hospital of Philadelphia, the largest service in the United States, according to the statement of the resident physician, Dr. Page, has never had a case of typhoid fever in early infancy.

With these statements and the negative records of most institutions in this country in regard to the occurrence of typhoid fever at this age, you will realize that it is necessary to study very carefully the following statistics which I have collected from the entire medical literature on the subject, after which a careful discussion may enable us to reach more positive conclusions than have hitherto been possible:

I.—TYPHOID FEVER IN ENGLISH EPIDEMICS.

1. In London epidemics, according to the *British Medical Journal*, 1882, there occurred in 1870-71, 126 deaths under 5 years of age, or 18 per cent. of all cases. In 1880 there occurred fifty eight deaths under 5 years, or 13 per cent. of all cases. In 1881, eighty-three deaths under 5 years, or 8 per cent. of all cases.

2. In an epidemic in Stockport, England, 1890, there occurred 218 cases, 8 of which were under 5 years of age.

3. In Southend, Essex, from January to October, 1890, out of 152 cases, 65 per cent. occurred under 15 years, 13 per cent. under 5 years, including a male infant under 1, nine boys under 5.

4. Murchison reports in 5,911 cases of typhoid fever in the London Fever Hospital fifty-eight cases, thirty-four females, twenty-four males, under 5 years of age.

5. St. Thomas Hospital Reports record from 1878 to 1880, 3 cases under 5 years, out of 124 cases of typhoid fever.

6. St. Bartholomew Hospital Records from 1875-80 report out of 113 cases of typhoid fever 9 under 5, with 1 death.

7. Homerton Fever Hospital Records show an average of 2.4 per cent. of their cases of typhoid fever from birth to 4 years, 11.24 per cent from 5 to 9 years.

8. The Metropolitan Asylums Board, of London, representing nine fever hospitals record from 1871-93, 266 cases of typhoid fever under 5 years, with 33 deaths.

Of cases older they report: From 5 to 10 years, 1,143 cases, mortality 102, or 8.9 per cent.; 10 to 15 years, 2,019 cases, mortality 265, or 13.1 per cent.; 15 to 20 years, 1,955 cases, mortality 346, or 17 per cent.; over 40 years, 338 cases, mortality 96, or 29.3 per cent.

The Northwestern Hospital alone, from 1889 to 1893, had 101 cases of typhoid under 5, with 9 deaths.

II.—EPIDEMICS OF TYPHOID FEVER ON THE CONTINENT.

1. Gassicourt, out of eighty-five cases of typhoid in Hospital Trousseau, Paris, records three cases from 1 to 2 years, eight from 2 to 5 years, thirty-four from 5 to 10, of which fifty-five were mild, twenty-two moderate, eight severe, and four fatal, or 4.6 per cent. (*Rev. des Maladies de L'Enfance*, 1890.)

2. In Berlin, 1878. 623 deaths from typhoid were reported, of which 98 were under 5, 39 from 5 to 10, (Keating, *Arch. Pediatrics*.)

3. In Heidelberg, from 1861 to 1879, Roth in the *Arch. für Kinderheilkunde*, 1881, reports eighty-two cases in the Luisenanstalt and Polyclinic under 15, five under 5 (one in the first year, three in the second) thirty cases from 5 to 10. These are epidemic cases.

4. In Gerhardt's *Kinderkrankheiten*, vol. 1, page 50, Wolff states that in an epidemic at Erfurt, 23.6 per cent. of all fatal cases occurred in children. From birth to 1 year, 7.5 per cent; 1 to 2 years, 12.7 per cent; 3 to 5, 42 per cent; 6 to 10, 28.2 per cent.

5. In Basel, out of 2,213 fatal cases of typhoid fever, between 1824 and 1873, from birth to 5 years occurred 108 cases; from 6 to 10 years, 85 cases. (Same authority.)

6. Barthez and Rilliet (*Maladies des Enfants*) studied 1,113 cases of typhoid which passed under their observation; of these 90 cases occurred from 2 to 4 years, mortality 25 per cent.; 176 occurred from 5

to 7 years, mortality 26; 349 cases occurred from 8 to 11, mortality 37 deaths; 498 cases occurred from 12 to 15, 68 deaths.

7. Archambault (*Gaz. Med. de Paris*, 1880) out of 165 cases under 14, reports two cases at twenty-one months, nine from 2 to 4 years, seventeen from 4 to 6.

8. Griesinger out of 510 cases in Zurich, between 1850 and 1863, reports 3.3 per cent. between 1 and 9; 20.1 per cent between 10 and 20.

III.—AMERICAN STATISTICS OF TYPHOID EPIDEMICS.

1. Report of Board of Health, Michigan, 1884, records an epidemic of thirty-one cases, all but six under 9.

2. Pennsylvania Board of Health, in 1885, reported an epidemic of 1,071 cases, 220 cases under 10 years, including: 4 infants 1 year old; 14 infants 2 years old; 10 infants 3 years old; 24 infants 4 years old; 27 infants 5 years old; 31 infants 6 years old; 33 infants 7 years old; 42 infants 8 years old; 404 cases from 10 to 20 years, 260 from 20 to 30.

3. In Providence, R. I., in an epidemic in 1883, reported in the *Boston Medical and Surgical Journal*, 1883, out of 200 cases, 15 occurred between the ages of 1 and 5 years; 32 between 6 to 10.

4. In the Windsor, Vt., epidemic reported in the *Medical Record*, 1894, out of 130 cases, 24 occurred from 3 to 10 years; three cases under 3 years.

5. In the Montclair epidemic, 1894, to which I shall again refer, 115 cases, 8 being infants under 3 years of age.

6. In *Boston Medical and Surgical Journal*, 1888, Holyoke reports an outbreak of typhoid in the Home of the Boston Children's Friend Society of fifty children above 6 years, thirty-five were sick with typhoid; of fourteen children from 4 to 6 years, six were attacked; of ten under 4, one was attacked.

These statistics, selected with care from a mass of less reliable reports, absolutely prove that during epidemics, typhoid fever is very common in childhood, and that in the first five years of life it occurs in a regular proportion of cases quite as frequently as one would expect from the special diet and care infants receive. If we have been free to a certain extent from these epidemic cases in America, it simply indicates that we have guarded the children better than they have abroad.

IV.—DOES TYPHOID FEVER OCCUR IN INFANCY EXCEPT IN EPIDEMICS?

In the *Medical Record*, March, 1895, Stowell published an elaborate table of eighty-five cases under 3 years, representing all the available sporadic cases, of which the diagnosis is strictly reliable. Gerhardt gives a series of twenty cases, Henoch thirty-five; Earl, Christopher and all who have written on this subject have reported cases. Some are entirely trustworthy, others not. It is not of very vital importance for our discussion to give a detailed account of these isolated cases. The question is not whether cases of this disease have at rare intervals been observed, but whether in cases always passing before us, especially in the class of intestinal troubles with a continued fever, that appear so frequently in clinics and general practice in the summer, there are not quite often genuine cases of typhoid fever in infants overlooked.

The diagnosis wrongly applied may be malaria, gastro-enteritis, broncho-pneumonia, tuberculosis or

meningitis. For this reason a very careful consideration of the symptoms is necessary.

V.—PATHOLOGIC LESIONS.

A study of the ordinary lesions of typhoid fever as it appears in adult life need not detain us. In infancy, all the abdominal viscera will be found more or less congested. The spleen is enlarged and swollen to far beyond its usual size. The entire mucous membrane of the intestine is congested, especially in the Peyer's patches and in the solitary follicles, which increase in size through proliferation of the lymphoid cells, forming what Henoch and Reilliet called "plaques molles." This hyperplasia may be followed by fatty degeneration of the new formed cells, terminating in resolution; or it may develop into what they call "plaques dur," which indicate that an infiltration of the entire follicle and the tissues beneath has taken place. This stage may be followed by exfoliation of superficial epithelial cells, necrosis, ultimate formation of ulcers. This swelling of Peyer's patches occurs earlier in children than in adults and is sufficient to make the patches protrude beyond the mucous membrane in projections which are frequently the seat of little excoriations, which may later develop ulcers and sloughs, as occurred in twenty-nine out of forty-four of Gerhardt's post-mortem examinations. But in infants this simple hyperplasia generally clears up without ulcerations, which Vogel, Friedleben and other authorities claimed never to have seen under 5 years. Henoch found ulcers thirteen times in 23 autopsies out of 239 cases of typhoid fever in young children, and noticed that they were generally small, shallow, occupying a part instead of the entire Peyer's patch. All this process inevitably causes the mesenteric nodes to swell as in lymphatic infections in other parts of the body. The swelling is not a condition peculiar to typhoid fever. But it is more marked than in almost any other intestinal trouble.

The pathologic changes in the infantile cases, while distinct, are much less severe than in adults. It is a very interesting fact that in a series of animal inoculations with typhoid bacilli by Santerelli (*Annals de L'Institut Pasteur*, 1892-1894) the changes in the intestine and other viscera were almost identical with those we have just described in children. These experiments consisted of a series of inoculations of rabbits, guinea pigs, white mice and monkeys with pure cultures of the Eberth bacillus, and were followed by a second series of experiments of inoculations with sterilized filtered products of the Eberth bacillus. The results were similar in the two cases. Swollen hyperemic spleen, congested intestine, diarrheal intestinal contents, infiltrated and congested Peyer's patches, red and hypertrophied solitary follicles. Hardened microscopic sections of the intestine showed a change in the epithelial lining, especially, and detachment of masses of epithelial cells together, such as occurs in a poisoning by arsenic or other corrosive drugs. Enormous infiltration of Peyer's patches occurred, abundant accumulation of lymphoid cells in and around the follicles and invading the submucous spaces. This change was not a simple hypertrophy of lymphatic plaques, but a condition just short of a beginning purulent infiltration. No typhoid bacilli could be found in these Peyer's patches in the animal, but enormous numbers were seen in the adjacent lymphatic glands and in the

connective tissue of the mesentery. From these experiments, Santerelli comes to the conclusion that typhoid fever produced in animals is by preference an infection of the lymphatic system, and the toxin produced by the Eberth bacillus causes the anatomic lesions. These changes occur in all mucous surfaces and we should expect to find in both animals and in man, lesions in the mucous membrane of the mouth, larynx, bronchi and stomach with resulting symptoms, which occurs very frequently. Typhoid fever can no more truly be called a disease of the intestine than smallpox of the skin, though both have their characteristic lesions in those places.

V.—DIAGNOSTIC SYMPTOMS.

The symptoms in adult life are familiar. The following symptoms may be regarded as characteristic of the cases in infancy:

1. Any long-continued fever that will not yield to appropriate doses of quinin should suggest typhoid, especially if of gradual onset, high in the evening, and when no existing condition of the throat, lungs or bowels offers an explanation. It is more suggestive if remaining continuously high for several days, increasing a little each day for three or four days, yielding after several days of observation some resemblance to a typhoid chart. And if the continuous high fever is well borne by the child, as Jacobi first noticed, with so little prostration perhaps that the child will play around, it is still more suggestive of typhoid fever.

2. The second symptom is gastro-intestinal disorder, especially when a decided tendency to constipation is present; putrid stools, of an especially offensive character and odor, if there is diarrhea. These, when only seen on the diaper, may not look very different from the green spinach stools that occur in other diarrheas, because the fluid is soaked up on the napkin. If seen in a vessel, the thin, semi-fluid character, greenish-yellow particles, and all the characteristics of a typical peaseoup stool are present. If there is trouble with insufficient digestion of milk, the lumps of undigested casein or other food will somewhat change the appearance. The lack of acute symptoms of an intestinal nature is more characteristic of typhoid than are violent symptoms.

Henoch noted normal movements in 26 out of 233 cases, absolute constipation in 23, and in 184 cases, first, constipation, succeeded by diarrhea about the end of the first week. Vomiting may or may not occur. Loss of appetite is present from the beginning. A tongue coated with yellowish or brownish-white, or red at the tip and sides, sometimes moist, generally dry, will be noticed. It may be so heavily coated and the entire mouth so affected that a condition resembling aphthous stomatitis may be present, which in one case in the Montclair epidemic first led the family to call in a physician.

But the condition of sordes is far less frequent in infants than in adults. The tongue may vary from day to day, the excessive dryness of the tongue, with foul odor, the coating of the lips and gums, and rhagades is a later condition, keeping pace with the advance of somnolence and severe nervous symptoms.

3. In addition to the fever and intestinal symptoms, an examination of the skin may yield the lenticular rose spots familiar in ordinary typhoid. These may come early or late, or in two or three crops, and

are to be expected in most cases in children. Stowell found them in 66 per cent. of his cases. Cadet De Gassicourt in the same proportion. Earl in all his cases but three. Henoch in nearly all. Ashby in thirty-nine cases out of fifty, or 78 per cent. Roth in thirty-seven cases found them present, in forty-three absent.

4. Symptoms of headache frequently occur, which a baby will indicate by rubbing or picking at its head, nose or ears, or burrowing its head back in the pillows, but not by active cerebral symptoms, which would characterize meningitis. As the disease goes on, these head symptoms will frequently increase.

5. Enlarged spleen is very important when found, but not always to be accurately demonstrated in a young child, especially if tympanitis is present. A painful spleen is a more important point. The spleen ought to be felt below the border of the ribs to be pronounced enlarged, percussion not being a satisfactory test. According to Eustace Smith, it begins to enlarge by the sixth or seventh day and is soft and tender, the change being simply hyperemia, not a production of new tissue.

6. Tympanitis is sometimes excessive, but in most recorded cases moderate. This swelling is due to the accumulation of gas through decomposition of food and inability of the bowels to expel the gaseous contents in consequence of loss of nerve power or local injury from ulceration. The more ulceration the more distension.

7. Bronchitis seems to be as regular a symptom as in measles, agreeing with the pathologic changes, redness and swelling of the bronchial tubes generally found, but the breathing is, later, too superficial to make râles. It has been demonstrated that the bronchial mucous membrane excretes the Eberth bacilli and its products, or is at least irritated by it. The younger and sicker the children, the less the cough, as the sensibility of the mucous membrane is so blunted that mucus accumulates in the posterior and lower parts of the lung, diminishing resonance but causing no new real pneumonic dullness. Pneumonia in these cases is rare; Roth in eighty-four cases having four; Henoch very few.

8. The author has seen angina twice, and finds that Henoch, Eustace Smith and Parrot mention its occurrence in infants. In 6,500 cases of typhoid fever in St. Petersburg, Ouskow notes that in 5 per cent. of the cases there was marked redness or ulceration of tonsils. Gassicourt states that in the Paris epidemics, 1865 and 1882, sore throat was very common, but in other epidemics, 1876 for instance, it was rare. In the cases in children the occurrence of sore throat when found will generally confuse rather than help the diagnosis.

9. Epistaxis, according to Keating and others, is as rare in children as it is common in adults. I find it occasionally reported. Hemorrhage from the bowels seems to be rare in childhood and infancy.

10. Neither in children nor adults can the Eberth bacillus be demonstrated in the stools until the tenth to the twentieth day (Chantemesse, Santerelli;) it is doubtful whether reliable bacteriologists have as yet succeeded in demonstrating this in the stools in infants. A number of excellent authorities have never been able to do this even in adults. Though it has been claimed both in infants and adults, more recent methods make it doubtful whether older observers may not have at times con-

fused the bacillus coli communis with Eberth's bacillus. The stools will, from the outset, be swarming with all sorts of bacteria, especially the bacillus coli communis. It seems to be true that as the typhoid fever progresses, these ordinarily innocuous bacilli assume a more virulent character and multiply enormously, but if the Eberth bacilli can not be found in the stools in children, they frequently can be demonstrated in the lymphatic tissues and spleen. In the same way, in the animal inoculation experiments of Santerelli, the stools never seem to contain the Eberth bacillus, while the spleen and the lymphatic system have numbers.

11. The study of the blood in typhoid fever may yield some results of value. It will certainly exclude malaria. I note results reported by Loisan, Simonin and Arnaud, of examination of blood from the finger in 241 cultures made from 65 adult typhoid patients. In a few cases the Eberth bacillus was found alone or associated with staphylococci. In forty-five cases, staphylococci alone were found. (*Rev. de Med.*, April, 1893.) But the Eberth bacillus is not a regular blood parasite, being in all cases found much more abundantly in other parts of the body. These authors have also pursued similar investigations in fresh urine and in the buccal secretions, finding Eberth bacilli in a few cases.

12. There are not commonly marked kidney symptoms, though transient albuminuria in the second week or after the end of the fever may occur.

13. Relapses are infrequent, but at times occur.

14. Ehrlich's test, which is yielded only by typhoid miliary tuberculosis, septicemia and cancerous cachexia may assist in the diagnosis.

COURSE.

The disease seems to appear in three forms; an abortive type of short duration, a type resembling ordinary adult typhoid lasting about three weeks, and a malignant or prolonged form. These bear to one another about the same relation as varioloid, ordinary variola and malignant variola in its more fatal form. The cause of these variations may be the anatomic difference in the extent of the lesions, *i. e.*, whether there is simple congestion, or some considerable infiltration of new cells, or ulcerations varying in size, depth or number. But going further than these gross changes, the occurrence of the Eberth bacillus alone, or its occurrence together with other pathogenic microbes and their ptomaine products, may be the more important condition which determines in which of these three forms the disease may appear. In other words, not how extensive is the change in the coats of the intestines, but how much actual poisoning is taking place? And if the lymphatic theory of the disease is true, the intestinal changes are merely the result of the severity of the disease, not the cause.

The convalescence in children is, as a rule, quicker and less complicated. It is evident from the different series of cases of typhoid in childhood that autopsies are not very abundant. Stowell in his list of eighty-five reliable cases records but twenty-four autopsies. Hoelscher reporting 2,000 typhoid autopsies in the *Munchner Med. Wochenschrift*, January, 1891, reports but eight under 10 years, two being babies of two and nine months respectively. Even in epidemics affecting many children, very few deaths occur. This seems to me to indicate that, as a rule,

typhoid is a much milder disease in childhood than in adult life, as many infants may pass through it with less severe and distinct symptoms than adults present.

Out of 265 cases of typhoid fever treated in the Manchester Hospital for sick children, Ashby noted a frequent tendency to an abortive or two weeks' course. While from 2 to 12, the mortality was 10 per cent., he found as a rule, that the children were rarely acutely ill. Though indicating their disease with rose spots, remittent temperature, rounded abdomen and other symptoms, they would frequently be playing around the room and show little prostration.

Jürgeson, in the Transactions of the Sydenham Society, makes a study of eighty-seven cases of abortive typhoid, sixteen terminating from fourth to seventh day, nineteen from eighth to tenth, twenty-four from eleventh to thirteenth, twenty-eight from fourteenth to sixteenth. He holds that if the pyrexial state lasts longer than the twenty-sixth day it is probably due to a progressive ulcerative enteritis. Henech, out of 190 cases in which he could calculate from the beginning with some degree of certainty, found 11 cases that lasted from seven to nine days, 11 cases ten days, 17 cases eleven days, 8 cases twelve days, 45 cases thirteen to fifteen days, 15 cases sixteen to seventeen days, 25 cases eighteen to nineteen days, 39 cases twenty to twenty-three days, 14 cases twenty-four to thirty days, 1 case thirty-five days.

Gerhardt regards it absolutely demonstrated that these abortive cases are frequent, indicating a light and incomplete working of the typhoid fever on the infant organism. He holds that it is characterized by some degree of suddenness in the onset, at times beginning even with a chill. And this, with the rapid increase of the temperature, seems to portend something of a dangerous nature. The spleen swells early, roseola comes early, and the abdomen is usually protruded and sensitive. The fever may drop rapidly and the child soon become convalescent.

Reilliet and Barthez in *Maladies des Enfants*, in 837 of their cases of typhoid in young children which recovered, find a longer duration; 47 lasting from eleven to fourteen days, 298 lasting from fifteen to twenty-one days, 317 lasting from twenty-two to thirty-one days, 133 lasting from thirty-two to forty-five days.

In the 143 fatal cases which they report, 4 lasted five days, 6 lasted two days, 33 lasted eight to fourteen days, 40 lasted from twenty-two to thirty-two days, 18 lasted from thirty-two to forty-five days, 12 longer.

Yet the diagnosis of these abortive cases must inevitably and at all times be difficult, from the insidious onset and irregular character of all the symptoms, and for awhile, at least, if there is diarrhea, a diagnosis of gastro-enteritis will adequately explain all symptoms; if there be constipation, or merely occasional movements of altered or putrid stools, a diagnosis of ptomaine poisoning from some undigested fermenting substance in the intestines will also account for all the symptoms. And this is not really a false diagnosis. It merely does not state what is the bacterial agent that causes this ptomaine poisoning.

To illustrate this, I will give a history of a case of my own already published. (*Medical Record*, July, 1894):

An infant aged eleven months was brought to me (had been staying for a ten days' visit in Montclair, N. J., where he had been weaned and fed on unsterilized cow's milk diluted with barley water. On his return to New York he was fretful, restless and had a slight temperature of 102 degrees, attributed by his mother to cutting teeth, but had nothing else characteristic in his condition. Slight bowel trouble with colic. For two days he seemed to improve a little, though still with a slight fever; on the third day the temperature was 102.6 degrees, A.M.; 103.8 degrees, P.M., and for the first time he appeared very sick. Moderate diarrhea with colicky pains, coated tongue, occasional vomiting, negative chest signs. Diagnosis; gastro-enteritis. On the fifth and sixth days the temperature was 102.6 A.M., and 101 P.M. Frequent stools of foul odor, tongue coated white, with red tip and sides. Lungs gave only physical signs of bronchitis. Great fretfulness. Hands brought frequently to head, as if suffering great pain. There were no other definite symptoms.

After another day of slight improvement the child was taken back from the city to Montclair. During the two weeks which had elapsed since he had left Montclair, about fifty cases of typhoid fever had developed, and this time it was publicly recognized that the origin of every one of these cases was due to one cause alone; the polluted milk served to the families in all cases by one dairyman, who had himself had two cases of typhoid in his family one month before, and had infected his well and washed the cans and bottles, if not watered his milk, with the infected water. The baby had fed for ten days on this milk. The combination of symptoms which the child had developed, of high and continued fever during the past week, the tongue with clean margin, the character of the stools, the absence of other symptoms, all suggested a diagnosis of typhoid fever. On the eighth day temperature was 104, pulse 160, respiration 25, stools four. Rose spots appeared on the abdomen very distinct, disappearing on pressure.

A second case of typhoid, the nurse of the baby, was detected at this time. She had used the same infected milk. A third case of an aunt of the baby appeared a day after, and other cases in the neighborhood and milk route to the number of 150 occurred.

From this time the case followed a fairly typical course, with exceptionally severe nervous symptoms. Death in fourth week from exhaustion.

I failed to make a diagnosis of this case, until confirmed by the epidemic, and yet it seemed to me that this history of the early symptoms has something characteristic in it which will help in making diagnoses, in an abortive case that goes no further than the first or second week.

The later history in this case followed a course which I find not at all uncommon in recorded cases of typhoid in infancy, characterized by certain symptoms which simulate meningitis. At the beginning of the third week, following a little gastric irritation, vomiting and general irritability increased, the temperature rose 4 degrees. There developed a stiffness of the neck and back which reached, after a time, a condition of opisthotonos. Incoördination and continued movement of the eyeballs, great hypersensitiveness to sound, light and touch especially in the head. Irregular and at times convulsive movements especially marked in the left arm and leg. Continued twitching of the fingers, a peculiar cry, a rapid, feeble and irregular pulse, 160 to 180, rapid respiration. This seemed almost certainly an acute meningitis. Careful examination of the case, and consultation with one of the most reliable authorities on children's diseases in New York, made it seem probable that this was not an acute meningitis: 1, fontanelle was not elevated; 2, the child was bright enough to take notice of its surroundings; 3, no tache-cerebral; 4, no boat-shaped abdomen; 5, no expulsive vomiting; 5, photophobia, hypersensitiveness to sound, were not sufficient. The entire condition, acute as it seemed, was judged to indicate a passive congestion of the brain caused by the weak heart, and an attempt was

made to remedy this condition by heart stimulation which proved successful after a few hours, there being no return of those cerebral symptoms during the remaining days of the case.

This history suggests cases of Henoch with tremor, and stiffness of the extremities with frequent jerking or twitching, which showed no brain lesion at the autopsy. Also one where there was contracture of both legs and right arm and continued grinding of teeth. Autopsy with only slight changes in the brain; also one of a little girl who showed distinct stiffness of the neck, later, actual opisthotonos and marked contracture of the neck, but on autopsy showed no brain lesion. Another case in the Montclair epidemic of Brown, which I reported with other cases in the *Medical Record*, 1894, showed marked nervous symptoms, great restlessness, tossing of head from side to side, rigidity of muscles of neck, opisthotonos, almost complete blindness for five days, strabismus at times, hydrocephalic cry, complete recovery after twenty-eight days.

In Gerhardt's *Kinderkrankheiten*, Soltmann speaks of this condition. After intestinal symptoms have almost entirely disappeared, symptoms indicating motor irritation, such as twitching, contractures, light convulsive symptoms, later genuine convulsions, succeeded by stupor as death approaches; even aphasia and paralysis have been noted. Autopsy in these cases excludes meningitis, as well as encephalitis or neuritis. The observers agree in considering the actual cause to be anemia or a diseased condition of the blood, or else excessive weakness in its circulation.

Simon (*Gaz. des Hopitaux*, 1886,) thinks that the congestion always present in spleen, lungs and other organs in these cases of typhoid is always more or less present in the brain, cord and meninges, and he thinks that edema of the brain is the chief cause.

Reilliet and Barthez (*Maladies des Enfants*) refer to a case at fourteen months, with convulsions, preceded by general irritability, agitation, strabismus, contracture of the neck and limbs, a condition which lasted three days. Autopsy indicated sero-bloody effusion in and under the arachnoid. Of their 143 fatal cases, 5 showed thick serous exudate, adherence of membranes, softened brain substance, or, in other words, were genuine meningitis. In nearly all cases of this nature on record, however, simple hyperemia is all that the autopsies develop. These cases all belong to the third or malignant type. The condition is more than a simple change in the circulation or in the character of the blood. It means a more or less absolute overwhelming of the nerve centers by a poison, whether this be the product of the Eberth bacillus or other bacteria.

There are a large number of cases of typhoid in infancy reported from time to time, with inconclusive clinical histories, which are very definite on the subject of the changes in the intestine found on autopsy, which are called "undoubted typhoid lesions," because they yield swollen and ulcerated Peyer's patches, enlarged mesentery, lymph nodes and other similar changes. Are these lesions always peculiar to typhoid fever, or do they occur in other intestinal diseases? Northrup exhibited to the New York Academy of Medicine, an intestine showing all these changes coming from a child sick for only a few hours with some acute trouble, positively not typhoid fever. He asserts that he has frequently met with this condi-

tion in autopsies. Dr. Seibert agrees with him. He explains, and I think justly, many of the so-called typhoid lesions in this way. It is desirable that a very careful consideration of pseudo-typhoid intestinal lesions be made, for it brings up a condition which is not recognized by our existing classifications of intestinal diseases. It is not impossible that the name, enteric fever, if it does not include more than one distinct disease, may possibly be a disease of more than one cause. That is to say, beside the cases undoubtedly caused by the Eberth bacillus, there may be other elements at work, whether bacillus coli communis, or the bacteria connected with milk infection which produce an analogous condition. Whether it will, at a later day, become possible to clearly distinguish these divisions is impossible to say.

The later stages of typhoid fever after the formation of ulcers when they exist, are essentially a septicemic condition from the poisoning by various bacteria and their ptomaine products, but more especially by streptococci. It is certain that, as the disease progresses, the Eberth bacillus becomes less numerous and the streptococci and staphylococci more numerous. The picture of the disease, then, is indistinguishable from the condition so common in severe, long-continued gastro-enteritis, or milk infections which we observe in summer.

Vincent, in the *Annales de l'Institut Pasteur*, 1893, studies this later and secondary condition of infection by a combination of Eberth bacilli and streptococci. In the bacteriologic examinations from the spleen and other organs, in thirty-one autopsies of typhoid cases he found six times streptococci associated with typhoid bacilli. He regards the typhoid patients peculiarly exposed to streptococci infection, since the system in a great measure has lost its resisting power, and only an angina, parotitis, otitis, or some other source of pus is needed to start this double infection. Even the saliva contains numerous streptococci, and ulcers in the intestine may permit absorption. Furunculosis is common.

He examined forty-one abscesses occurring in typhoid cases, and in thirty-two he found staphylococci, pyogenes aureus or albus, and found that these cases happened to recover. In eight cases he found the Eberth bacilli also, five of which cases died. He claims from his test that typhoid bacilli and streptococci, combined, cause a more virulent poisoning and thus a special danger to the patient. In a fatal case of typhoid fever with rose spots and clear history, on autopsy he found very slight lesions in Peyer's patches and intestinal follicles, spleen not much swollen, and in the different organs typhoid bacilli and streptococci.

In a series of animal inoculations he found that injection of the Eberth bacilli cultures, alone, was followed by an active phagocytosis, but injection of Eberth bacilli and streptococci together was followed by no phagocytosis, the animal eventually succumbing to this double infection. This, though only a limited work, opens up a new field of investigation in typhoid fever, and a possible explanation of its characteristic course and exceptional features.

Our present state of knowledge will perhaps enable us to decide that these aborted and short cases, with their early symptoms as described, are more purely the result of simple infection by the Eberth bacillus, while the later course, in common with the condition occurring after gastro-enteritis or milk infection, may

become a simple streptococci infection or a septicemic condition.

This conclusion is simply analogous to conditions present in other diseases.

The severity of an attack of diphtheria varies largely in proportion to the extent the infection by the Löffler bacilli is complicated by streptococci.

In scarlet fever the same is true, and in tuberculosis of the lung, as Prudden has so forcibly demonstrated, the lesions and symptoms vary according to the complication of tubercle bacilli with streptococci.

In conclusion, we would once more emphasize that typhoid fever in early infancy in a typical form is rare in this country, though not uncommon abroad. It is in a mild or abortive form that we must look for it here, if we wish to separate it from other intestinal or meningeal diseases that may appear.

And, lastly, when we have a case which is severe and prolonged, we may see in it not the result of the simple infection by the typhoid fever bacilli, but a complication by other pathogenic bacteria.

162 W. 73d Street.

TYPHOID FEVER IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Typhoid fever is the same disease, is produced by the same causes and is governed by the same laws, at whatever time of life it may occur, from earliest infancy to the frailest anility; modified as it may be, by age, by organic development, by concurrent affections, or by extrinsic causes, and probably by the quantity of poison ingested. In the child as in the adult, it is caused by the same morbid influence, which can be neutralized by the same antidotes. In either instance the patient should be regarded and treated simply as the container of the specific poison.

It follows, that notwithstanding the minor modifications which the character of the disease may undergo, on account of age or other causes, that it is amenable to practically the same curative treatment in infancy as in adult life.

I must, therefore, make the same declaration here that I have made in every medical society before which I have discussed typhoid fever since 1880, viz., that every case can be aborted and that death is a wholly unnecessary consequence of the disease; and farther, that these results are attainable by a treatment so mild and gentle that, should the newborn babe be given the dose intended for a robust manhood, no harm would result; or should the child, overfond of its medicine, take at once the portion intended for fifty doses, it need cause no anxiety.

Yet, symptomatically treated, typhoid fever is one of the most serious affections of infancy and early child-life; and in the most alarming forms of the disease, in which the fever rises rapidly to an excessive height and the nervous symptoms point to some grave cerebral lesion, the true character of the ailment is rarely recognized in time to benefit the patient. Indeed, in a very large majority of these cases a correct diagnosis is never made. Therefore, while treating of typhoid fever in the adult, my pleading has always been for an *early* diagnosis. In discussing typhoid fever in children, the burden of my plea must be for a *correct* diagnosis; since the disease in babyhood is so frequently overlooked.

While Murchison and other eminent authorities have recognized and acknowledged the possibility of the occurrence of typhoid fever in earliest infancy, and even during utero-gestation, yet neither the best text-books, the teachers in the medical colleges, nor the general practitioner have realized how frequently the disease occurs in desperate forms during early childhood.

Reynolds' "System of Medicine" devotes more than seventy-five pages to typhoid fever and does not mention the disease in children in the whole article. Pepper's "System of Medicine," in five large volumes, justly praised wherever the English language is spoken, yields less than two dozen lines out of more than one hundred pages on typhoid fever to the disease in children. Professor Osler, whose "Principles and Practice of Medicine," is perhaps more largely quoted than any other work on the subject, disposes of typhoid fever in children in less than one dozen lines, and this is the author who said: "Cases (of typhoid fever) coming on with severe headache, photophobia, delirium, twitching of the muscles and retraction of the head are almost invariably regarded as cerebro-spinal meningitis." And again: "I have thrice performed autopsies on cases of this kind, in which no suspicion of typhoid fever had been present; the intense cerebro-spinal manifestations having dominated the scene. . . . Cerebro-spinal meningitis is, however, a rare disease; typhoid fever a very common one, and the onset with severe nervous symptoms, is by no means infrequent. Fully one half of the cases of the so-called brain fever belong to this category."

But while medical literature has recognized the possible predominance of the nervous symptoms of typhoid fever in the adult, it has failed to give due warning of the frequency with which these symptoms occur as the most prominent manifestations of the disease in early childhood, an omission which has been responsible for many errors in diagnosis and treatment.

In the first number of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for this year, a distinguished professor of the diseases of children, says that: "It has been my good or ill fortune to see during the past ten years, a number of cases in children under the age of 2 years, which presented mild intestinal disturbance, no marked tenderness over the bowels, a very high temperature, and where the apparent cerebral complications, delirium and stupor being prominent symptoms, were the apparent cause of death. In these cases, in the death certificate, the cause of death was usually given as congestive fever or meningitis. Two of these cases occurring within the past year, in both of which the post-mortem examinations revealed a pronounced error of diagnosis, has emphasized in my mind the thought that typhoid fever exists more frequently in early child-life and in a serious form than is generally suspected. I present the following case:

"A little girl of eighteen months, the child of a very prominent physician, was taken sick early in May, with marked intestinal disturbances; the evacuations from the bowels were frequent and copious, accompanied by mucus and blood. The temperature ranged from 102 to 104, and on one occasion reached 105 degrees. There seemed to be a history of acute indigestion. The usual treatment was applied in this direction, and the temperature was controlled by

cooling baths. Flushing of the colon with medicated warm water was applied, followed by starch water injections containing a few drops of laudanum, for the purpose of calming and reducing the frequency of the operations which interfered with sleep. During the early part of the attack, the child, though having frequent operations, was noticed to be calm and gave no evidence of pain. Not until the fourth day, however, was marked obtundity observed and the staring appearance of the eyes, together with the indifference to surroundings, impressed me with the fact that there was a cerebral complication. The course of the treatment was continued and the supposed cerebral complication became more pronounced. Inability to distinguish light or sound, and a crossing of the eyes, apparently justifying a diagnosis of meningitis. The child died about the tenth day. Post-mortem examination developed the absence of meningeal inflammation and the presence of ulcerations of the glands of Peyer, showing us, the physicians in attendance, how little we knew of the cause of death."

The author adds: "The indications for treatment were the same. A recognition of the disease in advance would probably have made no difference."

I have quoted thus largely from this paper because it is really a valuable contribution to medical literature, and I honor the learned author for giving less enlightened members of the profession the benefit of the many sad experiences which have finally opened his eyes to the fact that he has been stupidly floundering in his differentiation of diseases, albeit he has yet to learn of his greater deficiency and gross culpability in the treatment of typhoid fever. I forego all criticism on the long years and the number of pronounced errors of diagnosis which were required to implant in his mind a just conception of the vast number of children who must die annually of typhoid fever, after having been treated by the average practitioner for acute indigestion and later for meningitis, and finally are buried under a false death certificate. If this article, by one of the world's most distinguished professors and medical editors, truly represents the practice of the class to which he belongs, it paints a sad picture of the little victims of typhoid fever who were so unfortunate as to have come under their skillful care. It presents to our view what costly mistakes these illustrious gentlemen make, and yet the author eliminates but one or two of the diseases with which, in infancy and early childhood, typhoid fever is so often confounded.

With our present knowledge of the causes which produce typhoid fever, and the susceptibility of young children to their influence, taken in connection with the exceedingly limited number of cases of the disease, which are reported to the various health departments in our cities, where the disease prevails, it must be evident that the eminent writer of the paper quoted is not the only physician who should have had the fact emphasized in his mind "that typhoid fever exists more frequently in early child-life and in a serious form than is generally suspected."

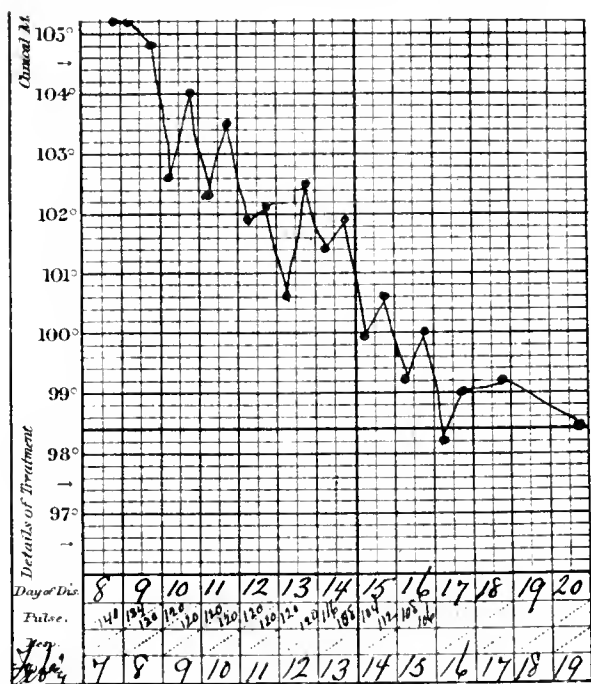
I have, in consultation, seen typhoid fever in young children mistaken for malarial fever, pneumonia, cholera-infantum, teething and even for worms, in addition to meningitis and acute indigestion.

The diagnosis of typhoid fever in children as in adults, should be made by reasoning by exclusion, and if thus the disease can not be eliminated from

the patient's possible ailments, the case should be treated as typhoid fever; because no other disease is so insidious in its character; because no other disease is so amenable to treatment in its earlier stages and so intractable after its anatomic lesions have reached a certain stage; because it is so often impossible to make a positive diagnosis in time to save the patient's life; and, finally, because the best treatment we yet know for typhoid fever not only fulfills both of the requirements of Hippocrates—it is curative, it is harmless in health or in any pathologic condition at all resembling the disease for which it is instituted.

I learned the importance of making a correct diagnosis in typhoid fever many years ago, and in 1881 I was taught a lesson on the management of the disease in children which I shall never forget.

Little Gracie Wick, aged three years and ten months, was taken sick on December 14. Her temperature on my first visit was 105 degrees. In fourteen days she died of typhoid fever. A few weeks later her younger



Annie W., age 3 years; date of admission, Feb. 7, 1895.

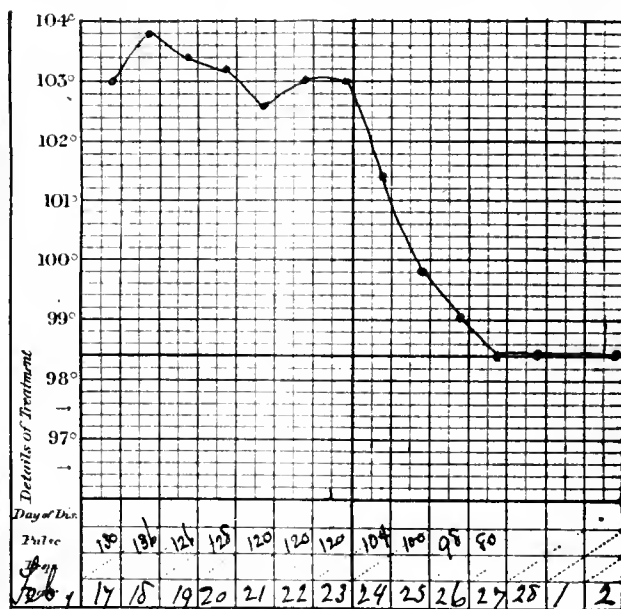
sister Emily, aged two years and ten months, was attacked by the disease, which ran a parallel course and ended in death, again on the fourteenth day. Both children presented abdominal symptoms. In both, the nervous symptoms predominated. Both had opisthotonos, and both died the victims of almost criminal stupidity on my part. They were my last two fatal cases of typhoid fever and to-day should I be called as promptly as I was then, they would have been in no danger of dying.

Looking back to those gloomy days, I can not realize why I let those children die, for I knew well enough how to treat typhoid fever in adults even then. I made a very inadequate effort to assuage the pangs of conscience, by calling two of the oldest and ablest physicians of the city in consultation, after the time had passed when counsel could have been of any avail.

As a marked contrast to the sad picture portrayed by the death of these little ones, my last two fatal

cases, I wish to present the clinical charts of a few of the cases of typhoid fever I have treated during the intervening years and relate the annals that have been kept of them, and as an addendum give the records of a few cases treated by other physicians, by that which, for want of a better name, I have designated antiseptic medicine, for it is antiseptic medicine, and it is also something more.

Case 105.—Annie W., aged 3 years. (Cousin of Case 78, John J.) I was called to see this patient on February 7, and given the following history: she had been sick eight days, had been treated by an irregular physician, under a diagnosis of malarial fever until the parents, alarmed by the severe symptoms, continued high fever and the enormous tympanic distension, questioned him closely as to the nature of the disease, finally eliciting from him on admission that it might be typhoid fever; when he was promptly discharged. I found the temperature 105.5 degrees, pulse 140, on the evening of my first visit and the same the next morning, the parents having about given up hope, as the child was thought to be dying twice during the night preceding my first visit. There was marked impairment of vision, deafness, and well-marked retraction of the head. When asked if I entertained any hope for the life of the child, I gave my usual favorable prognosis saying: "I think the child will recover and she certainly will if she survive the next forty-eight hours." She had intestinal



Sarah J., age 13 years; date of admission, Feb. 17, 1895.

hemorrhage, which in my experience is rare in young children. She also lost all power of speech, her lower limbs were paralyzed, she had just recovered from whooping cough, which returned to plague us during this attack of typhoid fever, in spite of which she made a good recovery. Her temperature, as you will see, touched normal on the tenth day of treatment, but went up slightly again on the eleventh day. On the thirteenth day the temperature and pulse were normal and the patient was discharged, and ten days later was in more robust health than before her illness.

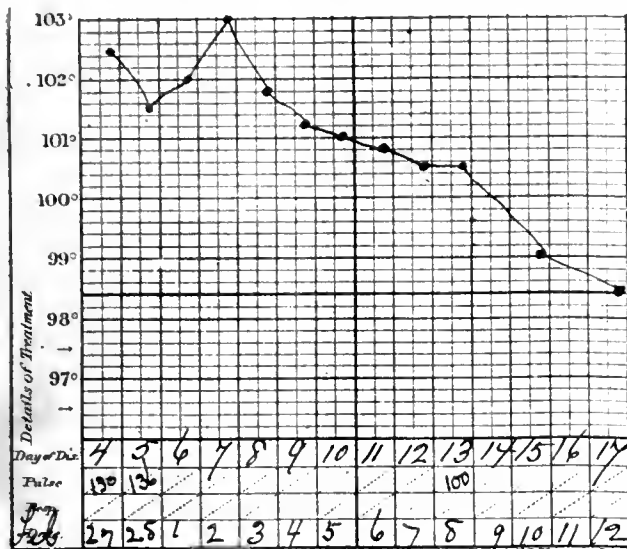
Case 111.—Sarah J., aged 13 years. (Cousin of Case 105, Annie W.) When I first saw this case her temperature was 103 degrees, pulse 130. The next evening it was 103.8 degrees with a pulse of 136. I gave my usual prognosis—ten or twelve days of illness—no danger. Her temperature touched normal on the tenth day of treatment. This case was an exception to the almost invariable rule commented on by so many observers, that after this so-called antiseptic treatment of typhoid fever, almost as soon as the temperature touches normal, the patient is in better health than before the illness. This patient had had some stomach trouble before her illness, and although she recovered quickly from the fever and her appetite was better than usual, for a week or two, she has since been to my office several times for treatment of her old trouble.

Case 112.—Florence J., aged 11 years. (Sister of Case 111.) On February 27, the temperature of this patient was 102.5, pulse 130. Three days later it was 103 degrees, from which time it declined to normal on the thirteenth day of treatment, the patient being in good condition and having an excellent appetite.

Case 113.—Blanche J., aged 5 years. (Sister of Case 112.) This patient had temperature of 101.5 on March 2, with a pulse of 128. On the third day of treatment it was 104 degrees, from which point it declined to normal on the eleventh day.

I am not infrequently called to see young children, especially in consultation, in the late stages of typhoid fever, when no suspicion of the character of the disease had been aroused, but in which the symptoms are so distinctive that no trouble should have been experienced in making an accurate diagnosis. One case of this sort which had been, however, under the care of an irregular practitioner was

Case 98.—Margeret O., aged 2 years. I found the child lying in a cradle, in the corner of the kitchen, between the wall and the cooking range. She was moaning pitifully and sometimes screaming violently; her head was retracted and turning rapidly from side to side. A diagnosis of brain fever had been made. The temperature was 106 degrees; the bowels very tympanitic and the stools very frequent. Taking the necessary steps in the order of their importance, I first



Florence J., age 11 years; date of admission, February 27.

dropped a little powder (to be described hereafter) on the child's tongue; I then ordered the cradle to be moved as far as possible from the fire, and had the child sponged and ordered that the powder be given every fifteen minutes. Later in the night I visited the child but found little change in its condition. The next day I visited her three times and that evening the temperature fell to 105 degrees. The following day the symptoms began to improve rapidly, and she made a quick recovery, being well in ten days.

While visiting this child on the second day, I saw a younger child sitting in a suspicious position and when it moved a bloody stool remained. Glancing around the floor I saw two or three others, which though small were quite apparent. I asked the mother to explain and her answer was brief and to the point: "I declare to goodness he's been doing that all day!" Upon examination I found the child with a very rapid pulse and a high temperature. The recovery of this child was somewhat tedious, owing to the advanced stage of the disease when I was able to begin treatment.

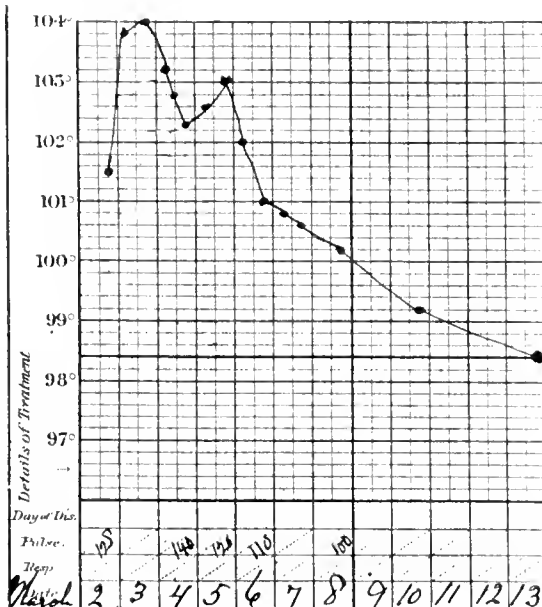
One of the most prominent physicians in Chicago, (a gentleman who was long at the head of Cook County Hospital, and was for many years one of the most highly esteemed professors in the foremost medical college in that city so noted for its clever and accomplished preceptors, and whose name is cut in the corner-stone of the college, as one of its founders) has

done me the honor to write me several letters of inquiry (he is altogether the best questioner with whom I have ever corresponded) in regard to my method of treating typhoid fever. He has favored me with the reports of several cases treated since our correspondence began.

Case marked—"Dr. McWilliams No.—Helen McC., aged six years and three months. She was taken sick, as you will observe, while away from home at a summer resort. A diagnosis of typhoid fever was made by a local physician, and on the tenth day she was sent home to be under the care of the family physician, Dr. McWilliams. Her temperature was 106 degrees the first day that the Doctor saw her and on the tenth day she was sitting up, dressed, enjoying 'Judge,' 'Puck,' etc."

Dr. Cunningham, of Youngstown, reports the following:

Case marked "Dr. Cunningham No.—Ella G., aged seven months. She was under the care of three different physicians, before I saw her in consultation.



Blanche J., age 5 years; date of admission, March 2, 1895.

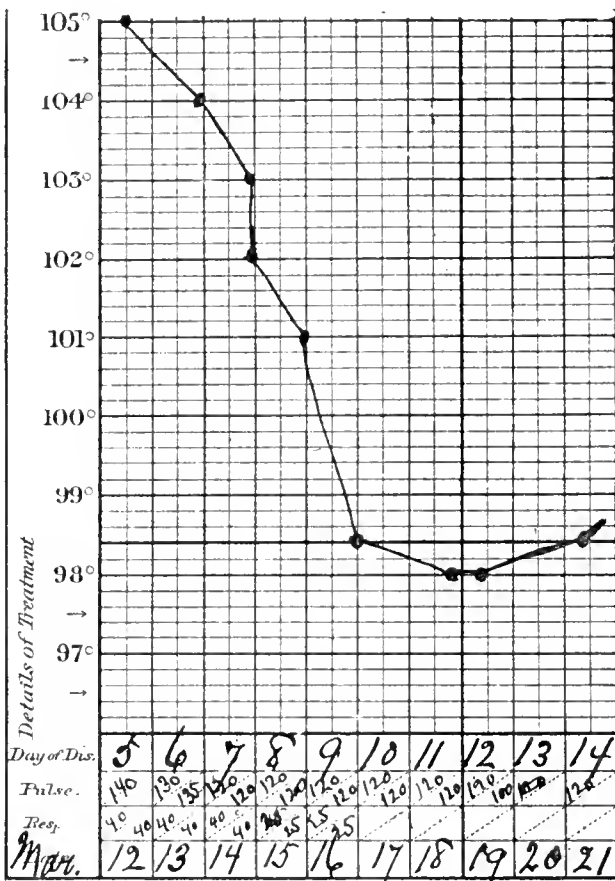
The first physician (according to the statements of the family) made a diagnosis of whooping cough; the second physician said it was meningitis." The child growing worse, Dr. Cunningham was called and made a diagnosis of typhoid fever. When the temperature went to 105 degrees he called me in consultation. The chart indicates the rapidity with which the child recovered. The correctness of the diagnosis was corroborated a few weeks later, when the mother of the child (see chart marked Dr. Cunningham No.—Mrs. G.) had an attack of typhoid fever, from which she recovered; and the uncle (see chart marked Dr. Cunningham No.—James K.) died of shock, resulting from an intussusception, occurring after he was almost well from an attack of typhoid fever.

Dr. C. N. Udell of Iowa, kindly sent me a report of twelve cases of typhoid fever, and one of cholera-infantum treated by my method, with excellent results from which I extract the following record of cases of typhoid fever in children:

Case 8.—S. B., male, aged 9 years. Was taken with chills

fever, headache, vomiting and some abdominal pains. Treated by the family for ague. I was called after the boy had been sick eight days. Found the temperature 104.6 degrees, skin dry, tongue very dry and red, dirty gray fur in center; very nervous; hyperesthesia, delirium, a papular rash, secretions locked. Gave to this boy Nos. 1 and 2 for two days; repeated it at short intervals. Then No. 1 for three days; No. 3 for four days. Discharged patient on ninth day. In this case, as in all others, I insisted on frequent sponging of the body, frequent change of linen, good ventilation of the sick room, same food given at regular intervals, etc.

Case 10.—N. S., male, aged 8 years. Had an intermittent fever. Prescribed c. cath. pills and quinin without seeing patient. Continued sick and weak; no improvement. Visited the boy and found temperature 104 degrees, skin dry, suppression of urine; very weak, headache, and general aching; some delirium, very foul breath, heavy gray fur on tongue with edges red, sordes on teeth, a good deal of tympanitis, some eruption, and sudamina. Diagnosis: septic fever, or paludal typhoid.



Ella G., age 8 months; date of admission, March 12, 1895.

Gave R. No. 1 and No. 2. After three days gave R. No. 3. On the seventh day gave Nos. 1 and 2 again. Then No. 3 for about one week at longer intervals. Patient discharged well.

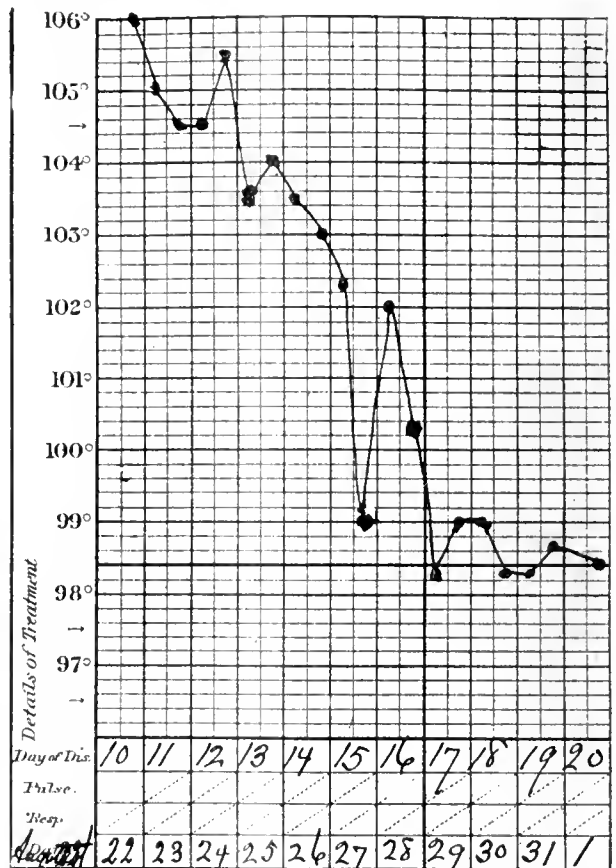
Case 11.—D. H., male, aged 2 years. Was sick with diarrhea, high fever, very restless, abdomen puffed, vomiting, and furred tongue with foul breath. Gave baptisia tinct. R. No. 3 in minute doses. Recovery in five days.

Case 12.—E. P., aged eighteen months. Hygienic surroundings very bad. Child had cholera infantum with very offensive stools. Gave R. No. 1 in very minute doses every half hour. Had the child kept as clean as possible, and that was not very clean. The child recovered speedily in spite of bad nursing.

These cases illustrate the admirable results which may be invariably obtained and even confidently predicted, when proper treatment has been instituted at a sufficiently early stage of the disease and intelligently and energetically prosecuted; and they by

contrast, serve as a warning against the danger of mistaking the nature of the most common, the most dangerous and by far the most frequently overlooked cases of typhoid fever in children, viz., those cases in which the nervous manifestations are in the ascendant; those cases which are diagnosticated as brain fever, meningitis, or cerebro-spinal meningitis. These are the cases in which an inaccurate diagnosis is most liable to occur and which is so often followed by such disastrous results.

As long as the best treatment for typhoid fever, known to the medical profession, aimed only to ameliorate the most perilous symptoms as they presented themselves, it did not, perhaps, greatly signify when an exact diagnosis was made, or indeed, whether or not it was ever correctly made, but we are approach-



Helen McC., age 6 years and 3 months; date of admission, Aug. 22, 1894.

ing a more enlightened era. In reality, the day has even now dawned upon us in which the treatment to a fatal end, of a case of typhoid fever with a temperature of 105 degrees, as a case of indigestion, with inefficient antiseptic medicine, starch and laudanum injections, and cooling baths, is no longer admissible.

The physician who respects the Hippocratic oath and does the utmost in his power for his patient, must acquire skill in differentiating betwixt those diseases which can and which can not be benefited by the abortive treatment of typhoid fever.

Without entering into the field of speculative controversy, it may be generally stated, that any of the so-called microbic diseases, such, for instance, as diphtheria, malarial fever, measles, scarlatina, cholera infantum, etc., would lose much of their fatality if treated on the same general principles which I

have so often advanced for the treatment of typhoid fever.

In the treatment of typhoid fever in children, the first and most important step is to thoroughly asepticize the alimentary canal, and to eliminate as much as possible of the specific poison, by free catharsis and diuresis.

This can be effectually done in older children, with the tablets and soft capsules described in a previous paper, published in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. In younger children, my method of procedure is to begin the treatment with the following powder:

R. No 1—Podophyllin resin . . .	grains i.	06
Mercurous chlorid, mild . . .	drachms i.	4
Guaiacol carbonate	drachms ii.	8
Menthol	grains x.	60
Eucalyptol	q. s.	qs.

Of this powder I give to a child 1 year old, $\frac{1}{2}$ to 1 grain every hour or oftener, if the case present very severe symptoms. I order each dose of medicine to be washed down with large draughts of distilled water, urging the child to drink as much as possible between the doses of medicine. These doses of the powder should produce free catharsis during the second period of twenty-four hours. Should diarrhea be present before treatment is begun, the indication for the antiseptic medicine is all the more urgent and nothing should be exhibited that could in any way interfere with its action or its administration. As soon as the free movements of the bowels change in color, or the absence of odor shows that the physiologic effect of the antiseptic has been secured, the remedy may be given in smaller doses and less frequently. If the carbonate of guaiacol in the powder is insufficient to produce the desired condition, it may be given separately or combined with eucalyptol in olive oil or any other suitable diluent. If the temperature continue long at 105 degrees, guaiacol and eucalyptol may be used externally, or an occasional sponge bath may be given.

DISCUSSION ON PAPERS OF DRs. NOYES AND WOODBRIDGE.

DR. WILLIAM OSLER, of Baltimore—In typhoid fever I think we are agreed that young children are really not so susceptible as adults. Take an epidemic like that Plymouth, where many young children are exposed, and yet we find the percentage of susceptibility among them not so great as in adults. There is, therefore, less susceptibility on the part of very young persons. In a large number of cases in children, the disease pursues a milder course. There are many practitioners who have observed numerous cases without a death, and nearly all of us may have had a series of thirty or forty cases without losing one. I have treated a series of fifty-three cases without a loss; again, in another series of cases there would be considerable mortality.

An important point referred to by Dr. Noyes and others, is in reference to the simulation of typhoid fever by other diseases. That is to say, the frequency with which typhoid fever begins in children with head symptoms. This fact requires constant emphasis. The disease may set in with severe headache, or crampy attacks, or general twitching of the muscles. Another point that has been referred to is the anatomic diagnosis of typhoid fever. It is not a new observation that there are many cases in which the Peyerian glands are enlarged, and where there are those febrile influences at work. There are other cases where we meet the typhoid bacilli not so much in the lymphatics, as in the spleen and other parts of the body. There are two or three recorded observations in which the disease was shown definitely to be typhoid fever by bacteriologic examination, where the Peyerian glands were little or not at all affected. Typhoid septicemia may be due to general invasion of the blood or organs by typhoid bacilli. Several such instances have been placed on record.

Now we come to the treatment of typhoid fever, which of course, is the burning question. It is difficult really to

know what to say about the treatment, and in relation to the statement which Dr. Woodbridge makes, it is a question whether it is not better to say nothing at all. When a man comes forward with such emphatic statements as Dr. Woodbridge makes, it startles us. We are not accustomed to them in the medical profession. It is an innovation to meet with such an emphatic statement as the Doctor makes, namely, that there need be no case of typhoid fever resulting fatally. He must know his disease well to say that, and you have to know that which he does not appear to know—that typhoid fever is not a disease in which the bacilli live on the surface of the bowel, but that typhoid bacilli live in the tissues themselves, and what can you do to disinfect the intestine with such a mixture as Dr. Woodbridge describes?

It is astonishing what a degree of credulity we have in the medical profession. We all have it in a measure, and it is painful that it is so. I am not one of those who cry out: "Can any good come out of Nazareth?" There is just as good work done in Youngstown and similar places, as in Baltimore or Philadelphia; but I do say that such emphatic statements should not be made, except when based upon a long list of cases, and upon cases studied more rigidly and thoroughly than Dr. Woodbridge seems to have studied his, particularly with reference to the question of diagnosis.

I was extremely grieved to hear the jokingly ungallant remark of my friend, Dr. Adams. The character of his resident physician must be very exceptional. I do not think I ever had to deal with a resident physician into whose hands I would intrust the giving of a typhoid fever bath. I think it should be given by an intelligent nurse. (Laughter.) Doctors have not the patience, moreover, their skins are too sensitive; it is well known that the skin of the hands and arms of the female is much less sensitive than that of the male, and woman alone can give the thorough frictions of rubbing which form such an essential feature in the treatment. I am sure the Doctor's list of mortality would be very greatly reduced if he were to instruct his nurse in the matter of giving the bath, and not trust so much to his resident physician. (Laughter.) I am a warm advocate of the Brandt method, have used it with the usual success that attends that method in the hospitals, and have reduced the mortality by from 6 to 7 per cent., varying with the severity of the cases. There can be no question that in the hospitals throughout the country the mortality may be reduced by that percentage if the Brandt method is introduced, and the bath is trusted to the nurse. (Laughter and applause.)

DR. PEPPER, of Philadelphia—We have not said the last word as to the diagnosis of typhoid fever, nor as to any particular method of diagnosis. We have assumed at times that we knew all the affections. There are many that await discovery, and these display themselves in adults and children in such manner that at times they resemble affections with which we are more familiar. We must apply ourselves to an immense series of typhoid fever cases as occurring at all ages, and in different localities, because age and locality modify typhoid fever preeminently, and we must apply a more defined diagnosis than not only is applied to-day, but perhaps more defined than our knowledge of physiology will at this time permit, before we can attempt to dogmatize in reference to this disease.

I would urge, then, the greatest caution in regard to this question of diagnosis and great reservation in drawing conclusions. How often have the conclusions of one generation been repudiated by the diagnosis of the succeeding generation, and it is not only to-day that we have the means of that refined diagnosis on which all these statistics of the future as to anatomic lesion will ultimately be fixed. I have been treating children for thirty years, and have been trying to diagnose typhoid fever in children for over thirty years, and I feel great modesty in regard to the matter, because I find myself making as great blunders to-day as I made many years ago, due, perhaps, to giving too much attention to the later methods. This is so in regard to every test, except that of pure bacterial culture, and upon that, I think, is going to rest the diagnosis that shall stand the test of time.

I have treated a long series of typhoid fever cases without a death, and have also treated a long list of typhoid fever coming from the same communities, with the same care and same remedies, and have had disastrous results in a certain proportion of cases. I have used the Brandt treatment rigidly, and have had patients to die after it had been used with the utmost care. When we come to the question of treatment, I would unhesitatingly give my acquiescence

to Dr. Adams' position. It seems to me that with the evidence before the world to-day, drawn from every country in the world, in hospitals, and in private practice, that the medical practitioner who does not use the cold bath treatment in infectious diseases is derelict. It appears to me that he must be prepared to use it when certain conditions arise. I think, also, that the man who depends absolutely upon it, and applies it in a strictly routine way, without reference to the qualifications of particular cases has not yet learned the resources of his art.

I think the Brandt treatment as liable to abuses as any other treatment that has been brought forward, or that ever will be brought forward, but that in dealing with continued high fever infections—continued fever—it is the best method of treatment, is evidenced by the most convincing proof. It is perfectly compatible with other elements of treatment. I am less of a skeptic than my friend Osler, as regards medication. I believe myself that in a disease like typhoid fever, where we have a large anatomic lesion, as a rule, he is perfectly right in saying that we should remember that it is not a question simply of intestinal lesion. Some symptoms are so virulent that the system becomes saturated with the poison to such a degree that no treatment will save that subject. But in the ordinary cases, in the majority of instances, we have those intestinal lesions as a source of abiding danger, as a source of many symptoms.

I believe that upon the diet largely depends the extent to which this intestinal lesion may develop. I believe this in consequence of a very long and extensive observation of the disease, continued after the introduction of the Brandt method, and I believe in the use, at the earliest moment suspicion enters the mind of the practitioner that there may be an infection and symptoms similar to typhoid fever, of some remedy, because of its harmlessness, which shall exert its influence upon the intestinal lesion—antiseptic, if you please, or a sedative. We should apply some remedy to affect the intestinal walls. I do not attempt to dogmatize as to what that remedy shall be. We are not going to do any harm if we follow that up by the Brandt treatment. Some of the formulas I see published, I should not consent to take into my own stomach if I had typhoid fever, and I do not think they ought to be administered to patients. It is well to apply those remedies that are harmless, and I believe that before the Brandt treatment comes in there is an opportunity for direct local treatment of the mucous membrane by rigid diet, and by such medication as may, to some degree, influence the extent to which the disease may progress and limit the subsequent course of the case. Once let the case reach the end of the second week, and I do not think anything in the world will affect remedially the intestinal lesion. That is the time when the Brandt treatment is our sheet anchor, as it were, but I would not pin my faith to any one specific treatment. I think it is dreadful to say the treatment of typhoid fever must be confined to the antiseptic treatment or the Brandt treatment. I should not like to say that the successful treatment of typhoid fever depends upon any particular treatment. I plead for less dogmatism. (Applause.)

DR. J. A. WORK, Elkhart, Ind.—I am not prepared to accept any one course of treatment, without medicine or with medicine. I am very much pleased with what was said by the gentleman just preceding me, in reference to his liberality in treating typhoid fever. I believe that we made a mistake in former years in the treatment by not beginning in the very earliest stages to eliminate it, as I believe that the early effort at elimination is the keynote of treatment in typhoid fever, or in the treatment of any zymotic disease. I advocated this at Milwaukee two years ago. I had experience before I advocated that treatment, and have had experience since. It is a fact that we are too often called too late in the disease, and consequently too late to apply effective eliminating remedies. Eliminate first, and then neutralize at the same time by antiseptic remedies, reduce the fever by sponge bath or by the Brandt treatment. We must realize that we have a human being to treat, and not a disease alone.

DR. GEO. N. ACKER, of Washington—I think the true diagnosis in these cases is often made when the case is over. In Washington we have a great many cases of typhoid fever in the Children's Hospital. Dr. Adams and myself have had a number; he lost one and I lost two under treatment by different methods. One of my cases was complicated by pneumonia and died, and the other suffered from perforating ulcer. The Doctor and myself are connected with the same hospital, and treat about the same class of cases. He sees a better class of cases than I do, because he has more patients

than I have. I give more medicine than Dr. Adams, and always have done so. If I see a case early enough, I give calomel in small doses and then I give sulphuric or muriatic acid in small doses. I always apply the sponge treatment, when the temperature goes over 103, but I rarely ever resort to the Brandt method of treatment, for the reason that I have found that it depresses the heart action; I have had poor success with it, and I have charts to show it. I maintain that this great change in temperature is more injurious than beneficial. Dr. Adams proves by his charts that the temperature has fallen from 105 to 97 degrees. I do not believe that is good. Dr. Adams says he always wants the resident physician present. So do I, because I would not trust any nurse with a case where the change in temperature is so great. The Brandt method does not shorten the course of the disease, and I have discontinued it.

In regard to Dr. Woodbridge's paper, I do not understand his cases of typhoid fever. We do not have such cases in Washington, where every patient gets well. I have had in my hospital practice forty cases, without a death, but then I have had deaths after that, and I think that, in the long run, the Doctor will find that he will have the same experience.

DR. ATKINSON, of Baltimore—The discussion seems to hinge upon two points—the question of diagnosis and the question of treatment. A great deal of the confusion which exists in regard to the diagnosis of typhoid fever in children grows out of the expectation so often held that typhoid fever runs a typical course in children, when it does not. In most cases of typhoid fever in children they are typical. It has been agreed generally here that typhoid fever nearly always runs a typical course—a favorable course. My experience is that typhoid fever in children runs a favorable course; but I think our results will be more satisfactory if we disabuse our minds of the idea that certain characteristics invariably must be present. As soon as we are able to exclude the tangible affections that we can attribute to other causes, to spinal meningitis, for instance; as soon as we are able to definitely exclude those agents that are capable of recognition, and have a fever that is continuous, day in and day out for ten days or two weeks, that we are unable to control by the ordinary remedies; we are then almost certain that we have a case of typhoid fever to treat. In adults, errors of diagnosis of this kind often result disastrously, but in a child it is not so disastrous if we are not too zealous in the activity of our treatment. Most cases of typhoid fever recover and the question of treatment, I think, becomes quite a small one. Mild cases of typhoid fever are best treated if left alone.

In my experience, constipation is the rule in typhoid fever in children, and not diarrhea. If we supply nourishment and treat the symptoms by the usual efficacious methods, we find that mild typhoid fever will terminate in the usual time. When the temperature rises, I have no hesitation in giving my testimony in support of the statements of Dr. Adams and others, to the effect that the Brandt treatment is the proper treatment. As for the injury inflicted by it, as referred to by Dr. Acker, I think that is for the most part imaginary. After the bath is administered, the temperature will soon rise to the same degree as prior to the bath, and even when we give forty or fifty or sixty or seventy baths, we find that within a few hours the temperature has again reached the point at which it was prior to each of these baths. Nevertheless, the benefits arising from the bath are apparent. Previous to the bath we find the tongue hard and dry; after the bath it has a soft coating. When the child protrudes the tongue, it comes out readily and goes back with a jerk, showing the activity with which the child responds to the order. The use of the bath when administered in an unprejudiced way, will give us the best management of typhoid fever, whether in adults or children. I think the administration of medicine to be carried along the intestinal canal is commendable. The administration of an agent that will lessen the offensiveness of the stools is desirable, but as for conducting to the recovery of the patient, I think it is not worthy of consideration.

DR. PARKER, of Massachusetts—Typhoid fever in children is like typhoid fever anywhere else. It is a serious disease and demands our most careful consideration. In the hospitals of Vienna and Munich I found that very great concern was given to every detail, and more particularly to the details of the hygiene of the bed. There is one point here which has not been touched, and that is the stimulation of the patient. To use brandy or whisky, or the various preparations which we have administered for that purpose, I think is a mistake. I believe strong stimulants act injuri-

ously, are not easily controlled, and are not advisable. Therefore, it seems to me that the Munich treatment of red wine is altogether the safest and best stimulant in typhoid fever. In regard to the intestinal antiseptic, I think this of great importance. I have seen patients show great improvement when attention was given to the administration of intestinal antiseptics.

DR. BURNS—If one attends the local society, then the county medical society, then the convention of the State society, and finally attends the convention of the National society, with a view to acquiring some practical knowledge of the etiology or diagnosis of yellow fever, or of cerebro-spinal meningitis, he finds himself sadly disappointed. I live in a malarious country, and am constantly beset with the difficulties that appeal to all medical men who live in similar countries. I am convinced that in cerebro-spinal meningitis, its relation to typhoid fever and some other diseases is such that the more one studies either typhoid fever or cerebro-spinal meningitis, the more he is confused by the similarity that exists between these diseases. As has been said here to-day, in different ages it was thought that the solution of the problem had been made, but time proved the fallacy of the hope, and now the solution of the problem of diagnosis seems to be as far off as ever. The bacteriologists have deluded themselves as others have in the past. We find the different masses constantly opposing each other, and thereby impeding progress.

DR. LARRABEE, of Louisville—We find all sorts of opinions on the subject of typhoid fever. Sanitary conditions have much to do with typhoid fever. Typhoid fever will prevail anywhere that the child gets the poison, whether it be one year or any number of years old. The point of greatest advancement in regard to the diagnosis of typhoid fever has been the elimination from practice of the several diseases that were supposed to conflict. That is the elimination of so-called remittent fever. This remittent fever has been determined in most instances, if not in all, to be the fever under consideration, and then the withdrawal by the famous author himself of another disease renders it still easier to diagnose typhoid fever. So that the disease in childhood is made plainer by the elimination of these other diseases. I agree perfectly with the first gentleman, who said that these cases are to be diagnosed by exclusion. We are dealing with a fever that is interrupted by quinin, and particularly when there is the symptom which has not been alluded to, but which I think makes a bedside diagnosis as soon as any other, and that is the thing from which it takes its name—the typhoid, the smoky hue.

The gentleman spoke of a child protruding and pulling back the tongue quickly. But there is more in the condition that originally named the disease. Unless that condition be present, I should suspect something else. The next question was the headache manifested in the child. It does not continue to be a symptom after the second or third day, and the continuation of the fever is a good symptom of typhoid fever. As to the duration of infantile cases, it is usually observed that in the common cases there is a cut-off. That is the time we have the most decided symptoms of poison. When we reach the limit of 14 or 15 years, I think there is no distinction in the two cases. There is a crisis about the fourteenth day.

Another point is that we do not shoot any worse by having a mark to shoot at; that is, having a definite object in view. The claim is made that in the Brandt method, if it be very carefully guarded, as Dr. Adams says, and giving a drink of whisky and a little opiate, the mortality is greatly reduced. The Doctor says it also makes a patient comfortable. Is that the only object we have in view in typhoid fever? We have a chart here, presented by the Doctor, which, stretched across the room like a Chinese scroll, gives the temperature covering a period of six or seven weeks. This patient recovered. Now the question is, whether that treatment was better than if an attempt had been made to thwart the disease, as spoken of by Dr. Woodbridge. Whether it is better navigation for the sailor to pay attention to only one course, and cast the lead to see where the safety lies, or whether it is better to take a certain observation and ascertain the true position. In other words, whether the thermometer is the only thing to go by, or whether it would be better to take into consideration other symptoms; whether it is curing a case to suppress the temperature for a given length of time, admitting that it again returns to the point it had previously attained. Is not the patient under that treatment more liable to be worn out than under the other treatment? I am not prepared to indorse one method any more than another. It does seem to me that having a chart

and knowing where we are going, is a great deal better than throwing the lead to see where you are, at one time, as compared with another. The only comment I have to make, is that we are about where the sailor was when he tried the lead over on Nantucket. We have not progressed as much as we thought we had.

DR. BURR, of Chicago—I make two pleas: a plea for the earlier employment of hydropathy in typhoid fever, and a plea for the treatment of the temperature in the disease. If there is anything in any plan for the cure or control of any disease, it should have its physiologic basis. I have not heard a word said to-day for any of those remedies, except the so-called intestinal antiseptic remedies. If it is worth while, as Dr. Pepper has said, to institute your method of treatment six or eight or ten days after the disease has begun, when the temperature has reached 104 or 105, it is certainly worth while to have that treatment in the beginning of the disease, and if it is of any avail whatever in the control of it, it has the additional merit of being resorted to at once. Do not wait for the diagnosis. There is no treatment so harmless and so easy. I want to say that in my own experience, and from what I have read of the statistics of the most eminent practitioners, there is no method so appropriate and so safe. Until we get the all-powerful specific, we must use controlling methods.

I want to say one more thing in regard to temperature. It seems as though we have been fighting fever on the score of temperature. Temperature is a symptom, not a disease. It is not high temperature that ails your patient, it is poison, and if you have not the direct specific for the poison, or for the control of it, and if you can stimulate the nerve cells and stimulate the alimentary cell itself, whether it is in the muscle or nerve, or in the protoplasm of the blood itself, you are going to help your patient that much in weathering a severe disease. I will also say that in the carrying out of this hydropathic proceeding, it can be done without harshness by following plans which I hope to place before you to-morrow, in the use of the portable bath tub, and without disturbing the patient, by lifting out of bed to place in the tub. You can very soon educate the most delicate person to take the bath by this mode.

DR. S. SOLIS-COHEN, Philadelphia—The great mistake that is made by those who criticise the Brandt method of treatment, and indeed by some of those who use it, is in reference to the reduction of temperature. A reduction of temperature is an incident in the treatment of typhoid fever. It is an index of the severity of the process that is going on in the organism. It is due, I believe, to poisoning by two things—by metabolic products and by poisons degenerating within the individual attacked by the typho bacillus, and not directly due to it.

The treatment by cold bathing instituted early in the course of the disease, carried out systematically and with judgment, by trained nurses, under the supervision of the physician, does two things: first, it soothes the excited nervous system of the individual. This excitement of the nervous system is one of the most serious features of the disease, and gives rise sometimes, as stated here, to the most puzzling symptoms. I remember very well an experience in my own house—fortunately the child recovered—in which the nervous symptoms predominated over everything else in the case, and were obscuring to the diagnosis, and prohibitive of the treatment by the cold bath, and led to the prolongation of the case. Cases are rare where the nervous dread of the bath prevents continuous application. In some cases I have seen a pronounced nervous excitement calmed and the delirium allayed by the use of the bath, and the instance cited by my friend, Dr. Larrabee, of the child quickly drawing back its tongue is an argument in favor of this method of treatment, because that is what it was due to.

The Brandt treatment is not an anti-thermic, but an antityphic treatment. It allays nervous excitement. Secondly, it stimulates metabolism, the kidneys and bowels are all set at work, and there is an increased throwing off of the poison to which typhoid fever is due. I indorse the words of Dr. Pepper, when he says that the physician who fails to give the patient the chance that is afforded by the cold bath is guilty of neglect. I do not advocate applying the bath indiscriminately. I believe there are cases which show in the beginning that they are going to run so mild a course that the bath treatment is unnecessary, but, on the other hand, I do not believe that it is doing any harm to steer a safe course and resort to the use of the Brandt treatment as the safest course. There are toxins produced in the intestines under the unhealthy condition, poisons independent of typhus bacillus. I believe that by the early use of some

antiseptic drug this might be prevented. What that shall be, I will not take the time to discuss.

Another point I wish to call attention to is this: it is absolutely necessary, in order that the Brandt treatment may be properly carried out, that the patient after the bath shall be put into a warm bed and dried, warm applications applied to the feet, and a little alcohol should be given, just as before the patient is put in the bath. They should not be allowed to remain in the bath until the temperature falls so much as 7 degrees. I think a fall of a degree or two is the safer course. I am satisfied that the use of the Brandt treatment, with proper safeguards, will materially reduce the mortality in typhoid fever cases.

DR. WOODBRIDGE, Youngstown, Ohio—I feel a little embarrassed. My peculiar theories have not been quite so severely criticised as I have been accustomed to have them criticised. Consequently I have not very much to answer. One criticism I revert to, made by the distinguished gentleman, Dr. Pepper. Does he mean that I would be derelict in failing to give my patient the benefit of the Brandt treatment, when after nineteen years of experience in treating hundreds of cases of typhoid fever, I have had no death for thirteen years, when my brother practitioners had as many deaths as in former years, not to follow the Brandt treatment? Would it be wise for me to abandon the method I have pursued with such success? I am just as certain as can be, that Dr. Pepper will within five years be a better advocate of what I have outlined than he is now of the Brandt treatment. A treatment that will take hundreds of cases of typhoid fever safely through an attack, with no delirium, with no headache after the first two or three days, with the tympanitis disappearing within forty-eight hours of beginning of treatment, with an average duration of disease of less than ten days, is better than the Brandt method.

It seems to me that the position of the medical profession, to say that in typhoid fever it is impossible for the medicine to abort the disease, while saying that nature can abort it, is an inconsistency.

DR. OSLER, of Baltimore—Tell us about the drainage of Youngstown.

DR. WOODBRIDGE—We empty our sewers into the river and let the lower portion of the city have the benefit. (Laughter.) Seriously speaking, there is a large portion of our town above the waterworks, where there are no sewers and the drainage all washes into the river.

DR. ADAMS, of Washington—I believe I have been misunderstood here. Dr. Cohen has manifested a disposition to help me out. In speaking of the nurse administering the bath, I meant that it should be done under competent supervision. The doctors do not do anything so far as the handling of the patient is concerned, but help the nurse to put the child, if a large one, into the bath. Almost a mutiny, so to speak, occurred in the hospital a couple of years ago. The doctors said that they did not care about being disturbed at 2 o'clock in the morning for the purpose of supervising the bath, and I decided with the nurses that they had a right to supervise the baths. As Dr. Cohen says, there are cases of typhoid fever in which there need be no treatment of this kind. If the temperature does not rise, I do not see the necessity of employing the Brandt treatment. I have tried the intestinal antiseptic, but have not seen any especially beneficial results from it. I have not tried the remedy advocated by Dr. Woodbridge.

HEMORRHAGIC PLEURISY.

BY FRED. W. D. EVELYN, (EDIN. UNIV.)
PRESIDENT SAN FRANCISCO POLYCLINIC.

A. B., age 45; miner: family and personal history good; no specific disease; moderately alcoholic; general nutrition good. Stated that two weeks ago he had felt a sharp pain in right side; did not last long; experienced no unpleasant sensations, no fever, he thought, although face was flushed. Saw a doctor, but was not examined. Just before presenting himself for examination at the clinic had been a little short of wind but no other trouble. Slight cough; no spit; appetite poor; bowels constipated; urine scanty and high colored. On admission face was flushed, slightly anxious; no dyspnea; tongue moist; white fur; lips, slight cyanosis at angles;

temperature 100 degrees, respiration 32, pulse 80. Tension marked, regular. Physical examination: chest regular and uniform in outline; apex beat normal in position; no abnormal pulsations on chest wall; veins not varicose; movement free on left; retarded on right inframammary and lower axillary region; no vocal or friction fremitus; percussion: left side normal; right, area of inaction referred to above gave a dull toneless note accompanied by sense of resistance; other areas, note somewhat tympanitic. Auscultation; left side, harsh breathing over all; right, dull area; general absence of normal breath sounds, but in certain areas large bubbling râles, simulating redux crepitations could be heard. Voice sounds absent, except at points where they seemed to be conducted to chest wall. Effusion into pleura was concluded to be present and probably of a non-homogenous nature. Notwithstanding the relatively high level reached (fifth rib) there were no signs of visceral displacement or positive intrathoracic pressure. Aspiration gave a fluid of a dark pink color, containing a large proportion of blood.

Patient complaining of great pain and distress. The aspiration was stopped, only five ounces being removed; patient was seen daily. Bowels and kidneys were kept somewhat active. No rise in temperature, no symptoms, save slight pain and very slight shortness of breath were complained of. In the absence of all indications of urgency, I did not aspirate for one week, then drew off eighteen ounces of a similar fluid; later on abstracted twenty ounces; no symptoms whatever supervened; the temperature became normal; the lung gradually filled out to its normal extent, but at the end of five weeks physical examination failed to detect any indications of fluid and the auscultatory phenomena were perfectly normal. Three months later, lung was perfectly resilient and the patient in good health. No heart or other lesions were present.

Some points of interest in this case may be suggested. The most complete and perfect return of the lung to its normal condition; the extensive effusion and the almost negative constitutional and mechanical symptoms; the sudden onset sufficiently pronounced to admit of it being considered acute.

Stasis: a mechanical congestion resulting from pulmonary congestion, pneumonia, etc.; the absence of secondary causes of hemorrhage, cancer, miliary tuberculosis, renal, hepatic or splenic lesions must not be overlooked. Their absence would almost exclude the possibility of the case being one of hemorrhagic pleurisy following hemothorax. The effusion was not simply a solution of hematin crystals but contained blood discs and admitted the conclusion that the case was one of rapidly forming effusion; friction and accordingly pain, being of a correspondingly short duration; active congestion and either an excessive diapedesis of the red corpuscles through the vessels, or the rupture of a vessel with a free hemorrhage into the cavity.

The New England Climate. From the *Boston Globe*:—"Change of climate is what you need," said the high-priced physician, after he had listened to all the details of the patient's case. "Change of climate!" exclaimed the patient in surprise; "Why, man alive, I've never had anything else. I've lived right here in New England all my life."

SOCIETY PROCEEDINGS.

American Orthopedic Association.

Abstract of the Proceedings of the Ninth Annual Meeting, held in Chicago, Sept. 17, 18 and 19, 1895.

The society met in the Columbus Memorial Building, 103 State Street, and was called to order by the President, Dr. JOHN RIDLON, of Chicago.

After the transaction of some routine business, the President delivered his Address. He selected for his subject

THE GROWTH AND PROSPERITY OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

He said if one thing more than another had been instrumental in bringing about the present healthful organization, it was a wisely framed constitution and by-laws and a strict adherence to their requirements. To become a member the candidate must be personally known by at least two members of the Association who voluntarily nominate him for membership, and he must have a creditable record of orthopedic work either as a writer, a teacher, or a clinician.

The generous expenditure of practically the entire income of the Association in the annual publication of its volume of Transactions had played no unimportant part in the development of the society. In this regard, President Ridlon urged upon the members the serious consideration of the publication of a monthly or, at least, bi-monthly journal, which shall contain all the papers read and discussions before the Association and abstracts of all other worthy publications upon orthopedic subjects, whether first appearing here or abroad. Such a journal could be issued at little, if any, increase upon the cost of the present Transactions, and in the hands of an enterprising editor could within a year or two be made almost self-supporting.

Dr. Ridlon closed his address by paying a tribute to the memory of Drs. Little and Detmold. Wm. John Little was born in London on August 17, 1810, and died July 7, 1894, being nearly 84 years old. Wm. Detmold was born in Hanover on Dec. 27, 1808, and died in New York Dec. 27, 1894. In reviewing the record of the long and active lives, and of the work accomplished by Dr. Little and Dr. Detmold, one feels that truly there were intellectual giants in those days.

Drs. R. W. LOVETT and JOHN DANE, of Boston, contributed a joint paper entitled

FLAT FOOT.

They submitted the following conclusions: 1, that the feet of the infant at birth are not flat; that the tracing at that time resembles the adult normal foot; 2, that a body of fat develops under the arch which gives the appearance of flat foot for some years, and that at the age of 4 or 5 years this is absorbed; 3, that the smoke tracing is not a perfect method of studying abnormalities of the arch of the foot, because it fails to detect the slighter cases or to record pronation; 4, that the element of pronation is more constant than breaking down of the arch of the foot and may be entirely separated from it; 5, that the condition of pronated foot without breaking down of the arch of the foot should be recognized and not confused with flat foot; 6, that the treatment of pronated and flat foot is the same, and consists in the use of proper boots, the application of a pad or plate, the stretching of the gastrocnemius muscle where it is shortened, and in the routine use of massage if obtainable, and always of exercises to develop the muscles which hold up the arch.

Dr. S. L. McCURDY, of Pittsburg, read a paper on

CONGENITAL ABSENCE OF RADII WITH OPERATION.

The patient was five months old, birth at full term. Presentation normal. Complete absence of the radii, with abnormal relationship existing in the blood vessels and soft structures of the forearm, otherwise child perfectly developed. Operative interference was not advised, for the reason that no successful method had been invented. In the worst cases, where there is much bony deficiency, the choice lies between amputation and doing nothing. Professor Bardenheuer two years ago presented a new method for the operative treatment of these deformities. His operation in the forearm consisted in replacing the defect at its lower part with bone, and thereby permanently correcting the deformed position of the hand.

The operation is performed by a longitudinal incision, the distal end of the ulna and the carpus are exposed, and the first isolated from its attachments. The ulna is then split through its middle into a radial and an ulnar section. These

are separated by allowing the carpal bones to come up between them. By means of a nail through each side, the ends are fixed to the carpus. A plaster bandage is applied, and left on for four or five weeks. This operation is easily carried out. It has been done by Bardenheuer three times, and the results in all three cases were good, both from a functional and cosmetic point of view. In all cases the deformity was permanently corrected. The same principles may be adopted in the treatment of other defects. In cases of congenital defects of the tibia or fibula the same operation has been done once in each. The best result was obtained in the fibular defect.

March 1, 1895, operation was done, the desire being to adhere to the method described as near as possible. It was not possible, however, to follow the method. The soft structures, tendons, etc., were so much shortened that to attempt to shift the end of the ulna across to the center of the carpus would have been impossible except by a virtual amputation of the arm. To have split the ulna and wire the carpal bones between these ends would have been impossible. The only method was to sever the ulna at a point where the free end of the upper fragment could be brought to the semilunar. The semilunar was curetted and drilled, and after drilling the ulna these bones were adjusted with silkworm gut. It was necessary to tenotomize the tendons upon the radial side of the forearm before the hand could be straightened. A number of arteries were severed and required ligation. The cut through the soft tissues was made obliquely across the forearm, beginning upon the dorsum of the wrist, upward and around under the forearm, the object being to allow the structures to slide upon each other, and then sutured in the corrected position, thus avoiding the gap that could otherwise be left after a cross section. After dressings were applied, the hand was put up in plaster-of-Paris. Primary healing. The operation was done on the left hand, and a second operation was planned for the right arm, but the patient died with pulmonary tuberculosis five months afterward.

The author reported a case of congenital deformity with a decided history of natural impression. Mrs. S., whose husband was a railroad conductor, when about six weeks pregnant, was startled by the appearance of a crowd of men with a man on a stretcher, thinking it was her husband. She has a habit (when startled or in grief) of grasping the fingers on the left hand including the thumb, just below the knuckles, by the right hand. While the injured man was not her husband, the impression was imparted to her unborn child.

Dr. A. M. PHELPS, of New York, reported a case of congenital dislocation of the shoulder joint, and described an operation for its relief.

REMOVAL OF THE ASTRAGALUS FOR TALIPES VALGUS.

Dr. JAMES E. MOORE, of Minneapolis, read a paper on this subject, in which he said that the modern non-operative treatment of talipes valgus was so satisfactory that it is rarely necessary to consider operative measures. In acquired flat foot, several operations have been tried in extreme cases, and among them Ogston's operation, which had probably been performed more frequently than any other, but at present it did not seem to have any very enthusiastic advocates. The scaphoid had been removed, but had not been followed by flattering results. The writer had studied this subject carefully about two years ago when the following case fell into his hands. The patient was a woman, 20 years of age, who had cut the internal lateral ligament of the ankle when she was a child by stepping on a piece of glass. An examination showed that the uninjured foot showed a natural tendency toward flat foot, and the injured foot showed extreme flat foot, with the inner side of the great toe turned almost directly downward. She had grown gradually worse for some years, so that when she came to him she had been obliged to give up her employment as a domestic on account of the severe pain produced by standing or walking. On June 26, 1894, chloroform was administered with the hope of forcibly correcting the deformity, but owing to the extreme rigidity of the foot, failure was feared, so the patient's consent was gained to resort to a cutting operation if it was found necessary. It was found impossible to overcome the deformity by manual force, and an operation was decided upon. The displaced astragalus formed the bulk of the deformity and was the keynote to the trouble. This, the author decided to remove, which he did through a longitudinal incision in the inner side of the foot. The foot could be immediately placed in a very satisfactory position. The usual surgical dressing was applied and the foot held in proper position by a plaster-of-Paris

bandage. The healing was prompt and satisfactory, and in about two months the patient began to walk. There is a marked improvement in the position of the foot. A photograph was shown, taken about one year after the patient began to walk, showing that the ankle, which was atrophied, had developed considerably. The result of the operation was more satisfactory from a practical than from an esthetic point of view. The patient still complains of some pain. When she stands much or walks more than usual, the foot is somewhat swollen in the evening, but she is now at work. While she is in every way better than before the operation, the result is not perfect, but the writer hopes that eventually she will be quite well.

DR. JOEL E. GOLDTHWAIT, of Boston, read a paper entitled
TENDON TRANSPLANTATION IN THE TREATMENT OF DEFORMITIES
RESULTING FROM INFANTILE PARALYSIS.

The purpose of this paper was to call attention to the possibility of furnishing better mechanical attachments for certain non-paralyzed, or only partially paralyzed, muscles, as a part of the treatment of infantile paralysis. A certain number of cases were reported with results that were most gratifying, and from which it appears not unreasonable to class tendon transplantation with tenotomy and the other surgical procedures which have a place in the treatment of this condition. At the knee, undoubtedly, tendon transplantation could be employed to advantage in a certain limited number of cases, and possibly at some of the other articulations, although the best results are to be looked for in those portions of the body where the tendons are well formed and lie superficially. The operation is not to be attempted upon the tendons of muscles which are wholly paralyzed, except possibly in rare instances for the purpose of furnishing an additional support of a purely tendinous character. It is conceivable that in the foot, for instance, if the tendons on the inner side are more atrophied and offer less resistance than those on the outer side, these tendons might be attached to the inner side and thus increase the lateral support. This is merely a suggestion, however, it not having been tried practically, and the benefit to be derived therefrom would undoubtedly be slight. There is also a question as to whether or not, two atrophied tendons would unite firmly, although from watching the other cases, the author doubts if there would be any trouble on this account. The best results from tendon transplantation are to be obtained in those cases in which one group of muscles has been destroyed, leaving the antagonizing or accessory muscles very little, if any, impaired. This results in a definite deformity which becomes more marked as the age increases. The best illustration of this is to be found in the condition so commonly seen in the foot where the gastrocnemius and the muscles at the inner side of the foot have been destroyed, the peroneal muscles retaining their normal contractility. The result is a valgus which constantly increases, both from the muscular contraction and from the faulty mechanical position in which the weight of the body must be received upon the foot in walking or in standing. This is also seen in connection with the anterior muscles of the foot; the anterior tibial and the extensor pollicis so often being destroyed leaves the peroneus tertius and the extensor communis digitorum, the only muscles to be used in flexing the foot at the ankle. This also results in a valgus which steadily increases. To correct these mechanical conditions and to use the non-paralyzed muscles to the best advantage, the author had operated upon four cases and given the tendons of the muscles new attachments.

Case 1.—A young woman, 19 years of age, who came to the Carney Hospital, October last, complaining of trouble in the left foot. When nine months old she became paralyzed, which partially cleared up, leaving the foot very weak, so that walking has always been difficult. This has been growing worse of late and there has been considerable pain, referred to the inner side of the foot under the inner malleolus. The left leg was one inch shorter than the right. There was marked atrophy of the left calf and the foot was in the position of extreme calcaneus-valgus. In walking, the weight was borne upon the inner edge of the heel, the anterior portion of the foot being turned outward fully 40 degrees with the normal axis of the ankle joint. The posterior muscles were all paralyzed, with the exception of the peroneus longus and brevis, and the tendons of these muscles, instead of lying in the groove behind the external malleolus had been drawn forward so that they rested on the outer surface of the malleolus near its anterior edge. With the tendons in this position the action of the muscles caused extreme valgus and slight flexion at the ankle, instead of extension

as should be the case. The anterior muscles were practically normal and, having no posterior muscles to antagonize them, their contraction caused such extreme flexion that the dorsum of the foot rested against the anterior surface of the leg. A short time after this, the patient entered the hospital and the following operation was performed: an oblique incision four inches long was made, so that it crosses the tendo-Achilles about one inch above its insertion into the os calcis. Through this wound the peroneal edges are exposed and divided at about the lower edge of the malleolus. The tendo-Achilles is then freed and the tendon of the peroneus brevis passed under this and attached to the tendon of the flexor longus pollicis. The tendon of the peroneus longus was then attached to the tendo-Achilles, after which the wound was closed, and a plaster-of-Paris bandage applied, holding the foot extended in order to relieve the strain as much as possible from the sutured tendons. One month later, a valgus plate was applied, and this has been worn since.

The method of attaching the tendons to each other is of great importance, and unless they are firmly joined the benefit of the operation is lost. The tendon to which the attachment is to be made is split and the end of the severed tendon, after it has been scored, is drawn through this slit, and securely held by two quilted sutures which are so placed that when tightened the outer tendon is spread out, furnishing a broad surface for union. The result was best shown by the photograph which was exhibited. The valgus has largely been corrected, and what remains is controlled by the plate, so that the tread of the foot in walking is quite normal. As a fair test of the result, during the last five months the patient has been doing general housework and has suffered no inconvenience from the foot.

DR. ROYAL WHITMAN, of New York, read a paper entitled
A STUDY OF THE WEAK FOOT WITH REFERENCE TO ITS CAUSES,
ITS DIAGNOSIS AND ITS CURE; WITH AN ANALYSIS OF
ONE THOUSAND CASES OF SO-CALLED FLAT FOOT.

The reader emphasized the importance of looking on the foot as a mechanism, and on the flat foot not as a deformity only, but rather as a weak or disabled machine. Attention was called to the function of the normal foot. That it was not only a support, but also a lever. If this activity or leverage was diseased or lost, the foot was subjected to great mechanical disadvantage. He laid particular stress upon the component elements which made up the weak or flat foot. These were: 1, the improper distribution of the weight upon the foot because of the pronation or valgus; 2, the displacement of the line of strain by the abduction of the foot; and 3, the secondary lowering of the arch.

The various predisposing and exciting causes of weakness were enumerated. The importance of the early recognition of the weakness and of the training of children in order that future disability might be avoided; the importance of the proper shoe, both in childhood and in adult life, and the treatment for the various grades of weakness and deformity were then discussed and illustrated by diagrams and casts.

In conclusion, the writer emphasized the following points: flat foot, in its surgical sense, is a compound deformity, of which the elements of valgus and abduction, the improper distribution of the weight and strain, are of vastly greater importance than the depth of the arch. The weak and flat foot can be cured, but only by the application of the simple principles that any mechanic would apply to a disabled machine whose structure and use were known to him; in other words, there can be no permanent cure of weakness and deformity unless normal function is regained, nor effective treatment unless it has this end in view. The term weak foot has at least this advantage, that it implies nothing that the student must unlearn; it is because of the misapplication and misapprehension of flat foot, and because of the associations which have so long obscured the rational treatment of the deformity, that the term has been discarded from the title of this paper.

DR. L. A. WEIGEL, of Rochester, N. Y., contributed a paper on "Metatarsalgia."

ON THE DEFORMITIES AND MALFORMATIONS RESULTING FROM
ACUTE INFECTIONS IN BONE.

DR. ROSWELL PARK, of Buffalo, N. Y., read this paper, in which he said that clinically, there are three locations in which bone infections are most commonly met with—beneath the periosteum, in the epiphyses, and in the diaphyses. From the pathologic side, infections are of four main varieties: 1, the tubercular; 2, the staphylococcus; 3, the streptococcus; 4, the pneumococcus. To these may be added rare instances in which other organisms are primarily or second

arily present. Of these, certainly the more common is the tubercular form, whose manifestations are usually not acute. The other three may be grouped in a general way as pyogenic forms of invasion in which pus is practically invariably produced, providing only that sufficient time has elapsed. The author alluded to the acute military tuberculosis of bone which corresponds in most essentials with similar invasions of the lungs, and of which he had seen occasional examples. It is not quite so rapid as the pyogenic forms, and it may take two or three weeks to produce such destruction of bone as to necessitate operation. It stands, therefore, in intermediate position between the acute infections and the slower (usually the tubercular) lesions. Nevertheless, it is sufficiently acute to demand prompt recognition, and when recognized may often be relieved by prompt operative interference. The course of a bone disease will depend first upon the location of the lesion, and secondly upon its character. As showing the relative frequency of parts involved, of thirty cases observed by Kocher the disease occurred thirteen times in the tibia and eleven in the femur. Of ninety-eight cases collected by Leucke and Volkmann, the femur was involved thirty-six times, the tibia thirty-four and the humerus eleven. Disease in the immediate neighborhood of the hip joint is about five times as common as in that of the knee. Comparing epiphyses with diaphyses, and accepting Schede's sixty-seven cases, we find that of twenty-eight cases in which the femur was involved, half of them were in the shaft and half in the diaphysis. In the tibia, of twenty-seven cases only nine concerned the epiphysis; and of seven cases of the humerus, two involved the epiphysis. With regard to necrosis, it concerned orthopedists mainly in this, that it produces in many instances a weakening of the bone which may lead either to fracture, deformity or curvature. Spontaneous fractures of necrotic bone had occurred under the writer's observation, and he remembers one case of necrotic femur which broke as he was lifting the patient upon the operating table. Incidentally, there is danger of cancer in some of these cases, for Volkmann collected thirty-two cases in which old and fistulous passages became the site of epitheliomatous changes, and in which cancer was the final result.

Dr. JAMES KERR, of Washington, D. C., followed with a paper entitled "Joint Disability Following Fractures."

Dr. R. W. LOVETT, of Boston, read a paper entitled

AMBULATORY TREATMENT OF POTT'S DISEASE.

He considered this disease a very grave one, which ought to be treated largely by recumbency during the active stage, for the reason that we recognize that our apparatus is intrinsically imperfect on account of the nature of the problem. If we use apparatus, it seems to him that the proper use would be in a small way to vary the monotony of recumbency. Used in any way, we should remember that the position of the superincumbent weight is a most important matter, and that the chest and head should be thrown as far back as possible. Indeed, we see nature trying to throw the chin into this position continually. We should also remember that the higher up the body or backward pull is made, the less is required, and that when this limitation in the use of apparatus is accepted, its field will be more limited than it is now. The use of traction during recumbency seems to the author an advantage, inasmuch as it adds but little to the discomfort of the child and it manifestly increases the length, which it can only do by diminishing the curvature in the vertebral column.

Dr. A. E. HOADLEY, of Chicago, exhibited and described a new

SPINE BRACE.

It was designed and adopted by him for the mechanical support of the middle region of the spine. The range of its greatest utility is the support which it affords to the spinal column between the middle of the lumbar and the middle of the dorsal regions, although its usefulness is not strictly confined to these limits. Inasmuch as the greater number of diseases of the spinal column requiring mechanical fixation occur within this region, its usefulness will be comparatively very great, if found to be efficient. In its simplest form the brace consists of a steel frame, a rigid chest pad and two aprons. The chest pad is adjusted in contour to fit the upper anterior portion of the chest. The pad in length is about three times its width and adjusted transversely, resting immediately below the sterno-clavicular articulations. Its real length, transversely, should be as long as practical without being interfered with by the action of the pectoralis major muscles in the movement of the shoulder. It should be made of sheet metal, hammered to give shape and rigid-

ity, covered and lightly padded. The author then described in detail the component parts of this brace, which he divided into four portions—an upper, a lower and two lateral portions. This brace will be found useful to orthopedic surgeons.

REPORT OF FOUR CASES OF SPONDYLITIS OF THE SECOND CERVICAL VERTEBRA.

A paper was read on this subject by Dr. REGINALD H. SAYRE, of New York. Three years ago he brought before the Association some cases of spondylitis of the second cervical vertebra, as it happened that within a few months' time four cases came under his observation which presented almost identical lesions, accompanied by very similar deformities. These cases had now been without apparatus to support the head for a number of months. In all of them there was noted a small swelling at the back of the neck, at the level of the first or second cervical vertebra, which in each instance happened to be on the right side of the neck. In each case the chin was directed toward the right side of the body, the right sterno-cleido-mastoid muscle was rigid, the face looked downward, while the left ear was brought much nearer the corresponding shoulder than its fellow. In one instance, the face was deflected so far from the perpendicular as to be almost parallel with the floor, and pressed so closely against the clavicle as to cause an excoriation. The position of the head was in marked contrast to that assumed by patients with torticollis, due to contraction of the right sterno-cleido-mastoid muscle. Motions of the head in any direction were excessively painful, and the patients supported their heads with their hands almost incessantly. In turning to view any object the entire body moved as a solid mass without any rotation of the head. The jaw was opened with great difficulty in all cases. At the present time, all but one case can open their mouths freely, and this case has much more control of the mouth than formerly, and is enabled to swallow with much more ease. In all the cases the chin was so much depressed as to make swallowing difficult. These cases were treated by means of a support which consisted of a pelvis belt with two upright back bars passing upward over the shoulders, and held in position by shoulder straps and an apron. From this an extension rod passed from between the shoulders to the base of the skull, where it joined a rolled metal band passing around the head and secured in position by a forehead strap and a strap passing under the jaw from ear to ear. Universal joints at the back of the neck and between the shoulder blades allowed the adjustment of this apparatus to any position of the head, while the distance between the head and body pieces was regulated by a ratchet and key extension. Three cases at the present time seem practically well, and since the removal of the support, the range of motion of the neck has increased in all directions, and there has been no return of pain.

Dr. S. L. McCURDY, of Pittsburg, described and exhibited a combination traction and immobilization hip joint brace. He said that protection is afforded a diseased joint by either confining the patient in bed, or in some portable appliance or brace that serves the same purpose. Immobilization is afforded by the use of plaster-of-Paris; cuirass of Bauer; portable bed of Phelps, or Bradford and Lovett, or a Thomas hip splint. Traction is of the utmost importance during the early stage to overcome muscular spasm and interarticular pressure, and ultimately to relieve pain, and during the stage of dissolution of bone to prevent shortening and angular deformity. In order, then, to apply traction, as well as immobilization, to the hip joint in disease, the author had devised a combination of the long traction hip splint and the Thomas splint.

Dr. JOHN D. SKEER, of Chicago, (by invitation) exhibited

A NEW SURGICAL SAW,

and made some remarks relative to its use. He said that where there is non-union of the bones after excision of the knee joint, we have conditions that may give rise to any degree of deformity. Any procedure that will prevent the rotation and backward displacement of the tibia, without the interposition of any foreign body between the cut surfaces of the bones, will contribute to the success of the operation. If the tibia were cut off slightly concave and the femur correspondingly convex, the bones would lock together in such a way as to prevent rotation and the backward displacement of the tibia. This method of joining the bones together was first practiced by Dr. Fenwick, of Montreal, in 1868, and published in the *International Encyclopedia of Surgery*. The Doctor used a fretwork saw adapted to a butcher's frame, and states that the "bones should be accurately adjusted, and if they do not fit nicely, saw off a thin slice from either or both

of the bones, and, if necessary, remove thin slices with the cartilage knife."

Objection has been urged against Fenwick's operation, for the reason that pockets have been found between the ends of the bones in which matter accumulated and prevented union. Dr. Skeer apprehends that the pockets and irregular open spaces were made with the narrow saw and the cartilage knife at the time of the operation. He proposes to improve the technique of this operation by making the sections with a concavo-convex saw which he had devised for that purpose, and which cuts a true circle, so that when the cut surfaces of the bones are brought together they will coaptate with mathematical accuracy. The saw blade is nine inches long and two inches broad, curved on the flat with a concavity of one-fourth of an inch.

DR. W. O. PLYMPTON, of New York, read a paper entitled
EXCISION OF THE KNEE AS AN ORTHOPEDIC PROCEDURE.

The success of the operation is no longer an experiment, when performed under right conditions and by a skillful operator, and should not only save limbs but lives. Too much can not be said in favor of early treatment by mechanical and fixation methods in disease of the knee joint. If the profession at large recognized disease of this joint in its incipency and employed extension and fixation methods of treatment, comparatively few cases would advance so far as to necessitate excision. It is the duty of the orthopedic surgeon who teaches, to lay special stress upon the early recognition, as well as early mechanical treatment, of these diseases. When the fixation and extension plan of treatment has been conscientiously tried and has not arrested the disease which is manifestly on the increase, the surgeon should explore the joint and do whatever the conditions demand, whether to wash out or to excise. When the articular surfaces are destroyed, the bone and the soft parts extensively involved, the joints should be excised. In the series of excisions which the author reported, there were several examples of great destruction from osteomyelitis and tubercular disease where amputation was avoided and several inches saved to the length of the limb by allowing the cavity to fill and the clot to organize. In one case of osteomyelitis seven inches of bone were reproduced. In determining what operation for excision of the knee best subserves the requirements, it may be said that that method which allows of the most complete removal of all diseased tissue and affords perfect drainage, retains the parts in best apposition and fixes the bones without the use of pins or wire and last, but not least, the one that can be done with the greatest ease and rapidity is to be preferred. Fenwick's operation fulfills all requirements with a few exceptions. Where the head of the femur is destroyed, precluding the section according to Fenwick, Phelps had devised a method to meet this condition by sawing a wedge-shape at the end of the femur and a V in the tibia for its reception. The length of time taken for excision of the knee is an important element with regard to the mortality of the operation, as the shock of the operation in excision of the knee must of necessity be profound. The author said that Dr. Phelps, on an average, did not consume more than fourteen and one-half minutes in excisions of the knee, except in exceptionally bad cases. He had seen him do an excision in ten minutes from the time the first incision was made until the last plaster bandage was in place.

DR. A. J. STREELE, of St. Louis, exhibited an apparatus for the treatment of club foot, and two contrivances to be used in head traction and in hip traction.

DR. LOUIS A. WEGEL, of Rochester, N. Y., read a paper entitled

MECHANICAL SUPPORT IN THE TREATMENT OF SCOLIOSIS.

The author first dwelt upon the various theories as to the etiology and pathology of the affection, the various objections to supports, etc. When a bony distortion has taken place of slight degree, we can easily understand that the superincumbent weight falling upon an inclined plane must of necessity increase the deformity, and any plan of treatment which will endeavor to relieve the spine of this adverse factor is certainly a rational one. The author believes (and says he is in a position to prove) that mechanical support may be worn for an indefinite length of time without producing atrophy, and that in spite of an appliance, exceedingly good muscular development may be secured. If this can be shown, the principal objections against appliances will be done away with. The author believes that a mechanical appliance can be used with as much benefit and be made to do its work and be worn as comfortably on the back as on the legs.

The following officers were elected:

President—Dr. Royal Whitman, of New York.
First Vice-President—Dr. George W. Ryan, of Cincinnati.
Second Vice-President—Dr. Joel E. Goldthwait, of Boston.
Secretary—Dr. John Ridlon, of Chicago.
Treasurer—Dr. E. G. Brackett, of Boston.
Place of meeting, Buffalo; time, third week in May, 1896.

ASSOCIATION NEWS.

Rush Monument.—The following circular has been issued, but through some inadvertence has not been printed in the JOURNAL. There is still time for remittances, according to Dr. Rohé:

AMERICAN MEDICAL ASSOCIATION, RUSH MONUMENT COMMITTEE.

BALTIMORE, Md., July 1, 1895.

Dear Doctor:—I beg leave to remind you that at the recent meeting of the AMERICAN MEDICAL ASSOCIATION in this city the following resolution, offered by Dr. J. W. Hoff, of Ohio, was unanimously adopted:

Resolved, That each delegate to this ASSOCIATION be appointed a committee to collect funds for the Rush Monument from fellow-practitioners, and transfer the amounts to the Treasurer of the Committee on Rush Monument at as early a day as practicable.

In virtue of this action of the ASSOCIATION, you are constituted a member of this committee. I am sure I need not urge upon you the necessity of energetic action. If the hearty interest manifested at the Baltimore meeting can only be sustained a little while, the object for which the committee has so earnestly labored during the past ten years will be attained.

It is hoped that at the next annual meeting of the ASSOCIATION the committee may be able to report that the amount needed to erect the proposed monument to Benjamin Rush is in hand. Will you not do all in your power toward the accomplishment of this object?

Remittances may be made by check or money order, to the undersigned. Very truly yours,

ALBERT L. GINON, Chairman.

GEORGE H. ROHE,

Secretary Rush Monument Committee.

Catonsville, Md.

THE RUSH MONUMENT FUND.

BALTIMORE, Sept. 23, 1895.

To the Editor:—The sum total of the Rush Monument Fund to date amounts to \$3,357.39. Among the recent contributions are the following:

Prof. Nicholas Senn, Chicago	\$100.00
Dr. Geo. M. Gould, Philadelphia	5.00
Dr. Franklin B. Ferguson, Deer Island, Me	2.00
Dr. Andrew Annan, Emmitsburg, Md	50.00
Dr. Jacob L. Williams, Boston	1.00
Medical Society Wayne Co., New York (through Dr. D. S. Colvin)	10.00
Dr. J. R. Buist, Nashville, Tenn	5.00
Dr. John B. Hamilton, Chicago, (3d contribution)	1.00
Dr. Geo. N. Acker, Washington, D. C.	1.00
Surgeon-General Geo. M. Sternberg, U. S. A.	10.00
Eastern Ohio Medical Association (through Dr. J. C. M. Floyd)	10.00
Dr. W. H. Marsh, Solomons, Md	1.00

Further contributions will be acknowledged in these columns. Very truly yours,

GEORGE H. ROHE,
Secretary and Treasurer Rush Monument Committee.

To Raise Bread and Diphtheria in the Same Bed.—The city physician of Rochester, Dr. Seitz, while visiting a house on Caswell Court, an over-populated street, recently, discovered that a pan of dough had been placed to rise in the bed of a boy, ill of diphtheria. A quilt was thrown over the patient and the dough. There are four other children in the family.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, SEPTEMBER 28, 1895.

THE PATHOLOGY OF THE PARTIAL NEURASTHENIAS.

The discoveries in the finer structure of the nervous system, the resulting modifications in our views as regards its physiology, the recognition of the fact that nerve action is in the centers effected, not by continuity of the nerve cell and fiber, but by their contiguity, have revolutionized our ideas as to the pathology of a large number of disorders of which the anatomic lesions have so far evaded us. Adding to this, the hardly less important discovery by our countryman HODGE, of the effects of fatigue upon the nerve cell itself, we have a rational pathology suggested for nearly all the so-called functional disorders of the nerve centers, neurasthenia and insanity included. This fact is largely recognized by the authors of the most recent general work on nervous diseases, which in this respect is in advance of all its predecessors.

While to a large extent this pathology is, and must be only theoretical, it is a decided gain over our former agnostic condition in this regard. It is an advance to have a rational theory, and the possibilities in this direction are hereby infinitely increased. Taken in connection with the researches now being made upon the effects of various toxic agencies upon the neuron, these discoveries enable one to give a reasonable and possible explanation for almost or quite every general "functional" disorder of the nervous system.

With the theory of cortical localization carried a little beyond our actual acquisition of facts, we have also an explanation, by these discoveries, of the partial neurasthenias, the special dyskinesias, etc., which has been hitherto lacking. Writer's cramp, for ex-

ample, and the other occupation neuroses, together with much of the special disorder sometimes attributed to eye strain may, perhaps, be better accounted for by assuming a fatigue and derangement of the nerves of special functional centers, sometimes even without any extensive implication or participation of other nerve elements. The more complex and specialized the function disordered, the more rational can this explanation be made to appear. For example, BIANCHI has recently described a new type of partial neurasthenia (anagnosiastenia) in which distress is experienced from every attempt at reading, while general health, intellection and the use of the eyes for other purposes may be altogether uninterfered with.

This condition may reach absolute disability as far as reading is concerned, without any impairment of efficiency in other directions. The cerebral mechanisms involved in the act of reading are infinitely more complex than the peripheral, and it is as easy to suppose that their fatigue or insufficient reparative power may induce neuralgic discomforts in this case as in writer's cramp, where a peripheral pathology has never been extensively accepted, and in which we must therefore attribute a purely central origin to the pain.

Other professional neuroses than writer's cramp readily fall under the same law, and as much can probably be said of the other partial neurasthenias, the disabilities for mental or physical exertion which may exist separately, and many others that are possible and undoubtedly sometimes occur. They all find their best explanation in the fatigue and more or less permanent exhaustion of the neuron, of which the associated anatomic condition has now become known to us.

MEDICAL TEMPERANCE.

It has been apparent for some time that medical men can not ignore and stand aloof from the great revolution in public sentiment concerning alcohol used indiscriminately as a medicine and as a beverage. During the past year, not only in this country, but in Europe, the center of wine drinking, most startling innovations and changes have been proposed. In this country only two societies of medical men have taken up this topic. One, the Association for the Study and Cure of Inebriety, organized in 1870, for the exclusive purpose of studying the causes, conditions and means of treatment of inebriates; and the other, organized in 1891, called the Medical Temperance Association, whose special object is to promote investigation as to the action of alcohol in health and disease. Both of these societies discuss the medical side of the topic, and are in no way identified with any popular movements of the day. In England there are two societies studying along the same lines. In France, Italy, Switzerland, Ger-

many, Holland, Norway and Belgium, there are societies of medical men who discuss all phases of the alcoholic topic. In 1878 these societies joined with philanthropists and reformers in holding international conventions. From that time, at intervals of two or more years, meetings have been held in which leading physicians have not only presided, but taken a prominent part in the papers and discussions. The last of these congresses has just closed at Basle, Switzerland. Some idea of the medical interest of this meeting may be had from the fact that seventy-eight medical men were registered as members and delegates. Twenty-one were superintendents of asylums, sixteen were teachers of mental diseases, and twenty-nine were professors in medical colleges, and on health boards.

The papers read by these men were on the effects of alcohol on the body. Two of them related to some very striking experiments made in the Heidelberg University laboratory, on the physiologic action of small doses of alcohol upon mental processes. All the papers read were scientific and did not touch the moral or ethical side of the subject.

In France, all the leading medical societies have taken up the alcoholic question with unusual interest and spirit, and many very important and original studies have been made. The French government has appointed a commission to investigate the causes of the fatality from the use of spirits. The French Medical Temperance Society has been engaged in studying the different effects of alcohol on the body for some time.

In England, the Society for the Study of Inebriety, has for years been urging legal measures of restraint, with unusual success. The disease of inebriety has been recognized and parliament has passed laws for the organization of asylums and the control of these cases. The Medical Temperance Society has investigated alcohol in various ways, and brought out many new facts of great practical value. They have been largely instrumental in showing the folly of the beer ration in almshouses and asylums, and calling in question the indorsement of alcohol in medicine and as a beverage.

Leading medical men of worldwide reputation, both on the continent and in the British Isles, have taken up this subject fearlessly, and identified themselves as students and investigators, irrespective of public opinion, while in this country there is a strange shrinking from investigation or expression of personal convictions that are antagonistic to current opinions.

The two societies in this country who are working along this line have attracted very little attention medically, although the literature published in the *Journal of Inebriety*, by the Association for the Study and Cure of Inebriety, has attracted a great deal of

interest in Europe, and many of its articles have appeared in all the leading journals. The other society, the Medical Temperance Association, has presented some original work already, and is closely following along the most advanced lines of research concerning alcohol.

In Europe, the philanthropists and reformers are turning to the medical men for help and aid. In this country physicians stand aloof in an attitude of indifference and criticism. This should not be. Every medical man should recognize that the so-called temperance problem, which includes a knowledge of the nature and action of alcohol on the system, and the question of the causes and remedies of inebriety is a medical question to be settled by physicians.

The noise and roar of agitation rarely brings out facts as to the solution of great problems. It is the still small voice of science that must come from physicians, that will point out the means of relief from this evil. Physicians in this country, with few exceptions, are far behind medical men abroad in the interest and study of the alcoholic problem. This is remarkable, in view of the intense mental activity of American physicians and the freedom from entailments of custom that surround them.

The two societies, the Association for the Study and Cure of Inebriety, and the Medical Temperance Association, should be the most popular special medical associations in the country. They should be centers for the scientific study of this question, that would not only lead but direct public opinion.

Last year a voluntary gathering of teachers, leading business and literary men, with a few physicians, joined to make a scientific study of this subject. The confused outline work which was projected, clearly revealed the impossibility of any practical results, except along medical lines, by hardworking physicians. The absurdity of laymen and emotional reformers, going round the country teaching the physiologic action of alcohol, and the assent of medical men by silence, is apparent everywhere. The popular literature on this subject scattered broadcast, and the contradictory theories repeated in medical text-books as if they were absolute facts, are simply deplorable. In no other topic of like interest has there been so little respect for facts, or so little effort to find the truth.

This alcoholic problem is vital in every community, and physicians are the true teachers and they should investigate it in the same way that germ diseases are studied. We have recently published a number of papers read before the Section on State Medicine on this subject, and we heartily commend it, as one of the great outlying fields of medicine that must be occupied by practical medical men before its solution can be reached.

STATE CARE FOR THE INSANE.

The progress of "State care" in New York will, on October 1, pass another mile-stone. The insane of Kings County will, on that date, cease to be under the charge of the old board of county commissioners, and will be transferred to the State Commission in Lunacy. Salaries of the medical corps have been raised, and the employment of a female physician has been provided for. Under the law authorizing this transfer it has been stipulated that the present staff of officers should continue to hold their positions during "good behavior," that is to say, they are removable only for cause.

When this transfer shall have been made, there will then remain only the insane of New York still outside of State care. That county would probably have already fallen into line with the rest of the counties of the State had it been possible to settle certain questions relative to tax appropriations. There is a strong probability that an act will be passed by the next Legislature that will make it easy for New York County to adopt the State care, under which the hospitals become such in fact as well as in name. The insane under this change of systems, are cared for honestly and there is little room for petty thievery in contracts. The eyes of the State officers as well as of the local managers, are directed alike to the interests of economy and to the welfare of the patients; whereas, under the older system the business of awarding contracts, that would appear straight while being crooked, was that in which the officers excelled.

NEW MASSACHUSETTS LAWS RELATIVE TO COMMITMENT OF THE INSANE.

Chapter 429 of the Acts of Massachusetts of 1895 provides that no person shall be committed to a lunatic hospital, asylum or other receptacle for the insane, unless, in addition to the oral testimony given, there has been filed with the judge hearing the complaint or other proceedings for the commitment of the person alleged to be insane, the certificate of two physicians certifying to such person's insanity, made in accordance with the provisions of Section 1 of Chapter 286 of the Acts of 1895. This latter provides that in any hearing in any proceeding for the commitment for proper treatment of any person alleged to be insane, to a lunatic hospital, asylum or other place provided by law, no one shall be qualified as a physician to make to a judge at such hearing a certificate of the insanity of a person unless he shall make oath that he is a graduate of a legally chartered school or college; that he has been in the actual practice of his profession in this Commonwealth as a physician for at least three years since his said graduation, and for the three years next preceding his making said oath; nor unless he is duly registered in compliance with the law of 1894,

and continues to be so registered; nor unless his standing, character and professional knowledge of insanity is satisfactory to such judge.

Each certificate bearing date more than ten days prior to any commitment of any person alleged to be insane shall be null and void, and no certificate shall be valid or received in evidence if signed by any physician holding any office or appointment in or connected with the hospital, asylum or other place for the insane to which the person in question may be committed by the order of the judge. Every physician certifying as herein provided must himself have examined the person alleged to be insane, within five days of his signing the certificate, and every such physician shall state in said certificate that in his opinion said person is insane and a proper subject for treatment in an insane hospital or asylum, and shall specify the facts on which his opinion is founded.

A copy of the certificate, attested by the judge, shall be delivered by the officer or other person making the commitment, to the superintendent of the hospital or other place to which the person shall be committed, and shall be filed and kept with the order of commitment. And a copy of each physician's certificate of insanity required under the provisions of this act shall be mailed to the State Board of Lunacy and Charity by the superintendent of each lunatic hospital and asylum, within forty-eight hours after the commitment of each person adjudged insane.

HYPNOTISM AS A MORAL FORCE.

Word comes to us from Utah that an attempt is there being seriously made, presumably under the local governmental auspices, to reform criminals by hypnotism. Evil is to be eradicated and moral tendencies instilled into the criminal by passes and suggestions; whether the criminal has a will to be moral or not, he is to be made so. On the other hand, there comes from Germany the proposition to cure sexual perverts by the same means, but the foreigner is either less hopeful or more immoral, in that he proposes to substitute a less repulsive style of immorality for the existing tendencies of the subjects. He is perhaps a little less extravagant, if he is also less respectable in his ideas than the Utah practitioner, but it is hard to see why they are not almost equally irrational.

Hypnotism ought to be understood by the people and by medical men in particular, if the amount of literature on the subject could enlighten them, but there still seems to be a widely spread superstition which a few in the profession seem to share, that there is an occult force in the hypnotizer which his victim can not resist. And hypnotism as a moral force, usurping the place of training and religion is comparatively a new extension of the superstition.

THE SOCIETY OF AMERICAN OBSTETRICIANS AND GYNECOLOGISTS.

This active and energetic society held its annual session in Chicago this week, under the Presidency of Dr. J. H. CARSTENS, of Detroit. The proceedings which were varied and interesting, will be published in our next issue.

The entertainments included an excursion on the Lake, given by PROFESSOR J. B. MURPHY, and the annual dinner of the Society at the Union League Club. The speeches at the dinner were by DR. POTTER, McMURTRY, McDONALD; ROSS of Toronto; TAYLOR, HAMILTON, LYDSTON, MARTIN and DUDLEY. MR. EVANS of New York, gave some character songs which were well received.

A telegram was sent the venerable ROBERT BATTEY, of Rome, Ga., expressive of the sympathy of the Society, the Chicago Gynecological Society, and the invited physicians there present, with him in his illness and their best wishes for his speedy recovery.

DR. JOSEPH PRICE, of Philadelphia, was elected President; A. H. CORDIER, of Kansas City, Vice-President, and W. W. POTTER, of Buffalo, Secretary.

Richmond, Va., was chosen as the next place of meeting on Tuesday, Sept. 2, 1896.

EXCELLENT APPOINTMENTS.

The Commissioners of Cook County, Ill., have at last yielded to the voice of the medical profession and the public, and appointed a competent board to supervise matters at the County Hospital for the Insane.

Let us trust that the Commissioners will have the good sense to follow this up, by the appointment of a medical man as resident superintendent. DR. RICHARD DEWEY, SANGER BROWN and ARCHIBALD CHURCH are named as the board, to have supervisory control over the medical affairs of the hospital. It has been stated that the absence of DR. DEWEY will probably prevent his acceptance, but there is no dearth of good timber in Chicago. There are to be two resident assistants selected under civil service rules. The order of the Commissioners is elsewhere printed.

ARMY MEDICAL BOARD.

A board for the examination of candidates for admission to the Medical Corps of the Army has been called by SURGEON-GENERAL STERNBERG, the text of which will be found in the Public Service column.

CORRESPONDENCE.

The Doctor in Politics.

Sept. 24, 1895.

To the Editor:—The opinion held by some physicians that the medical profession should take a more prominent part in political affairs has received a new impetus from the recent meeting of the County Central Committee of Cook County, Illinois. The story told of the sanguinary encoun-

ters between members of that committee has led to the suggestion that hereafter a surgeon should be appointed to attend all meetings of the "business" men who control the destinies of one of the great parties in the second city of our great Republic.

The story of how one MR. GOODMAN, of Evanston, had his nose broken by the HONORABLE "BUCK" MCCARTHY, an alderman, and the heroic deeds of this doughty champion in producing bruises on the face of the HONORABLE "JO." LAMMERS, also an alderman, and enucleating the eye of that worthy by the effective and simple process technically known as "gouging," has also stimulated the surgical instrument trade to a considerable extent. It is understood that in the enucleation of the eye of the HONORABLE "JO." LAMMERS, the HONORABLE MR. MCCARTHY did not use scissors or scalpel, but with due regard for the prevention of hemorrhage, tore through the conjunctival mucous membrane with his right index finger. It is also stated in the press dispatches that no regard was paid to the modern teachings of antiseptic surgery, and that although preparations for the operation on the aldermanic eye had lasted for some time with the doors of the operating room closed, even the trained nurses engaged by the committee were denied admission. Whatever credit, therefore, may attach to the operation *per se*, it is discreditable to the intelligence of a great city that such important surgical operations should be intrusted to an illiterate alderman from the stock yards district, such as we understand the HONORABLE "BUCK" MCCARTHY to be.

There is no question but such aldermen accurately represent the refinement of their constituents, for this is a free city, and everybody may vote at the primaries and at the polls. A gum-chewer, with a fog-horn voice, we send to Congress, because he represents fully our ideas of polite elegance and oratory. A bruiser who keeps a saloon we elect to our city council, because we believe in physical culture, and in his ability to legislate for the general good of the public. A Council composed of such worthies we return every year, because we think "business" men should always be preferred to legislate on the public health, over any physician. It is clear, Mr. Editor, that such is the opinion of our physicians, and as well of the clergy, or else it would not happen. It is said that the downfall of the Roman Republic began with the indifference of the leading citizens in regard to its political affairs. We do not believe this, for our profession is as patriotic as any, and we, by our silence, give full consent to any thug who wishes election to receive it. We must, in fact, accept the fact as it stands, that as a profession we prefer a scoundrel in our legislative halls, otherwise we would try to prevent it. Let us not, Mr. Editor, try to delude ourselves, as you seem to be constantly trying to do, into the belief that we, as a profession, do not like to be represented by the persons we send to our City Halls, our Legislatures, and our Congress. SENEX.

Post-Nasal Hypertrophy.

MINNEAPOLIS, MINN., Sept. 20, 1895.

To the Editor:—I wish to acknowledge through the JOURNAL, my appreciation of the article entitled, "Post-Nasal Hypertrophy in Its Relation to Hay Fever and Other Diseases," by W. H. Weaver, M.D., of Chicago, Feb. 9, 1895.

In my estimation this article contains the most valuable contribution to the treatment of all those forms of nasal disease characterized or accompanied by intumescence, which has been given to the profession in the past ten years. Dr. Weaver recommends that the posterior, (nearly always enlarged) extremities of the lower turbinates be snared, or with a bent probe cauterized with chromic acid, in order to destroy the sensitive terminals of the nerve supply to "MacKenzie's sensitive area," including the posterior ends of the lower turbinates and the surface of the septum opposite.

Of course we have all snared the posterior growths when we could engage them in our loops, and failing, have deeply cauterized with galvano-cautery, and still our patients have complained that they were not cured.

Dr. Weaver's recommendation seemed so rational that I at once adopted it, and have been so well pleased with results that I now seldom use, or have need to use, my cautery. Since the date of publication of Dr. Weaver's paper, Feb. 9, 1895, I have done the operation (applying chromic acid to the posterior extremity of a lower turbinate) sixty-two times in thirty-eight private patients, whose records are readily accessible and who for the most part had had no previous galvano-cautery treatment. Beside these, I have treated in like manner perhaps an equal number, who after the regulation snarings and deep cauterizations have still returned for further relief. The results have been incomparably better than by the galvano-cautery. The pain and shock are much less, there is almost never any inflammatory reaction sufficient to cause occlusion of the naris, and the relief is immediate and as permanent as more destructive methods will give. Since using this method I find much less necessity for snaring posterior growths, and where I have snared large growths I have found the benefit more than doubled by a subsequent application of the chromic acid. I find, further, that the efficient application of this method obviates the old time necessity of "tacking down" the anterior and middle regions of the lower turbinates, certainly in a large majority of cases.

And now a final word as to the application of the method. Having the lower turbinate well cocaineized, the acid is fused upon one side only of a properly bent applicator, passed back through the naris, carefully applied to the whole posterior extremity of the lower turbinate, and withdrawn without touching innocent parts. The nares are then flushed thoroughly and as promptly as possible with a pint or more of soda water. Then a drying powder containing antipyrin, and an oil spray. The patient seldom sneezes, and after an hour the slight discomfort in the nose is usually gone. To use merely an alkaline spray after such an application of chromic acid is to be guilty of malpractice.

EDWARD J. BROWN, M.D.

Coca Cola Statistics.

63½ WHITEHALL ST., ATLANTA, GA., Sept. 21, 1895.

To the Editor:—Desiring to find to what extent coca cola habits are developed by the use of coca cola as a drink, I address this card to the medical profession, hoping that it will receive a ready response by any physician who has treated such cases. In replying, please state age of patient, sex, and amount drank daily.

Hoping some good may result from such a collection of cases, I am,

Yours respectfully,

R. R. KIME, M.D.

BOOK NOTICES.

The Index Catalogue of the Library of the Surgeon-General's Office. Authors and Subjects. Volume xvi. W. ZITRUS. Washington, D. C. Government Printing Office. 1895.

This volume completes the alphabet, and is therefore the final volume of the first series of this incomparable work. We learn from a letter transmitted by Deputy Surgeon-General John S. Billings that "the manuscript of a second series, including all the titles of books and articles received too late for insertion in the first series, has been prepared, and will probably make some five printed volumes of the same size and style as those constituting the first series. An appropriation for printing volume 1, of the second series, has been granted by Congress, and the work will therefore proceed without interruption, the manuscript for the first volume being now nearly ready for the press." The library of the Surgeon-General's office now contains 116,847 books, and 191,598 pamphlets. This volume contains a list of contributors to the library, government societies, corporations and individ-

uals who have given numerous contributions. There is also found *corrigenda* of the entire sixteen volumes.

In mentioning the completion of this book, we desire to congratulate Dr. Billings, Dr. Fletcher and their coadjutors, and to say that so far as we are able, we feel sure we voice the expression of the entire Association when we say that no aid to American medical literature has been so important as this, since the foundation of the country. The teacher and the writer, and scarcely less the general practitioner, must turn to this great catalogue when in search of the literary treasures of the past, bearing on whatever subject he is especially interested in, and no one more than the medical editor knows how extremely valuable this Index is for reference. We are obliged to consult this work nearly every issue of the JOURNAL, to verify spellings and dates. It is also with pleasure that we note the continuation of the Index and the practical completion of its first volume.

Practical Dietetics, WITH SPECIAL REFERENCE TO DIET IN DISEASE. By W. GILMAN THOMPSON, M.D. 8vo., with pp. 802. New York: D. Appleton & Co. 1895.

To the members of the medical profession connected with hospitals, and especially those in the Government service, it has long been a source of astonishment that the profession in general paid so little attention to dietetics in the treatment of disease, as in the hospital service the diet is prescribed with the same regularity as medicines or drugs. Nor has medical literature, generally, given the subject of diet as much attention as its importance warrants, and this book will therefore go to the profession as one conveying information on a nearly new subject. We can not too highly commend the study of dietetics. For that purpose the volume under consideration is perhaps one of the best of modern works on this subject. The contents of the volume are included in nine parts and an appendix. Part I, Foods and Food Preparations, which refers to the composition, classification, force-producing value, etc. It includes both vegetable and animal food and the detection of adulterations in classes of food mentioned. Part II is given to the study of Stimulants, Beverages, and Condiments. Part III, Cooking, Food Preparation and Preservation, and Quantity of Food required. Part IV, Foods Required for Special Conditions. Part V, Food Digestion and conditions which specially affect digestion. Part VI, General Relation of Food to Special Diseases which are caused by Dietaries. Part VII, Administration of the Food for the Sick. Part VIII, Diet in Disease and Diet in Infectious Diseases; diet in diseases of the respiratory system; diet in diseases of the circulatory system and blood; diet in diseases of the alimentary canal and diseases of the intestine, disease of the liver, of the nervous system, skin diseases, and a discussion of the diseases especially influenced by diet. Diet in miscellaneous diseases; diet for surgical patients. Part IX, Rations, Dietaries, giving the Army and Navy rations, as well as the U. S. Prison ration, various hospital dietaries, etc.

In the appendix will be found recipes for invalid food and beverages suitable for fevers, convalescence from acute illness, beverages of all kinds, beef preparations, broths and soups, meat, milk and eggs, farinaceous and gelatin preparations. With this book one may manage very many affections without the use of drugs of any sort.

The chapter on Milk is one of the most valuable in the book.

In regard to the treatment of obesity, which the author describes in detail, he speaks of the different systems, but says: "Nearly all of these systems agree in two particulars: 1, to reduce the total quantity of food ingested as much as possible, without impairing the strength of the patient; 2, to diminish the amount of fluid drunk, by prescribing what is called a dry diet. The treatment, moreover, is usually combined with systematic exercise or bathing, and it is highly important to keep the bowels active. Lean meat should form the basis of all diet. A non-restricted flesh diet may give rise to dyspepsia, gastric and intestinal catarrh. Soups of all kinds should be forbidden, as well as alcoholic

beverages, and what little fluid is allowed should consist of plain or aerated water. Highly succulent fruit, such as watermelons; vegetables, like raw tomatoes, which consist largely of water, should not be eaten. Sugar should be absolutely forbidden, and fat must be used very sparingly, and only in the form of a little butter. The allowance of farinaceous food must also be cut down as much as possible." As near as we can understand, the author's general directions are to eat and drink as little as possible, which would seem to be a very practical way of diminishing corpulence.

Green's Pathology and Morbid Anatomy. PATHOLOGY AND MORBID ANATOMY. By T. HENRY GREEN, M.D., Lecturer on Pathology and Morbid Anatomy at Charing-Cross Hospital Medical School, London. Seventh American, from the eighth and revised English edition. Octavo volume of 595 pages, with 224 engravings, and a colored plate. Cloth, \$2.75. Philadelphia: Lea Brothers & Co., Publishers, 1895.

This well-known text-book comes to us in a new edition, enriched with sixty new engravings, and will be found more than ever worthy of the favor with which former editions have been received. The radical changes that have been made in the study of pathology by the discovery of bacteria have necessitated the rewriting of all the books on pathology in the last fifteen years; the newness of the field makes discovery an almost everyday matter, and in consequence a text-book to be kept up to date must be revised almost every year. We have examined with some care the present volume and find that Dr. Murray has incorporated the latest bacteriologic studies in this edition. It is to be regretted that the publishers do not use more colored illustrations in the illustration of specimens requiring staining, in order that the natural color as seen by the student may appear. It is this that makes the value of such publications as that of Woodhead and others, and its adoption in Green would add very much to its usefulness.

Clinical Lectures on Diseases of the Nervous System. Delivered at the National Hospital for the Paralyzed and Epileptic, London, by W. R. GOWERS, M.D., F. R. S. 8vo., pp. 279. Philadelphia: P. Blakiston, Son & Co. 1895. Chicago: E. H. Colegrove & Co. Price, \$2.

These lectures have been reprinted from various English medical journals with the exception of two, which were printed in the *International Medical Magazine*, of Philadelphia. There are twenty lectures in the series, as follows: Principles of Diagnosis of Diseases of the Nervous System; Mistaken Diagnosis; Argyria; Syphilitic Hemiplegia; Bulbar Paralysis; Facial Paralysis; Facial Contraction with Palsy; Acute Ascending Myelitis; Locomotor Ataxia $\frac{1}{2}$; the Foot Clonus and its Meaning; Syringomyelia; Treatment of Muscular Contraction; the Infantile Cause of Epilepsy $\frac{1}{2}$; Neuralgia, Lead Palsy, Saturnine Tabes; Optic Neuritis, $\frac{1}{2}$.

The authoritative position of Gowers and his international reputation make it a work of supererogation for the reviewer to commend anything to which his name is attached, but while we commend the lectures and pay due deference to the great master who has prepared them, we extremely regret that there is no index in the volume, which is otherwise admirably printed. The illustrations might have been more frequent, if it is intended to be placed in competition with the French books on the subject.

Indurative Mediastino-Pericarditis. By THOMAS HARRIS, M.D., London. Reprinted from the *Medical Chronicle*, 1894-95. Imperial 8vo., pp. 67. London: Smith, Elder & Co. 1895.

The popularity of this article was such that its republication was considered desirable, so as to place it in permanent form as a monograph on this subject. The author of the term, indurative mediastino-pericarditis, is Kussmaul, whose original article appeared in the *Berliner Klinische Wochenschrift*, for 1873. These cases are those in which great difficulty of diagnosis is presented clinically and "where at the autopsy there is found an adherent pericardium with an increase of fibrous tissue in the mediastinum. The increased mediastinal tissue is united to the external surface of the pericardium, and both it and the pericardium are united to the left and, may also be to the right lung." The author has appended an extended bibliography to the monograph and has made a collection of twenty-five cases.

Hayem and Hare's Physical and Natural Therapeutics. PHYSICAL AND NATURAL THERAPEUTICS. The Remedial Use of Heat, Electricity, Modifications of Atmospheric Pressure, Climates and Mineral Waters. By GEORGE HAYEM, M.D., Professor of Clinical Medicine in the Faculty of Medicine of Paris. Edited with the assent of the author, by HOBARR AMORY HARE, M.D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. In one handsome octavo volume of 414 pages with 113 engravings. Cloth, \$3. Philadelphia: Lea Brothers & Co., Publishers. 1895.

Dr. Hayem, the author, is not only Professor of Clinical Medicine in the Faculty of Medicine of Paris, but is also the editor of the *Revue des Sciences Medicales* and, as such, he is well known on both sides of the Atlantic.

This book will be found very useful to practitioners, not only as a work of general information on the subject, but for reference in the treatment of cases in which the benefit of mineral waters or change of climate is desired. Dr. Hare, who has edited this book, has so clearly set forth its objects and aims in the preface that we quote it: "Every practicing physician constantly sees cases which should be sent to health resorts and thereby gain the benefits of mineral waters or of change of climate." He sets forth clearly remedial measures, such as the application of heat and cold baths, and says that "electricity will be of greater advantage to the patient than the administration of drugs. Information concerning such resorts and methods has been scattered in a fragmentary way, and as a result they have been too much ignored. The object of the book is to provide in a concise form just what the physician needs in this respect." "Written by one of the foremost therapeutists of the day in Europe, it embodies not only his own views but also those held by Benibard, Fleury, the brothers Delmas and Winternitz in the chapter on thermic agents; von Vivenot, Lombard, H. Weber and Lindsley in the chapter on air therapy, and climate, and by Durand, Fardell, Leichtenstern, Leuret and Rotureau on mineral springs. In the portion devoted to electricity, the views of standard writers are linked with those of the author. It has been the aim of the editor to render the text applicable to the needs of the American physician, particularly by the addition of article on American climates and mineral springs."

The contents of the volume are as follows: Atmospheric Pressure as a Therapeutic Agent; Climate; Thermic Agents; Hydrotherapeutic Measures; Mineral Acids; Electricity. Nearly one-half of the book is devoted to electro-therapeutics and is a very fair epitome of the subject, although very much inferior in scope to the larger books such as Bigelow and others. As a luminous and philosophical presentation of the matters treated in the work, we take pleasure in commending it.

A System of Surgery by Various Authors. Edited by FREDERICK TREVES, F.R.C.S. Vol. 1, with 2 colored plates and 463 illustrations. 8vo., pp. 1,152. Philadelphia: Lea Bros. & Company. 1895.

This is an English surgery, so far as surgery may now be said to belong to any particular country, for the writers are all Englishmen, and it is evidently intended to be a correct exposition of the national views and methods of treatment of this important branch of medical knowledge. The names of the authors are a sufficient guarantee of the authoritative character of the work. The contents comprise an article on surgical bacteriology, by German Sims Woodhead; inflammation, suppuration, ulceration, gangrene, syncope, shock, wounds and contusions, by Dr. Watson-Cheyne; erysipelas, pyemia, tetanus and tetany, by C. B. Lockwood; burns and scalds, by Lockwood; military surgery, by Surgeon-Major Andrew Duncan; anesthetics, by Frederick W. Hewitt; surgical diseases due to microbic infection and parasites, by George Henry Makins; and rickets, by the same author; syphilis, gonorrhea, and diseases of the skin, by Jonathan Hutchinson Jr.; tumors, by J. Bland Sutton; injuries and diseases of blood vessels, including aneurysm, and diseases of the jaws, by A. Pearce Gould; injuries and diseases of the lymphatics, by John H. Morgan; injuries and diseases of nerves, by Anthony Bowlby; injuries of bones, by Stanley Boyd; diseases of bones, by H. H. Clutton; injuries of the

joints and dislocations, by A. Marmaduke Shied; diseases of the joints, by Arthur E. Barker. The following are by the editor, Frederick Treves: the influence of constitutional conditions upon injuries; tuberculosis; hemophilia, and hysteria in its surgical relations.

In the main, the illustrations are new. Some of them are on colored plates, mostly well executed, and in a great many instances are from drawings or photographs of specimens in the British Museum or original cases. The work is brought up to date and is a fitting companion to the large work of Mr. Treves on operative surgery, with which the American profession are already familiar. In this book the actual details involved in operative procedures are not especially dwelt upon, and some subjects have been excluded that have appeared in other surgeries. It is natural, we suppose, that a branch of medicine which has shown almost revolutionary changes in the last ten years, should have an unusually large crop of literature at this time, and among them the present work will occupy an honorable place.

PUBLIC HEALTH.

Isolation of Infectious Disease at Home.—In his always interesting section on "Public Health," Malcolm Morris in the September *Practitioner*, approves of the suggestion that in planning a house some regard should be had for the future needs of the occupants in time of sickness. The idea is that one room should be set apart in design as the sick room *par excellence*. It should be shut off as much as may be from the common atmosphere and common noises of the dwelling—or, rather, it should be so arranged that it can be shut off at any time—and there should be a bath room and water closet at hand. The walls and floors and other surfaces should be impervious, so as to harbor no impurities and to admit of ready cleansing, and the furniture and fittings should be simple, with the same object. If in addition, there be a second room available for the nurse's use, the essentials for the proper seclusion of infectious cases are provided as far as is possible in a private house. A miniature hospital is then ready to hand and at ordinary times it can serve as a spare room or even as a bedroom in regular use, differing only from any other room in its adaptability to the special purpose in question. Such a provision would be an efficient adjunct to the sanitary authority in fighting the spread of the contagious and infectious diseases.

Cremation in Paris.—From statistics furnished by the Prefect of Police, it appears that cremation is gradually growing in favor in Paris, as shown by the following table:

Year.	Demand by Families.	Debris from Hospitals.
1889	49	483
1890	121	2,188
1891	134	2,369
1892	159	2,261
1893	189	2,389
1894	216	2,247
1895 (four months)	75	1,065

The first apparatus was installed in the cemetery of Pere-Lachaise in 1887 and was of the Gorini model, used in Milan. The bodies were burned in this in from one hour and three-quarters to two hours, being reduced to extremely white ashes without any mixture of carbonized material and without odor or smoke. This apparatus proved unsuited for Paris, first because the incineration took too much time; secondly, the price of wood in Paris brought the cost of each incineration up to 20 or 25 francs. The authorities adopted a new apparatus constructed by M. M. Toisoul and Tradet. The results from this were very satisfactory. Incineration lasted from one hour to one hour and a quarter and cost but 3 francs. In Paris the *débris* from dissecting rooms alone amounts to 2,000 to 2,500 bodies yearly, and a crematory can be kept in use constantly, which considerably lessens the cost to private families. On account of this constant use it was necessary to provide a second crematory in case of necessary repairs to the other. The administration instead of ordering the Toisoul model, again adopted another new model, that of M. Fichet. Like the first, this is composed of

a gas chamber furnishing carbonic oxid and of a recuperator furnishing hot air to the vaulted chamber in which combustion takes place. The difference is that the carbonic oxid only serves to heat the recuperator, and combustion is caused by the hot air alone, owing to the large size of the recuperator. A body by this method is consumed in 50 or 55 minutes, but the expense for fuel is slightly more—18 hectoliters of coke daily for the Fichet and 14 for the Toisoul-Tradet. The crematory monument of the city, the construction of which was begun in the Pere-Lachaise cemetery in 1886-87 is only partly built and occupies only about one-third of its ultimate extent.¹

Modified Milk.—The average family physician will be apt to sympathize with Dr. Worcester, of Waltham, Mass., in his satisfaction at having at last found a "perfect substitute for breast milk." The Doctor confesses, as many of us might do, to having pinned his faith in turn upon the "statements which sleek agents have left with their blotters and pencils and lovely paper weights," and to have starved many a baby with the samples so left in his hands. The "perfect substitute," which he now enthusiastically recommends, is that produced by the Dresden process, the details of which he gives at considerable length.² Briefly summarized, this consists of the addition of the white of one egg and 13 drachms of milk-sugar to one pint of cow's milk, of 9.5 per cent. richness in fat, and one and a half pints of water. The milk-sugar is slowly added and thoroughly mixed with the egg-white, taking care not to beat air in the mixture, for egg foam will not mix well with water. To the paste so made, a pint and a half of water is slowly added, stirring constantly. This emulsion is then strained through fine linen into the sterilized milk which has also previously been cooled down below 100 degrees F. Slight stirring or shaking will now complete the mixture when it may be poured into the required number of nursing bottles. These, stoppered with sterilized cotton, can then be kept cool and warmed as needed. If sufficient care is taken in preparation, the mixture will keep for days and even months.

Medical Climatology of Peru.—In the study of the medical climatology of Peru, especial attention should be directed to paludism, verruga, goitre and oroya fever, which are very frequent. Lima, the capital, situated six miles from the coast and 150 meters above the sea level, contains 120,000 inhabitants. It is in a valley surrounded by several chains of mountains which slope toward the ocean. The climate is warm; the sky, cloudy in winter, is clear in summer although at this season a thick fog prevails in the morning which is dissipated by the heat of the sun. This is a constant phenomenon on the Peruvian coast—where it is known as *camanchaca*. Extreme temperatures are in summer 30 degrees C., winter 13 degrees; annual mean 22 degrees. A noteworthy fact is that whereas in former times the seasons, especially the spring, were well defined, now they are but slightly marked and pass from one to the other without any great transition. Earthquakes, invariably preceded by great rains are very frequent particularly during the equinox. Paludism heads the list of common diseases, 50 per cent. of the total. The "carrión disease"—new name for verruga, which was endemic at the time of the Incas—is found in two forms, the acute, or fever of the oroya, with or without consecutive eruption; the other, the verruga audina o peruana, a simple eruption without fever. The disease is attributed to drinking the water from certain streams which the Indians never use, even for their horses and mules. In 1843, Tschudi wrote that the disease is manifested, first, by sore throat, pains in the bones, and many febrile symptoms; within a few days an eruption covers the whole body, the lesions are red in color and some are as large as an egg; hemorrhages occur with such abundance that the patient's strength is much reduced. After summing up recent researches and the experimental inoculations submitted to by a medical student, Ayendano concludes that verruga is to be considered as a zymotic disease belonging to the telluric group with malaria, cholera and yellow fever, and that we may suppose, from analogy, it is due, like them, to the existence of a specific microorganism; that it is inoculable, but

¹ Revue Scientifique.

² Boston Medical and Surgical Journal, Sept. 19, 1895.

that there is not sufficient evidence yet to prove that it is contagious. Goitre and cretinism are frequent in the valley of Villamayo. Uta, which is a species of lupus, is, according to Ugaz, endemic in certain valleys on both slopes of the Andes. The lesions are usually found on the uncovered parts of the body. In February, 1891, in Lima, and especially in Jesus Maria convent, there occurred many cases of a fever with infectious characteristics, to which many distinguished persons succumbed and which threatened to spread indiscriminately. The National Academy of Medicine attributed this outbreak to the bad condition of the sewers, intra-urban cemeteries, and burial in churches.¹

Health Reports.—The following health reports have been received at the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arkansas: Clay County, August 7 to September 18, 43 cases, 7 deaths.

Louisiana: New Orleans, September 7 to 14, 2 cases, 1 death.

Michigan: Battle Creek, September 7 to 14, 2 cases 1 death; Detroit, Marshall, Bedford Twp., smallpox reported present, September 7 to 14.

Texas: September 17 to 22, 1 death.

CHOLERA—FOREIGN.

India: Bombay, August 13 to 20, 2 deaths; Calcutta, August 3 to 10, 18 deaths; Madras, August 10 to 16, 1 death.

Turkey: Aleppo, August 14 to 21, 63 cases, 32 deaths.

Japan: Nagasaki, August 12 to 19, 71 cases, 55 deaths.

YELLOW FEVER—FOREIGN.

Cuba: Santiago, September 1 to 14, 27 deaths.

Mexico: Vera Cruz, September 5 to 12, 2 deaths.

SMALLPOX—FOREIGN.

Calcutta: August 3 to 17, 6 deaths.

Dublin: September 1 to 7, 4 cases.

London: September 1 to 7, 25 cases, 5 deaths.

Manchester: September 1 to 7, 5 cases, 1 death.

Montevideo: September 10 to 17, 1 case.

Odessa: August 24 to 31, 1 death.

Trieste: September 24 to 31, 2 cases.

Tuxpan: September 1 to 7, 3 deaths.

Southampton: September 24 to 31, 1 case.

Zurich: August 17 to 24, 1 case.

NECROLOGY.

JAMES MCCREARY SUDDUTH, M.D., formerly of Bloomington, Ill., at Colton, Cal., September 20, aged 68. He was graduated from Rush College in 1854 and built up an extensive practice in Central Illinois. He afterward gave up the practice of medicine and became a banker and stock raiser. He leaves a widow, one son, Dr. William Xavier Sudduth, of Chicago, and two daughters, Miss Alice Sudduth, National Superintendent of the W. C. T. U., and Miss Margaret Sudduth, Managing Editor of the *Union Signal*.

H. V. GREGG, M.D., of Connorsville, Ind., September 12. He had practiced medicine in Connorsville since 1858, served during the Civil War as Surgeon of the 124th Indiana Volunteers, and was mustered out of service with the rank of Major. He was an active member of the AMERICAN MEDICAL ASSOCIATION.

WM. S. LAYMAN, M.D., one of the best known physicians of Schoharie County, N. Y., died September 5, in Schoharie. He was 64 years old. He was a graduate of the Albany Medical College in the class of 1854. He was a member of the State Medical Society, and was prominent in various social organizations.

OGDEN M. RANDEL, M.D., of Oneida, N. Y., September 15, aged 68. He was graduated from the University of Michigan in 1854.—A. W. Thompson, M.D., of Circleville, Ohio, September 16, aged 81.—C. C. Brady, M.D., of Lincolnville, Ind., September 10, aged 40 years.—W. LeRoy Wilcox, M.D., of Irving Park, Ill., September 22, aged 35. He was thrown from his carriage and accidentally killed.—Nathaniel Allison, M.D., of Mexico, Mo., September 15. He was born in Orange County, N. Y., in 1818, and moved to Mexico in 1845, where he has since lived.—Howard Hopkins Winters, M.D., of Lancaster, Pa., September 15. He was graduated from the University of Pennsylvania and has practiced in Lancaster nearly twenty years.—W. O. Stauffer,

M.D., of Indianapolis, September 11.—J. W. Crowders, M.D., of Dallas, Texas, September 11.—R. A. Herwick, M.D., of Smithton, Pa., September 17.—Newell P. Warner, M.D., of Syracuse, N. Y., September 16.—J. B. Galer, M.D., September 11, aged 74. He was born in Pennsylvania and was graduated from Rush Medical College.

MISCELLANY.

Bequests to Massachusetts Charitable Institutions.—Under the will of the late Mrs. Elizabeth T. Eldredge, of Newton, Mass., the Massachusetts General Hospital receives a donation of \$10,000 for the establishment of free beds. She also bequeaths to the Home for Aged Men \$25,000; to the Home for South Boston Orphans, South Boston, \$2,000; to the Association for the Relief of Aged Indigent Females, \$25,000; to the Society for the Prevention of Cruelty to Animals, \$1,000.

Association of Women Dentists.—There is a dental association, composed of female practitioners from all parts of the United States, and numbering forty-two active members. The chief condition of membership in it, is the possession of a diploma from some dental college in good standing. There are not less than one hundred and fifty women dentists in the country, and every year brings a larger number of students to the classes. A three-year course of study is required in the best of the schools to which women have access.

Thyroid Treatment of Uterine Fibroids.—Jouin has given thyroid extract in tablets of 0.15 cgm, 4 to 8 tablets daily, in cases of uterine fibroids. In three cases he noticed a diminution of the hemorrhages and in two a partial disappearance of the tumor. In one case it was unsuccessful; two others are too recent to arrive at any conclusion. He believes that experimental researches into this phase of its sphere of activity should be undertaken. Physiology as yet, he says, furnishes only very hypothetical views as to the action of the thyroid juice in the therapeutics of fibroid tumors.¹

Dr. Winslow on Female 'Cycling.—Dr. Forbes Winslow states that he has been misrepresented regarding his opinions of the bad effect of the bicycle on women. In a recent letter to the *New York Herald* he remarks that an interviewer approached him with some general questions on the subject, and that "in reply to his question, I stated that I personally did not approve of lady bicyclists (an opinion universally indorsed by physicians in my part of the world), but really, I had no practical experience in the matter. I was then asked as to the moral effect, but on this matter I expressed no statement of any description, and I desire that the words which have been quoted as mine should be emphatically denied, as being purely invention and not in any way based on what I said on the subject. I believe that many young girls run the danger of serious bodily illness from excessive straining, but it is a subject which I have never studied sufficiently well to be quoted as an authority. I agree with your remarks on the subject, and trust to your sense of fairness to emphatically deny what has been given broadcast as my opinion in the matter."

Aural Complications in Typhoid Fever from Secondary Infection.

—It is not rare to see aural complications during the course of typhoid fever; these are generally at least in the beginning, a simple catarrhal otitis. This otitis may continue catarrhal or it may become purulent. Suppuration of the middle ear is of considerable importance and generally ends in spontaneous perforation of the tympanic membrane, when there will be a purulent discharge from the meatus. In many cases the suppuration will invade the mastoid cells; then we will have chronic otitis and caries of the petrous portion. To prevent these serious results the ears of typhoid patients should be watched carefully. The treatment of otitis may be divided into two parts; first, we try to arrest its development and prevent suppuration; second, if suppuration follows or if pus is already formed it must be evacuated and its reformation prevented. For prevention, rigorous antisepsis

¹ Journal d' Hygiene, Aug. 1, 1895.

¹ Rev. Int. de Med. et Clin. Prac., 1895, No. 15.

of the external ear and pharynx must be established by irrigating the canal several times daily with a boric acid solution; then drying the canal carefully, after which a plug of borated cotton is inserted.¹

For Impostors in Massachusetts.—Section 10 of Chapter 458 of the Massachusetts Acts of 1894 has been amended so that it now reads as follows: "Whoever, not being registered as aforesaid, shall advertise or hold himself out to the public as a physician or surgeon in this Commonwealth, or appends to his name the letters, 'M.D.', or uses the title of doctor meaning thereby a doctor of medicine, shall be punished by a fine of not less than one hundred nor more than five hundred dollars for each offense, or by imprisonment in jail for three months, or both." Here the words "or appends," after the word "Commonwealth," have been substituted for the words "by appending," and the word "uses," following the letters "M.D.," has been substituted for the word "using," thereby materially broadening the scope of the statute.

Density of Population in New York City.—In the *London Lancet* for August 10, the American correspondent presents the following analysis of the figures obtained by the recent census of New York city:

"The recent census shows that in the last twenty-five years the population of the city has increased from 900,000 to 1,900,000. One million people, in large part formed of the poor and ignorant emigrants from Europe, have been added to our population. A certain acre near Essex and Stanton Streets, having 622 people on it, is the most crowded of any city in the world; but this maximum is nearly maintained for a whole square mile, including parts of wards, numbered 7, 10, 11, 13, 14, and 17. In this square mile there are gathered together 370,000 people, mostly aliens, while the enumeration of children under 5 years of age is 53,000. From the census returns giving the number of children of school age—that is, from 5 to 14 years inclusive—the estimated number in this square mile is 63,000. Fifty thousand should be in the primary schools, but there are in this whole square mile but 27,000 sittings in the primary schools, so that there are some 20,000 children more than can be received in the schools of this district."

Loss of the Eyes through Mourning.—According to the veteran missionary Dr. Martin, of India, it is not an uncommon thing to see Hindoo women, one or both of whose eyes have been lost through the manifestations of grief. On inquiring the cause of all this, the usual reply is that she has lost a child, and has cried till she may be said to have cried her eyes out. "That is," says he, "probably what has actually occurred in many cases. It is always a son, sometimes a husband. I never heard of a woman crying seriously for the loss of a daughter. In one case, both eyes had been lost by way of variety, for a buffalo. Buffaloes are prized above cows for their milk, as they give more milk, and of a richer quality, though with something of a tallowy taste. The female acquaintance of this woman waited upon her and advised her to weep, and offered to join with her in her efforts." They came, both young and old, some with one eye, and some with the remains of two, and some with strabismus and scarrings, and baring their heads, proceeded to form a circle with their hostess in the center. Then all, with one accord continued to shriek piteously for the space of two hours, while they beat their thighs and temples alternately with both hands. This is the customary mode of public mourning, though usually practiced only on the death of a husband or son.

Cook County Hospital for the Insane.—The Commissioners of Cook County, Illinois, have adopted the following order:

WHEREAS, It is the purpose of the County Commissioners of Cook County to secure in the management of the County Hospital for the Insane efficient service in all departments thereof, and to provide that in the treatment of patients therein, the highest and most approved means shall be used; and

WHEREAS, It is deemed expedient, in order to obtain the highest degree of service in the management of said institution that the counsel and advice be had of a board of physicians eminent in their profession, who are not county

employees, and who have no pecuniary interest in the management of said institution. Therefore, be it

Resolved, 1. That an advisory medical board, composed of three physicians eminent in the medical profession, be, and the same is hereby established, said board to be known and designated as the "Supervising Medical Staff of the Cook County Hospital for the Insane."

2. That the said supervising medical staff is hereby authorized to determine upon and formulate rules and regulations for the treatment and care of the patients in said hospital, and for the control and management of the resident physicians, nurses and attendants in charge of patients in said hospital, prescribing in said rules the duties and obligations of said physicians, nurses and attendants.

3. That the said rules, prepared as above, shall be submitted to the Board of County Commissioners, and upon the approval thereof by the said County Commissioners shall be and become of force and effect, and be binding upon all employees, physicians, nurses, and attendants at said hospital, and shall be in force by the superintendent of said hospital or asylum.

4. That the supervising medical staff is hereby authorized and empowered to inspect said hospital from time to time, and to examine into the condition, care, and treatment of the patients therein, and see that the rules and regulations thereof are enforced.

For the purpose of said inspection above provided the said supervising medical staff and the members thereof are hereby granted full freedom of said institution, and of each and every department thereof, at any time during the day or night. And the supervising medical staff is authorized to report to the President of the Board of County Commissioners at any time, when, in the judgment of its members, the good of the service requires it, any special or general matter relating to the condition, management, judgment, or rules of said hospital.

5. That until further ordered by the Board of County Commissioners there shall be employed at said hospital or asylum two physicians and two assistant physicians, who, subject to the supervision and direction of said medical staff, shall have charge of the medical treatment and care of the patients, as well as the direction of the nurses and attendants. It shall be the duty of said attending physicians to report in writing to the general superintendent any neglect, abuse, improper conduct, or infraction of the rules of any part of any nurse, attendant, or other employé. Said report shall be carefully pasted into a book and preserved for inspection. And it shall be the duty of the general superintendent to give notice in writing of every such complaint to the President of the Board of County Commissioners and to the chairman of the committee on Dunning institutions on the same day he receives such complaint.

6. That the County Civil-Service Commission be and the same is hereby requested to have applicants for positions of physicians at said hospital for insane examined as to their qualifications by the members of said supervising medical staff so far as practicable.

7. That Dr. Richard Dewey, Dr. Sanger Brown and Dr. Archibald Church be and they are hereby selected as members of the said Supervising Medical Staff of the Cook County Hospital for the Insane, to act in said capacity from the first Monday in October, 1895, until the first Monday in October, 1896.

Louisville Notes.

KENTUCKY SCHOOL OF MEDICINE.—At the meeting of the faculty of this school on the 21st inst., Dr. W. H. Wathen, who has been dean of the faculty for the past fifteen years, resigned, and Dr. Sam. E. Woody was elected to succeed him. Dr. Wathen will continue as professor of abdominal surgery and gynecology, but stated in tendering his resignation as dean, that his private business interfered with the proper conduct of the school. Dr. Woody, the newly elected dean, is professor of chemistry and diseases of children, and will continue as such, assuming his new duties October 1.

Hospital Notes.

THE new Silver Cross Hospital at Joliet, Ill., will be dedicated October 6. This hospital cost \$50,000, and has been greatly needed owing to the large number of sick and wounded sent from the drainage canal.—The court at Norristown, Pa., has filed an opinion in the estate of John Boyer, deceased, allowing the Protestant Episcopal Hospital of Philadelphia \$6,017. The deceased was a banker, and left a will giving Mrs. Mary Simpson the interest of \$5,000 for life, and at her death the principal to be paid to the hospital. Mrs. Simpson died in 1892, and the auditor awarded

¹ Rev. Int. de Med. et Chir. Prat., 1895, No. 16.

the interest and accretions on the principal sum, to other devisees, but the hospital filed exceptions which the court sustained.—Work will be begun upon the new hospital at Moline, Ill., in the spring. The probable cost of the building will be \$15,000.—The new hospital at Visalia, Cal., has been completed, at a cost of \$6,000.—The ninth annual convention of the Superintendents of the State Hospitals of New York was held at Rochester on September 10, holding its sessions at the Rochester State Hospital. The State Lunacy Commission was represented by two delegates.

Society Notes.

The Hill County (Texas) Medical Society held a regular meeting September 12 at Hillsboro.—The Jackson County Medical Society held a meeting at Kansas City, Mo., September 12. Four papers were read.—A regular meeting of the Fremont County Medical Society was held at Sidney, Iowa, September 11.—The Butler County, Ohio, Medical Society at the last meeting, held at Hamilton, decided to hold semi-monthly meetings instead of monthly as heretofore.—The Tri-State Medical Society will hold a meeting at Des Moines, Iowa, October 1, 2 and 3. The last meeting of this Society was held in Jacksonville, Ill.—The Toledo, Ohio, Medical Association held a regular meeting September 20.—The Franklin County, Pa., Medical Society held a regular meeting in Chambersburg, Pa., September 17.—The eighty-second annual meeting of the Vermont State Medical Society will be held in Burlington, October 10 and 11. There are about twenty papers on the program, and the wide range of subjects gives promise of a beneficial meeting. The officers are: President, J. H. Linsley; Vice-President, F. F. Chaffee; Secretary, D. C. Hawley; Treasurer, D. G. Kemp.—The seventh annual meeting of the Tri-State Medical Society will be held in Chattanooga, Tenn., October 8, 9 and 10. The preliminary program shows that this meeting will be up to the standard maintained for several years past.

Washington Notes.

HEALTH OF THE DISTRICT.—The death rate took an upward turn during the past week. From 95 deaths reported to the Health Department in the week previous, the number went up to 122. The annual death rate followed in the same ratio from 17.93 to 23.02, which is the normal figure. The increase in mortality may be attributed to no particular cause, but seems to be all along the line. Dangerous contagious diseases still maintain a minimum degree and do not attract the attention of the medical faculty, there having been but one death reported from diphtheria. The increase in the number of deaths from typhoid fever has determined the Health Department to institute a prompt and scientific inspection as to the cause, with a view to removing it if possible. In other respects the health of the city is at the normal, both as to mortality among children under 5 years of age and those persons over 60 years of age.

TO INVESTIGATE TYPHOID FEVER.—The Commissioners have appointed Dr. George M. Kober, special medical inspector, to investigate typhoid fever, at the compensation of \$5 per day, payable from the emergency fund. A more competent man could not be found to perform the duty. His previous scientific work on the subject is well known to the profession and he will undoubtedly make a very valuable report.

REPORT OF THE COLUMBIA HOSPITAL FOR WOMEN AND LYING-IN ASYLUM.—The Commissioners have received the report of Columbia Hospital from Nathaniel Wilson, President of the Board of Directors. For the coming year an appropriation of \$25,000 for the maintenance of the hospital and training school, and \$10,000 for the estimated cost of essential repairs to the main building are required. Patients discharged or left during the year, 566; died, 15; remaining under treatment July 1, 1895, 37. Of 573 patients treated, 473 were residents of the District of Columbia; 311 were colored, 26 white, and 1 an Arab. Of the children in the institution, 200 were colored, 101 white, and 1 Arabian; 1,690 new patients have been admitted to the dispensary, and 1,852 were treated. The total receipts of this hospital, including Congressional appropriation, were \$32,348.98. Of this, \$32,317.86 was expended for maintenance and improvements, leaving a balance of \$31.12.

THE PUBLIC SERVICES.

NOTICE.—An Army Medical Board

Will be in session at Washington City, D.C., during October, 1895, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before October 8, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character, and habits. The candidate must be between 22 and 29 years of age, and a graduate from a Regular Medical College, as evidence of which, his Diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.
GEO. M. STERNBERG, Surgeon-General, U. S. Army.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 15, 1895, to September 21, 1895.

First Lieut. Paul F. Straub, Asst. Surgeon (San Carlos, Ariz.), is granted leave of absence for one month, to take effect on or about Oct. 6, 1895.

Capt. Louis A. La Garde, Asst. Surgeon, is granted leave of absence for one month, from the date of his relief from duty at Ft. Logan, Colo. Major Henry M. Cronkrite, Surgeon, will report in person to the President of the Army retiring board to convene at Chicago, Ill., on Oct. 8, 1895, at such time as he may designate, for examination for retirement.

The following named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Public Health Association, to be held at Denver, Colo., Oct. 1 to 4, 1895: Lieut.-Col. Alfred A. Woodhull, Deputy Surgeon-General; Major Calvin DeWitt, Surgeon; Major Henry S. Tarrill, Surgeon.

Major Clarence Ewen, Surgeon, now on sick leave of absence, is relieved from further duty at Ft. Walla Walla, Washington, and ordered to Ft. Bliss, Texas, for duty, relieving Major Blair D. Taylor, Surgeon. Major Taylor, on being thus relieved, is ordered to Ft. McPherson, Ga., for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 21, 1895.

Asst. Surgeon M. S. Guest, detached from the "Minnesota," and ordered to the "Vermont."

Surgeon R. C. Persons, detached from the "Minnesota," ordered home and placed on waiting orders.

Asst. Surgeon C. M. DeValin, detached from the "Vermont," ordered home and granted six months' sick leave.

Asst. Surgeon C. P. Bagg, ordered to the "Vermont."

Surgeon D. N. Bertolette, ordered home and placed on waiting orders when the "Atlanta" goes out of commission.

P. A. Surgeon P. H. Bryant, detached from the "Baltimore," and ordered to duty on the "Petrel."

P. A. Surgeon W. F. Arnold, detached from the "Petrel," and ordered to special duty in investigating the plague in China and cholera in Japan.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ending September 15, 1895.

P. A. Surgeon C. E. Banks, to proceed from Washington, D. C., to Vineyard Haven, Mass., for temporary duty, Sept. 11, 1895.

P. A. Surgeon A. H. Glennan, granted leave of absence for five days, Sept. 3, 1895.

P. A. Surgeon C. P. Wertenbaker, granted leave of absence for three days, Sept. 3, 1895.

P. A. Surgeon E. R. Houghton, granted leave of absence for twenty-three days, Sept. 12, 1895.

Asst. Surgeon L. E. Coffey, granted leave of absence for seven days, Sept. 3, 1895.

LETTERS RECEIVED.

American Express Co., Chicago, Ill.; Andrews, B. J., Burlington, Vt.; Atkinson, W. B., Philadelphia, Pa.

Batman, W. F., Lebanon, Ind.; Bernd, H. & Co., St. Louis, Mo.; Bonyman, H. E., Everett, Mass.

Cone, Andrew, New York, N. Y.; Crosby, F. & Co., New York, N. Y.; Crawford, D. E., Centerville, Iowa.

D'Evelyn, F. W., San Francisco, Cal.; Dering, H. R., Chicago, Ill.; Edwards, Geo. A., Syracuse, N. Y.

Flint, Austin, New York, N. Y.; Friedenwald, H., Baltimore, Md.; Gulla, W. H. & Co., Boston, Mass.; Gouley, J. W. S., New York, N. Y.

Girard, A. C., Ft. Sheridan, Ill.; Gould, H. M., Brooklyn, N. Y.; Halsted, T. H., Syracuse, N. Y.; Houghton, R. E., Richmond, Ind.

Heineman, Richard, Allegheny, Pa.; Herrington, E. B., Elida, Ohio; Harris, R. B., Savannah, Ga.; Hummel, A. L., New York, N. Y.; Hill, G. H., Independence, Iowa; Hopkins, J. G., Thomasville, Ga.

Johnson, H. L. E., Washington, D. C.; Kirkbride, M. F., Philadelphia, Pa.

Leach, R. B., Paris, Texas; Lebensohn, M. H., Chicago, Ill.; Lyman, L. J., Manhattan, Kan.

Malsch, C. J., Philadelphia, Pa.; Maynard, E. W., San Jose, Cal.; Maynard, F. B., Albany, N. Y.; Minor, J. C., Hot Springs, Ark.

Nichols, M. M., Healdsburg, Cal.; Potter, W. R., Providence, R. I.; Pepper, Wm., Philadelphia, Pa.; Penhall, F. W., Morton, Minn.

Ridlon, John, Chicago, Ill.; Rogers, F. D., Chicago, Ill.; Robinson, W. B., Tappahannock, Va.; Rio Chemical Co. (2), St. Louis, Mo.; Reed & Carnick, New York, N. Y.

Sternberg, Geo. M., Washington, D. C.; Stevens, C. L., Athens, Pa.; Sutcliffe, J. A., Indianapolis, Ind.; Steinson, E. P., Tiverton, R. I.; Steiger, E. & Co., New York, N. Y.; Saunders, W. B., Philadelphia, Pa.

Schimmel, M. S. (2), Baltimore, Md.; U. S. Newspaper and Magazine Subscription Co., Clayton, Mich.

Woodbury, Frank, Philadelphia, Pa.; Wilson, N. L., Elizabeth, N. J.; Wakefield, W. H., Charlotte, N. C.; Warner, W. R. & Co., Philadelphia, Pa.

Woolen, C. V., Indianapolis, Ind.; Will, O. B., Peoria, Ill.; Wimberly, J. S., Sanford, Ga.; Wilkinson, A. D., Lincoln, Neb.; Wire, Geo. E., Chicago, Ill.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, OCTOBER 5, 1895.

No. 14.

ORIGINAL ARTICLES.

GUAIACOL IN THE TREATMENT OF TYPHOID FEVER IN CHILDREN.

Read in the Section on Diseases of Children at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY ADOLPH KÖNIG, M.D.
PITTSBURG, PA.

The comparative rarity of typhoid fever in children is probably entirely due to the fact of infrequent exposure, and not to any lessened degree of susceptibility, as compared with adults. I believe that it can now be accepted as proved, that typhoid fever is essentially a water-borne disease and that drinking water, rather than foul air or direct communication is the medium of infection. We thus have an explanation of the rare occurrence of the disease in very young infants and the increasing ratio of its occurrence in children as they gradually receive more solid food and drink more water.

The pathologic lesions of typhoid fever in children are necessarily identical with those in adults, except that in children who have passed their very earliest period of life, and in whom the constructive metabolism is at its height, the necrotic process, which in the adult often goes on to perforation of the wall of the intestines, is in them resisted more strongly, by reason of their greater reparative power. In very young infants this does not hold good, for in them the constructive forces are not yet established to their fullest power and statistics seem to prove that perforation of the intestine, in this class of patients is as frequent as in adults. The difficulty of making an absolute diagnosis of typhoid fever in sucklings is however, very great and it is not unlikely that typhoid fever in them is often mistaken for the common diarrheal diseases of infants.

Considering the ordinary innocuousness of typhoid fever in children, the question of treatment resolves itself more into a general hygienic and dietetic supervision, than into drug administration. When, however, we consider the etiology and pathologic lesions present in the intestinal canal, during the latter stage of this disease, certain forms of medication seem rational and demanded. According to the modern bacteriologic investigations, typhoid fever is a self-limited disease which reaches its climax at about the tenth or twelfth day, after the development of the first symptoms, and the activity of the bacillus typhosus apparently ends about the middle of the third week. The pathologic lesions, however, remain in the form of ulcers, of greater or less circumference and depth, in the intestinal canal, and the disease then practically resolves itself into a surgical one. The question which then arises is how to prevent the infection of the intestinal lesions with septic germs. The intestinal tract is the fertile habitat of germs

always ready to attack its tissues under conditions of reduced vitality, and to prevent the growth and multiplication of such germs, to render the intestinal canal as uninhabitable as possible for them, is to my mind a rational, and in my experience an efficacious, treatment of typhoid fever. To render the intestinal tract as aseptic as possible, it becomes necessary to do more than to administer antiseptics. The first treatment a case of typhoid fever should receive is to clear the intestinal canal as much as possible of all foreign matter, and next, the administration of food should be so regulated as to restrict to the greatest possible extent all fermentative processes during the height of the disease, at which time the digestive functions and the absorption of nutritive material are very seriously interfered with, if not entirely arrested.

The treatment of typhoid fever in children adopted by me can best be described under the following subdivisions:

Initiatory Treatment.—When a child is seen for the first time, though the symptoms present point strongly to typhoid fever, it is impossible to make a positive diagnosis, but it is nevertheless my custom to place them upon treatment appropriate for typhoid fever. The first object to be aimed at is to clear out the bowels, and this is done by the administration of calomel well triturated with sugar, in doses of 1-20 to 1-10 of a grain, according to the age of the child every two or three hours. All solid food is immediately withheld, water however, being given to the extent of the patient's desire.

Regular Treatment.—If after a few days the temperature assumes the typhoid fever curve, the patient is at once placed on the following treatment:

R Guaiacolis	f 5 i
Glycerini	f 5 i
Alcoholis	f 5 ii

M. Sig.: One to six drops in whisky and water every two hours, according to the age of the patient.

This treatment is continued throughout the course of the disease, the dose of the guaiacol being increased or decreased according to the severity of the symptoms. The whisky is given in small quantities. In that form I believe it to conserve the tissues of the patient, to stimulate his vital functions and to generally improve his well-being. The dose is allowed to range from one-fourth to one teaspoonful, according to age.

When no desire for food is manifested, or where a decided aversion for it exists, only meat broth and barley-water is given. Milk is allowed either pure or diluted one-half with barley-water, if the condition of the digestive functions seems to warrant it. As soon as the bowels have become thoroughly emptied the calomel is withheld, to be again resumed should the indications demand it. This is the case, as a rule, during the later stage of the disease.

Under this plan of treatment, intestinal antiseptics is furthered as is evidenced by the slight degree of tympanitis; absence of sordes on the teeth and especially by the character of the stools, which are much less frequent and are practically destitute of the very disagreeable odor that characterized the passages of patients before the introduction of treatment directed toward intestinal antiseptics.

High temperature is combated by cold sponging alone. No depressing antipyretics of any kind are used.

While I claim that the course of an attack is materially modified in ordinary cases, I do not claim guaiacol as a specific, for under its use during the last five years, (creasote being used part of the time, in place of guaiacol) I have lost two cases. Both of these died during the latter part of the third week, apparently of acute disorganization of the central nerve centers. The peculiar cause of death in connection with these two fatal cases remains to be explained. In each case a younger brother succumbed to the same disease, under different treatment, and under the care of other practitioners within a short period of time. The question naturally arises, was there not some peculiar absence of resisting power in the members of the families in which these cases occurred? The course of the disease in these fatal cases was not specially severe, but as already stated at some time during the latter part of the third week the nerve centers suddenly became involved and death resulted from asthenia.

No difficulty whatever has been experienced in the administration of the remedy, which is a feature of no little value in remedies for children.

ACUTE LACUNAR DIPHTHERIA OF THE TONSILS.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HENRY KOPLIK, M.D.

NEW YORK.

The writer has been induced to appear before your distinguished body to enlarge upon a theme previously brought to the notice of the profession, because he was convinced that the possible gravity of the apparently simple angina or lacunar tonsillitis was not yet generally accepted.

In a recent discussion upon the antitoxin treatment of diphtheria in the New York Academy of Medicine, one of the prominent speakers referring to bacteriologic diagnoses of diphtheria and especially those diagnoses which reveal the diphtheria not accompanied by membrane or parts of membrane in the throat, said that where the bacteriologic diagnosis of diphtheria, in the absence of clinical evidences, quarantines the house or separates a family from relatives and friends it is a sin against man. A further statement goes on to characterize the treatment of these mild cases in a diphtheria ward as a crime, etc. Another speaker while admitting that he would not give such patients who had no clinical evidences of diphtheria in their throats (membrane or parts of membrane) a clean bill of health, said it was difficult to know what to do with such cases. The terms "clinical diphtheria," "clinical evidences of diphtheria," were freely used and insisted upon as a diagnostic element in all cases where effective isolation is contemplated,

at least so one would surmise from a perusal of the printed discussion.

The above is mentioned to show that there is still a wide gap between those who work purely clinical and those who combine the clinical with the findings of scientific research. In other words, we have not advanced a step since the time of the immortal Trousseau, in the diagnosis and prophylaxis of the dread disease, diphtheria, or we have no right to advance. No membrane, no diphtheria! This, to a certain number, is as true to-day as it was in the days of the great pupil of Bretonneau. The writer wishes here to point out the great danger which such a quasi-sentimental definition of diphtheria must needs carry with it. In 1891 the writer of this article, convinced that the gravity of a certain class of apparently simple anginas was not appreciated, undertook to investigate both from a clinical and bacteriologic standpoint all varieties of anginas in which there could scarcely be said to exist at the outset, at least, any clinical evidences *locally* of diphtheria. There was in these cases no form of typical membrane. No such systematic attempt had been undertaken, up to this time, to the writer's knowledge. The profession were told from time to time, that during epidemics of diphtheria, or even in the absence of epidemic influence, what seemed to be a simple lacunar tonsillitis might eventuate as a diphtheria. Trousseau in his lectures upon diphtheria cites forms of lacunar amygdalitis followed by paralyses. These paralyses were similar to those which followed in cases of membranous diphtheria. Trousseau hesitated to call these anginas "diphtheria," even though followed by paralyses. There was no membrane, and he preferred to think rather that paralysis could follow in rare instances a simple tonsillitis. His inability to supply the connecting link between the membranous and the non-membranous cases of diphtheria was the only thing which deterred this clinician from grouping the two classes of cases under one heading. We are certain that had the link been at hand at that time, his views would have been more distinctly radical than they were. He simply said that certain simple anginas might rarely be followed by paralyses.

In 1886 we find this question still a mooted one. Jacobi, of New York, and Fraenkel, of Berlin, both clinical leaders in their respective cities, differed widely in their views upon these cases, Fraenkel insisting that the ground taken by his clinical opponent, that diphtheria may run its course as a lacunar amygdalitis, was too sweeping. At this time also, no proof additional to that submitted by former writers was brought forward to prove the theses of which we are speaking. Every one argued from clinical deduction purely, and clinical deductions seemed to differ when grouped by different observers. After all had been said and done, every one hung to the doctrine of Friedreich, that lacunar amygdalitis was an infectious disease, but would go no further.

Henoch (edition 1893) in his classical hand-book upon diseases of children says in the article upon diphtheria: "I do not recognize the existence of a pharyngeal diphtheria in the form of a simple angina."

Escherich (1890, Henoch's *Festschrift*) while denying the existence of Löffler bacilli in the lacunar tonsillitis of young children, admits their existence in cases of catarrhal anginas of older children, in cases in which at no time has there been membrane or

clinical evidences of diphtheria. Escherich, in this article, is guarded in his conclusions and reserves a decided classification for the opportunity given by a larger material than he had at his disposal.

Gerhardt was at this time also very decided in his view that danger lurked in the atypical diphtheria. He pointed out their capability of causing diphtheria in others.

In my first article (1891, *New York Medical Journal*) upon atypical cases of diphtheria, the first series of cases which were studied bacteriologically were similar to those seen and described clinically by Trousseau, Gerhardt and Escherich, in which we find at the outset no typical membrane. Indeed, during the whole course of the disease, no membrane appeared to the naked eye. The cases were those of a child 4 years of age, having the symptoms and local manifestations of a simple catarrhal angina, but in whose throat large numbers of virulent Löffler bacilli were found. This case was associated in the same family with another severe non-membranous angina, in a sister aged 5 years, to whom I presumed the first had communicated the illness, and in this second case we had the same bacteriologic result as in the first case. During the whole illness, neither of these cases manifested any membrane. Fully a week after the first case had been taken ill, a baby 2½ years old in the same family became afflicted with fatal diphtheria, in which membrane and portions of membrane appeared in the throat, and which also involved the larynx. It will be thus seen that here was an almost faultless group of cases observed daily, in which two had the typical "diphtheria *sine membrana*," followed by a third case in the same family of true clinical diphtheria. It will naturally be asked, Was diphtheria suspected in the catarrhal cases? Working upon diphtheria at the time, scrapings were obtained from these throats, as shown in my paper, and fortunately several times, and tested upon animals; the results justified our early suspicions. The symptoms in these cases in which absolutely no membrane or points of membranous deposit appears in the throat, I must say are equivocal. I have examined the throats of children who gave a set of clinical symptoms almost identical to the first class of cases and, as my work shows, I failed with equal precautions to find diphtheria bacilli. Thus the croupy coughs, the red throats, fever, enlarged glands and, I may say, even prostration upon which the stress was formerly laid, are not characteristic. The only way, it seems to the writer, to positively differentiate these cases is the bacteriologic method.

Another class of cases in which we must always be put upon our guard, are those in which a minute speck of membrane appears on the tonsil or uvula, looking like a drop of fibrinous secretion combined with a typical lacunar tonsillitis. These cases may be truly diphtheritic. Again, a third set of cases, showing pultaceous deposits of a stringy fibrinous character may prove to be non-diphtheritic or *vice versa*. A fourth set of cases are those in which the tonsil is the seat of a necrotic ulcerative process, with no distinct membranous formation. In only one part of the tonsil do we find an excavation, the base of which is covered with specks of exudate. Henoch has described such cases, and many still speak of these cases as ulcerative sore throat. I have proved many of these cases to be distinctly true diphtheria. In some, the children are scarcely ill enough in the

eyes of the parents to require treatment. It will be seen that there are forms of angina which are diphtheritic in their etiology, in which at no time are there manifestations of membrane, or such exudate as does appear is atypical.

Feer has confirmed the writer's work in the first set of cases, and it must now be admitted as firmly established that diphtheria "*sine membrana*" exists, though it introduces an unfortunate complexity into the problem of clinical diphtheria.

The most important class of atypical cases of diphtheria and perhaps the most common are those in which the appearances in the throat resemble in every detail the simple lacunar tonsillitis.

In 1894 I published a second paper, in which a series of consecutive cases, all giving the typical clinical picture of lacunar tonsillitis, were examined with special reference as to their diphtheritic or non-diphtheritic character. This paper adhered closely to this set of cases because in the first paper the material had spread over such a diverse field that it was not possible to judge the actual frequency of any particular set of the cases cited. In this series of lacunar tonsillitis, fully one-third of thirty-nine cases were shown to be true diphtheria. It was possible here, also, to divide the cases into groups as far as the severity and clinical symptoms were concerned.

The first group of cases are exceedingly mild; the patients show but little constitutional disturbance and complained but slightly of throat symptoms. Examination shows general hyperemia of the fauces, enlarged tonsils with open lacunæ. Some of the lacunæ showed an accumulation of yellow secretion at the surface opening. The lymph nodes at the angle of the jaw may or may not be enlarged.

The second group of lacunar diphtherias are those in which the local and constitutional symptoms are more pronounced. The patients show more prostration, the fever is quite high and there are other symptoms as pains in the limbs, furred tongue, etc. The tonsils are much enlarged and there exudes from the lacunæ a soft fibrinous exudate. There is no form of membrane anywhere on the tonsil and the lymph nodes are much enlarged. The plugs of these as also those of the first group contain Löffler bacilli.

The third group of cases are those which show distinctly malignant features from the outset. They do not remain purely lacunar after the first few days, and in this respect would resemble much, cases described by Heubner of membranous diphtheria, which early in their course resemble lacunar tonsillitis; and subsequently show coagulated exudate on the surface of the tonsil. The cases described by the writer belonging to this group, are truly septic in character, and beginning with a picture of lacunar tonsillitis, the infants the first day, even before the membrane is seen, have pallor and prostration which is quite characteristic and may at once put us on our guard. These are the cases which subsequently draw the nasal fossæ into the clinical picture. They are also the fatal cases. They begin as a lacunar tonsillitis and within forty-eight hours membrane and shreds of membrane are voided from behind the immensely swollen tonsils which completely occlude the fauces. It is not the intention of the writer to rehearse here the details of the bacteriologic examination of these cases of lacunar diphtheria of the tonsils, but there are some points which must be of vast and far-reaching importance, and which have been estab-

lished by the writer and since confirmed by Flexner, Booker (Johns Hopkins Bulletin, March, 1895), and others. The Löffler bacilli of diphtheria, in the cases of lacunar diphtheria are found, not so much on the surface of the tonsil, but in the depths of the lacunæ, in the fibrinous plugs, which occlude the lumina of the lacunæ. The bacilli are of equal virulence, whether obtained from the first group of mild cases or the third group of fatal septic lacunar diphtherias. The bacilli retain their virulence for weeks in the depths of the lacunæ, the patient being in apparent full convalescence, or the tonsils having returned to almost the normal size and appearance. In one case virulent bacilli were obtained from a lacunar plug of the tonsil in the third week of convalescence. A lacunar plug in one case, in which virulent bacilli had been isolated early in the disease showed non-virulent bacilli fully three weeks after the outset of the disease. In other words, virulent bacilli were replaced by the non-virulent variety in this particular lacunar amygdallitis.

Enough has been cited above, of the bacteriology of these cases, to show the importance of this class of cases of diphtheria. Too much weight can not be attached to these facts. We must not be turned aside by any fallacious arguments which continue to harp upon the desirability of a membrane in order to entitle a case to the dignity of the term, *clinical diphtheria*. This term, I believe, was first introduced into medicine by Trousseau. It is a landmark in the history of modern medicine, but it is time to protest against its use as a weapon with which to cast contempt on the class of cases concerned in this paper.

If prophylaxis is the ideal of modern hygiene, then the class of cases treated of in this paper, take a rank first in importance. Innocent in appearance, they are the means of disseminating a dread affection. Serious and unremitting isolation is the only method by which we can show our appreciation of their serious nature. Their importance crops out in the operating room constantly. At the last meeting of the American Pediatric Society, the writer of this paper insisted that those cases of tonsillotomy upon enlarged tonsils which were followed by membranous diphtheria, or even croup, were undoubtedly of the nature of the cases described in this paper. It has been shown by the writer that in these large tonsils, virulent diphtheria bacilli exist long into convalescence. As long as they are left to the natural fluids in the lacunæ no harm results to the patient, and we have even reason to believe, as pointed out in my second paper, that they gradually lose their original virulence. Cut this tonsil, however, and you expose to the propagation of the bacilli in the lacunæ the most favored of growing media, a freshly cut surface bathed in lymph, and a membrane results, in some cases spreading to the fauces and larynx. One case of this kind is enough to convince the most skeptical, and yet there are many such, doubtless, who are waiting for the case to occur to them.

Diagnosis.—How can we approach the diagnosis of these cases? The old methods, such as proposed by Henoch, only apply to cases which finally develop membrane or portions of membrane. If we wish, however, to pick out the pure lacunar diphtherias in which membrane never forms, we will find that our safest method is the bacteriologic test. To test the urine to wait for specks of membrane to appear, only delays matters and does not aid us, for we have not

only albuminuria in the streptococcus tonsillitis, but also glandular swellings and prostration with low and high curves of temperature. The opponents of bacteriologic diagnosis say that the Löffler bacillus has been found on the normal mucous membrane. Would you call such a case diphtheria and isolate it? The answer to this fallacious argument is plain. The well authenticated cases in which investigators of acknowledged rank (Löffler, Roux) have found virulent bacilli on the normal mucous membrane, are exceedingly rare and exceptional. They are found in throats perhaps exposed to a diphtheria atmosphere. Since the inauguration of the simple crude methods of diagnosing a case of diphtheria by growing a culture and staining a few covers has come more and more into vogue, the bacilli in the normal throats have multiplied in frequency. We would ask that methods showing such evident flaws be not taken too seriously. They are necessary in rapid hygienic work, but must not be brought forward as an argument.

Given an angina in which Löffler bacilli have been demonstrated to exist in large numbers, such a throat is diphtheritic and must be grouped with diphtheria, membranous or otherwise. It should be unmercifully isolated, whether it isolates the patient from friends and family or sends the patient into a contagious ward where severe cases of diphtheria are treated. It has been maintained that the placing of such cases among severer cases is an injustice to the patient. Those who have studied diphtheria since the discovery of Löffler must subscribe to the views brought forward by Escherich. These mild cases of diphtheria must be explained on the ground of immunity. They do not develop membrane and can not develop severe diphtheria, because in these particular individuals there is a natural or acquired immunity which protects them against the severer manifestations of the disease. If you place them, therefore, in a ward in which there are very severe cases of diphtheria, no more injustice is done to the mild case of diphtheria than would be done to a correspondingly mild case of measles placed in a ward with very severe and complicated measles.

On the other hand, these mild cases of diphtheria or lacunar diphtheria or diphtheria "sine membrana," are capable of communicating fatal or severe diphtheria to others. If we grant the above, which is the result of years of work at the bedside and in the laboratory, the principal arguments of the alarmists fall to the ground.

CLINICAL EXPERIENCE WITH ANTITOXIN IN PRIVATE AND HOSPITAL PRACTICE IN THE TREATMENT OF DIPHTHE- RIA—(ALL FORMS).

Read in the Section on Diseases of Children at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY LOUIS FISCHER, M.D.

Instructor in Diseases of Children at the New York Post-graduate Medical School and Hospital; Physician in Charge of the Messiah Home; Physician to the Children's Department of the German Polyclinic.

NEW YORK.

My first successful case with antitoxin was published in the *New York Medical Record*, Oct. 6, 1894, in which a child 11 years old was attended by Dr. Gerlach. In this case I injected 5 ccm. of Aronson's antitoxin between the shoulder blades. The child was discharged, cured, on the fourth day. This pa-

tient was presented before the New York Post-Graduate Clinical Society at its first meeting in the Hospital Building in October.

Since then I have published a series of papers, embodying various clinical experiences; notably, however, papers that appeared on Nov. 17, 1894, in the *New York Medical Record*. A series of thirty-six cases, which were attended by me, was published in the January number of the *American Journal of Medical Sciences*, wherein I reported a very successful list of cases.

My percentage of deaths was but 5.8 per cent. The antitoxin used was brought over by me from Berlin last summer. Some of my patients were attended in the Municipal Hospital, Philadelphia, through the extreme courtesy of Dr. Welch, the supervising physician in charge, and also through Dr. Edward Davis, the editor of the *American Journal of Medical Sciences*. It is only necessary for me, however, to refer to the paper read by me before the German Medical Society of New York on March 4, 1895, in which I reported a series of 223 cases. These were largely made up of cases attended in hospitals and private practice, but most of them were those seen in consultation. The paper has since then appeared *in extenso* in the *New York Medical Record*, April 6, 1895. The mortality among the 223 cases was 15.11 per cent. This was by me in January, and can be accounted for in various more than twice as much as the first mortality, reported ways: 1, a great many cases were seen in consultation and were cases which were moribund, in other words, hopeless cases, and cases in which antitoxin was used as a last resort; 2, a great many deaths were also in children that had been suffering from mixed infections, cases of scarlet fever and diphtheria, cases of chickenpox and diphtheria, cases of measles and diphtheria. It is here that we can not look for any benefit from the antitoxin, because in some cases, especially in those which were fatal, I found that I was rather called upon to treat cases of septicemia and not cases of toxism, caused only by one infection, the Klebs-Löffler bacillus but rather the combined septic influences of the Klebs-Löffler bacillus and the streptococcus in scarlet fever and other microorganisms with which we are not so familiar.

A very interesting case, and one which I published in detail, was a consultation case with Dr. Roberts, of New York, wherein I refused to inject antitoxin, owing to a scarlet fever complication. In this case we had both diphtheria and scarlet fever, and the child presented a typical appearance of sepsis. The child died about one or two hours after I saw it, and if I had injected this case, we might have believed the antitoxin was again inert. I had, however, injected a prophylactic dose of antitoxin in another child in the same family, in the presence of Dr. Roberts. This child had been exposed to diphtheria, remained immune and was well when I last heard from it through Dr. Roberts, the attending physician.

The constant differences in strength, presence of noxious albuminoidal bodies, and other drawbacks, have given rise to complaints of inefficacy, occurrence of secondary effects and sequelæ, and even deaths. The use of such uncertain preparations tends to create confusion, and has already given rise to personal recriminations in the medical papers. The investigations of Wernicke, Ehrlich, Behring and Aronson on the question of acquired immunity from diphtheria, which were published in the scientific journals,

have enabled some manufacturers to produce a serum which is more apt to prejudice the value of the original discovery than to supply the demand for an efficient remedy.

It may be pointed out here, that antitoxin is not made by merely inoculating an animal, drawing off the blood after a certain interval, coagulating and separating the serum. Antitoxin and serum are not synonymous terms. Aronson's antitoxin, with which the best results were obtained, and on which the first clinical reports have been based, is a highly concentrated antitoxin, from which the inert and noxious constituents of the serum are eliminated.

The antitoxin made in Schering's bacteriologic department is, since April 1, controlled by the German government. The official demands require: that the serum is clear, containing at the most only a slight sediment; that the preservative is used in the proper proportions and that the antitoxin possesses the specified degree of immunizing power. This control is carried out in the Berlin Institute for Infectious Diseases; the weighing out, the drawing of samples, and filling in the factory being conducted in the presence of a sworn State officer. Further, the State requirements include the control of the health of the animals; the keeping of a control book, in which entries are made of all the horses, the period of their treatment, the amount and frequency of the blood-drawing, etc.

Physicians will readily see the importance of this measure, giving a satisfactory guaranty that the preparation has been made, tested and put up under the direct supervision of the German government and independent scientific experts.

Another important point in connection with the preparation is its keeping qualities. Dr. Aronson's antitoxin, which is preserved with four tenths of 1 per cent. of trikresol, keeps for an unlimited period of time, and according to the latest investigations, retains its full efficacy for at least one year.

In order to illustrate a few cases which have not been hitherto published and which are some of my most recent publication cases, permit me to offer the following:

Katie K., child, 4 years old, was brought to the office of Dr. R. H. Theyson, on April 13, 1895, to be treated for vomiting. Examination found the temperature 100, pulse 100, very slightly congested. April 14, temperature remained 100, pulse 110, vomiting had ceased; congestion in the throat slightly increased. The Doctor put the child on the ordinary form of antipyretic treatment and also prescribed an astringent for the throat. April 15, the temperature was 103, pulse 120 and slight patches of dirty white membrane were visible on the left tonsil, a small patch on the uvula and the breath was fetid. The child was apparently in good health and lively. On April 16, at 9:30 A.M. the temperature was 103, pulse 140, the child very sleepy and extremely rapid increase of the membrane, which was thick and tough, covering both tonsils, pharynx, uvula, and there was an acrid discharge from both nares. The breath was extremely vile. This case was also seen on the same day by Dr. Brackes. I was called in consultation at 7:30 on the evening of April 16, with Dr. Theyson, and found the throat completely covered with large masses of pseudo membranes. Temperature 103, pulse 104. In order to corroborate the diagnosis, I made a culture on blood serum through the courtesy of the attending physician, which proved Klebs-Löffler bacilli, and I was also asked to inject antitoxin. I injected 5 ccm. of Aronson's antitoxin, using the ordinary antiseptic precautions for the skin and instruments, between the interscapular region. The morning after I injected the antitoxin the temperature was 103, the pulse 140. The child feels brighter and there seems to be no increase of the membrane. Slight amount of albumin in the urine. April 18, pulse 140, temperature 102, vomited some small pieces of membrane at 9:30 in the even-

ing. Owing to a feeble pulse, free stimulants were ordered. April 19, pulse 120, temperature 120. The child has vomited considerable pieces of membrane. Two pieces were the size of 10 cent pieces. The appearance of the membrane in the throat is somewhat thinner. April 20, temperature 100, pulse 110, child very bright. April 21, membrane has disappeared from both tonsils, seems to be very thin on the posterior nares; temperature 100, pulse 110. April 22, temperature 99, pulse 110. April 23, temperature 98.5, pulse 90. Membrane is gradually disappearing. April 24, temperature 101, pulse 100, membrane almost gone; albumin still in the urine. April 25, temperature 98, pulse 100, discharge from the nares stopped. April 26, 27 and 28, temperature 99 and pulse 100. On April 26, membrane disappeared. April 28, patient discharged cured.

Temperature:	April 13, 100° F.	
	" 15, 103° F.	
	" 17, 103° F.	Aronson's antitoxin injected.
	" 18, 102° F.	
	" 19, 100° F.	
	" 22, 98.6° F.	
	" 24, 101° F.	
	" 25, 98.6° F.	
Pulse:	April 13, 100.	
	" 15, 140.	
	" 18, 140.	Antitoxin injected.
	" 18, 140, morning.	
	" 18, 125, evening.	
	" 19, 120.	
	" 20, 100.	
	" 23, 90.	
	" 24, 100.	
	" 25, 26 and 27, 100.	

On April 16, the culture made by me proved Klebs-Löffler bacilli. This is one of my typical cases, as I have seen them and as I have been used to treating them and, although it was agreed that this was a very bad case and that under ordinary circumstances we would give a very fatal prognosis, this child is well and received no other medication, excepting nasopharyngeal irrigation and local applications of some antiseptic solution.

A second case equally interesting is the following: I was called on April 13, by Dr. A. W. Newfield, to see a case of laryngeal stenosis and membranous diphtheria, involving the complete naso-pharynx, both tonsils and uvula. The child was in such bad condition, that although I was called to inject antitoxin, I told the attending physician that it would very likely require intubation before evening. This was about 3 p. m. That evening, Dr. Emil Mayer was called in consultation to introduce a tube. The following day, by appointment, I met Dr. Newfield, Dr. Emil Mayer and Dr. N. S. Roberts. On talking this case over, we decided that there still was severe laryngeal stenosis, and it was agreed that I should be permitted to examine the case. I was surprised to find no tube. It was plain to me that the child had probably coughed up the tube and swallowed it. I was permitted to intubate the child, which was rapidly done in the presence of the three physicians. Breathing at once was easier and the stenosis relieved. I did not hear from the case until Tuesday, when Dr. A. W. Newfield, the attending physician, called on me to extubate, as the child was entirely well. I begged the doctor to permit the tube to remain *in situ* for at least two days longer; on the following Thursday I removed the tube. The child remained well.

In this case the prognosis was so bad that it was considered a hopeless case and the attending physician believed, as well as I did, that the case was a bad one, but having seen worse cases get well, I decided to give only a cautious prognosis. In this case the urine was examined by Dr. Newfield and found normal; there evidently was no irritation caused by the antitoxin. I injected only 5 ccm. of Aronson's antitoxin between the shoulder blades and ordered nasopharyngeal antiseptics, consisting of washing the nares and throat with a normal saline solution (warm).

The third case and still more interesting than the above two, was one that was referred to me by the kindness of Prof. H. J. Boldt of this city on April 7. A child, about 2 years old, in extreme dyspnea, was seen by Professor Boldt and he wrote me that it was of the utmost importance to relieve the laryngeal stenosis by intubation. I intubated and the relief was immediate. I allowed the tube to remain three days and extubated, when the membranes reappeared

and it was necessary to re-intubate. This has been done in all four times. The depth of the disease and the malignancy of this case can only be imagined, when we consider that we have an extension of the disease from the pharynx to the larynx, and from the larynx to the trachea and as far down as we can not see but only conjecture. Long shreds of membrane are to-day coughed up, exactly as they were two weeks ago. The temperature has been varying between 108 and 101.

Owing to the great risk of feeding and causing pneumonia, in all my cases I have insisted from the first in feeding per rectum, by using an emulsion, consisting of the yolk of an egg and starch water, and beef tea mixed with starch water, and also injected stimulants in the same manner when indicated. I have found that children can get along very well for a week without feeding through the mouth, nor do I give anything through the mouth to quench thirst, but rely solely upon these enemata for both thirst and nourishment.

In all my cases it has been a surprising fact, the amount of good that could be done by combining intubation and antitoxin, but we must know that we are using antitoxin and a reliable preparation of the same only. The condition of the glands, the condition of the pseudo membrane, the temperature curve, the pulse, the heart's action, the urine, the skin and the eruptions following injection of antitoxin are points on which I have already elaborated in the series of papers, which I have quoted in the beginning of this short paper and to which I would beg to refer. I can not therefore take up your valuable time and go into detail on the above subjects without encroaching on the time usually allotted to a paper of this kind. Suffice it to say, that the mortality of my cases of diphtheria, as compared with the mortality of my cases of diphtheria before the antitoxin era is at least 500 per cent. better.

When such eminent men as Professors Heubner, Baginsky, von Wiederhofer of Vienna, von Ranck of Munich, Rauchfuss of St. Petersburg, von Mehring of Halle, Vierordt, von Norden, Seitz of Munich and others, will suddenly change all hitherto known therapeutics, and as at the Thirteenth Congress of Internal Medicine, which was held in Munich in April, 1895, suddenly drop all former medication and get enthusiastic over antitoxin and what it will do in diphtheria, then there must be some real reason for it. When I was at Berlin, Professor Baginsky told me that the mortality of diphtheria had been during the last four or five years about 40 to 42 per cent, and suddenly during the introduction of antitoxin, the mortality went down to about 12 per cent. Through some accident no antitoxin could be had for a short time and again the mortality rose to almost 50 per cent., and then when antitoxin was again to be had, went down to 10 per cent. These facts, as they are the true statistics from one of the renowned hospitals in Berlin, the Emperor and Empress Frederick Children's Hospital, will speak volumes. The same can be said about the sudden enthusiasm of Professor Heubner.

There are a great many contra-indications to the use of antitoxin and these have been pointed out by me in an elaborate paper published in the *Medical Record* on April 6, 1895. Especially must we be careful where there has been a severe form of kidney trouble prior to the attack of diphtheria and especially so where there has been a great amount of irritation in the urine. But do we not always use great

caution when putting a patient under ether and inquire whether he has had kidney trouble formerly? We all recognize there are certain drugs that would irritate the kidneys, that would interfere with the usual heart's action, some like digitalis, that have a very irritable effect upon the stomach; again other drugs in which we must use great caution, owing to their injurious effect within the body. If this be so, why should we not use great caution and judgment in prescribing antitoxin, and inquire if there are not some contra-indications for its use, but with my experience to-day, covering over 260 odd cases, we must believe that some of the brilliant results attained by me have been due and only due to antitoxin. I will only refer to the case I have reported, in consultation with Dr. Newfield and which was intubated in the presence of three colleagues. The other case of Dr. Theyson is equally illustrative. I would not be willing to attend a case of diphtheria to-day, with what I have learned and seen in hospital and private practice, without antitoxin, any more than I would be willing to attend and promise a good result in any form of intermittent fever without quinin, or promise any decent result with other drugs than mercury in syphilis.

Having directed your attention to the good results obtained by the use of antitoxin, permit me, conclusion, to say, that I have had experience with but one patient in New York with domestic serum; this was in consultation with Dr. Landes. A third physician injected the antitoxin. The patient died the following morning. I was so much disheartened by the case that I have never since—nor had I previously used or prescribed—domestic antitoxin. I believe that we are justified in prescribing a specific kind of antitoxin, just as much as we are to-day in the habit of using standard preparations to specify good drugs in other diseases.

187 2nd Avenue.

CLINICAL OBSERVATIONS IN THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. CAMPBELL WHITE, M.D.

NEW YORK.

The medical profession in America has now had an experience of about one year with the antitoxin treatment of diphtheria. It is true that during the first six months the source of our supply of antitoxin was from abroad, and that this supply was necessarily limited, but during the past five or six months the supply has been about equal to the demand, and not many cases of diphtheria, particularly in the larger cities, need have suffered because of an inability to obtain serum of proper quality and strength.

The desire, or ambition, on the part of the medical profession to give this remedy a trial has certainly not been lacking; for I believe I am safe in saying that nothing in the domain of medicine has so attracted the universal attention of the profession and the public the world over, as this treatment of diphtheria with antitoxin.

Our National government, some of the State governments and the leading bacteriologists and clinicians of our country have manifested an active interest in testing the efficacy of this treatment. In doing this, Americans have only been following the

example of Germany, France and England, where the treatment has been afforded a considerably longer and much more extensive trial.

It seems, therefore, as if the theory of the antitoxin treatment of diphtheria should by this time either be discarded or denounced as unsound and worthless by those who have been carefully and scientifically testing its merits all over the world, or the theory should be accepted as giving to us a remedy with which to combat one of the most fatal diseases coming under the care of the physician, and pointing the way to the successful treatment of many other dreaded diseases of bacterial origin.

Have we, then, after this universal and extensive use of antitoxin any evidence or testimony to show that it does not overcome the toxemia of diphtheria, or that it is contra-indicated in the treatment of diphtheria? If so, what is the evidence, and what is the source of this evidence?

Have we any evidence or testimony that antitoxin does overcome the toxemia of diphtheria? If so, what is this evidence, and what is its source?

1. *What has the Work in the Laboratory Shown?*—The process of the manufacturing and testing of antitoxin, I consider one of the soundest proofs of its efficacy. If we could find anywhere the testimony of a bacteriologist of experience that antitoxin does not save the life of a guinea pig or other animal, when this animal is injected with several times the fatal dose of the diphtheria toxin, we might then hesitate in our belief in its utility. But we can not find such testimony; and have we any authority for believing that the same phenomena do not occur in man as in the guinea pig, dog, horse and other animals, when the cause of the phenomena is the same in both cases? The results in the laboratory all tend to demonstrate the feasibility of the antitoxin theory.

2. *What has Clinical Study Demonstrated?*—It must have impressed every one forcibly who has followed the literature upon this subject, that nearly all the unfavorable reports have come from those whose experience has been extremely limited, that is, we see an occasional report of a case that has received antitoxin, and later died; or, sometimes a very complete report is made of an individual case, showing that after an injection of antitoxin there is a sudden development of alarming symptoms, quickly followed by death, or the patient may have lived some time after the injection, suffering all the time from symptoms which have never been seen before in the course of an attack of diphtheria. In either case we are to believe that antitoxin is the factor which has caused the fatal termination. Then, again, we read more reports to the effect that antitoxin has no influence whatever on the course of diphtheria, either good or bad.

Before accepting these reports of extremely limited numbers of cases as an evidence against the use of a remedy which, in the experience of so many, has given such great promise of good, we should carefully eliminate the possibility of there having been other factors than antitoxin in determining the unfortunate results of these cases. The entire solution at a low temperature might be injected directly into a blood vessel—the same might be true of a considerable quantity of air, for it is extremely difficult with most of the syringes used, not to have some air in the cylinder at the time of injection. Either of these accidents might cause a sudden and fatal termination.

Then, again, where did the antitoxin come from? Not only can a serum be put on the market containing little or no antitoxin—and it would have been easy to have sold such a serum some time ago and not very difficult now—but it is only with careful prolonged experience and costly labor that an antitoxin solution can be prepared which can be used and relied upon with perfect safety.

The clinical testimony in favor of the use of antitoxin is abundant. The reports, with hardly an exception, from every hospital the world over, where antitoxin has been given extensive trials, have shown most wonderful results, and these reports have included the observation of some of the most conservative and distinguished clinicians of the world. In fact, nearly every report made upon a sufficient number of cases upon which to base a satisfactory conclusion is but another evidence in favor of the use of antitoxin.

It has been my good fortune to see in hospital and private practice something over two hundred cases of diphtheria, varying in severity from its mildest form to its most malignant manifestation, treated with antitoxin of varying strength and obtained from different sources.

The results of the first series of cases treated in this country were published by me in November, 1894.¹ At that time I stated that I believed we had received in antitoxin a specific for diphtheria, in that it would prevent death from the absorption of the toxins of diphtheria, when given at the proper time and in sufficient quantity. I have no reason to day to modify this statement. Further experience has only confirmed the conclusions derived from the treatment of the first twenty cases.

It is not my purpose to present to you a number of tables and statistics showing the value of this remedy; I hope this is not necessary. I shall endeavor, as briefly as possible, to relate to you, without the use of figures, some of the clinical manifestations of diphtheria, with its complications when treated with antitoxin, and a few practical points in the administration of antitoxin.

I shall first consider the effects of antitoxin upon the local conditions caused by diphtheria where the larynx is not involved.

FALSE MEMBRANE.

It is the common experience of all of us to see cases of "bacteriologic diphtheria" showing only a few patches of false membrane, cases which we would have undoubtedly diagnosed as tonsillitis some years ago, before we could rely upon the microscope for assistance. In these cases we could hardly expect to see any difference in the results obtained with antitoxin and those obtained with our former methods of treatment. Still, I think it has also been the experience of many of us to have seen these at first mild or tonsillar cases gradually or suddenly develop into the most malignant form of diphtheria, sometimes terminating fatally. This, I recognize, is not the rule, but it is certainly not so very infrequent. I have never seen such a case of diphtheria when treated with antitoxin take any other course than rapid recovery, and it is in this class of cases that it is so difficult to fully appreciate the value of the treatment. Where the membrane is fully developed, covering to a more or less extent the tonsils, uvula, pharynx, posterior nares and nares, we have certainly

occasion for alarm, and it is in such cases we want and seek more particularly for a specific.

It has not been my fortune to see with the use of antitoxin any material shortening of the duration of membrane, where it has become firmly attached and seems to be a part of the mucous membrane underlying. I have seen some rapid discarding of membrane before the use of antitoxin, and I have seen a few cases since, but in the latter case we could hardly claim that antitoxin was the curative agent. In fact, I do not believe that antitoxin shortens the duration of the false membrane at the most more than two days, and I have never seen it "melt away in a few hours' time." We do notice, however, some change in its appearance some twelve to twenty-four hours after an injection of the serum; the edges of the false membrane become sharply defined and it may appear to have become thicker than it was before the injection. This is a good omen and augurs well for the patient's recovery.

The more important effect antitoxin has upon the pseudo membrane of diphtheria is its power to abort or check its further extension, and in this respect we certainly obtain the desired results. This power has been well demonstrated in many cases of diphtheria when we have been obliged to forcibly remove from the nose, plugs of membrane, which completely obstructed these passages and formed a source of septic infection. Whenever this has been done before the use of antitoxin there has almost immediately been a re-formation of membrane, necessitating a repetition of the operation, and I do not remember having seen but one child (the procedure has proved successful almost invariably in adults) recover after this forcible removal of false membrane from the nasal passages, while, on the other hand, recoveries have been frequent in cases treated in the same manner and under the influence of antitoxin, and in most cases there has been no evidence of the slightest tendency to a recurrence of the membrane.

The influence of antitoxin on these cases I consider one of the best evidences of its efficiency.

EDEMA, OR SWELLING OF MUCOUS MEMBRANE.

The prognosis in all those cases which are ushered in by edema of the uvula and marked swelling of the pillars of the fauces, or where the false membrane first appears and is soon followed by this same condition of edema, is always unfavorable, and it is this form of diphtheria which gives the most pain and general discomfort to the patient. Upon this condition, antitoxin exerts a most decided and satisfactory influence. The patient in about ten hours finds deglutition is not accompanied with so much pain and difficulty as before. It is also this subsidence of the swelling which causes the false membrane to appear thicker and more defined in outline.

GLANDULAR SWELLING, OR DIFFUSE INFILTRATION OF THE NECK.

This glandular enlargement of the neck which appears so rapidly in certain forms of diphtheria, especially those in which there is involvement of the posterior nares, could hardly be expected, having become fully developed, to disappear at once under any treatment, while it is the rule under almost any form of treatment for these enlargements to gradually develop until the membrane disappears or absorption of toxins ceases. They rarely suppurate in diphtheria, in any case, unless it be some time during con-

valescence. Suppuration seems to have occurred just as frequently as it did before the use of antitoxin, but the subsidence of the acute glandular swelling seems to have been accomplished more rapidly with the use of antitoxin than with other remedies.

OTITIS MEDIA.

The frequency of this complication seems to have been somewhat lessened, but this fact can hardly be directly attributed to the virtue of antitoxin. It has been probably due to the fact that the irrigation or local treatment of the posterior nares and pharynx have been much diminished in frequency of application.

SYSTEMIC SYMPTOMS.

I refer by the systemic symptoms to the influence of antitoxin upon the temperature and pulse, post-diphtheritic paralysis, sudden cardiac paralysis, nephritis and the general condition of the patient.

I have found no reason for changing the statement made in my first paper concerning the influence of antitoxin upon the temperature and pulse, which is as follows:

"The temperature of diphtheria is so variable, being sometimes low in the most severe cases and high in others, it is impossible to tell how much it is influenced by any treatment. In some of the cases the rise in temperature after the injection was marked, in others there was no decided change, while in still others there was considerable fall. This fall of temperature we notice in many cases soon after the entrance to the hospital, the temperature on admission probably being the so-called 'ambulance fever.' Streptococci, inflammation, and other complications also give a high temperature, therefore antitoxin could have no influence on these temperatures.

"The effect upon the pulse is of much more importance. In nearly all cases nine hours after injection the pulse was much improved in strength, volume and frequency."

POST-DIPHTHERITIC PARALYSES.

As to the effect upon the post-diphtheritic paralyses, no influence seems to be exerted upon a paralysis already established. Antitoxin, it would seem ought certainly to prevent, when given early in the disease, the later development of a paralysis. This it does not always do, for we have seen quite a number of patients develop in the usual way post-diphtheritic paralysis after having been treated with full doses of antitoxin early in the disease. The same remarks apply to the sudden heart paralysis. It is difficult to determine just how much the occurrence of these paralyses is influenced by the injection, but it is my impression that they are diminished in frequency and in severity, nearly all the cases showing paralysis only of the muscles of the soft palate.

ALBUMINURIA, OR NEPHRITIS.

Several observers have asserted that the appearance of albumin in the urine occurs with much more frequency when antitoxin is employed as a means of treatment. We have used the same methods of urinary examination for albumin since the use of antitoxin as we did before, and have failed to find that the same observation applies to our cases. If there has been any change at all it has been in favor of antitoxin. It is possible that those who have found the appearance of albumin more frequently than formerly, have examined more carefully the urine of antitoxin patients and

have even used more delicate tests. If this be the case, the results are unsatisfactory unless compared with equally careful urinary analyses of patients who have not received the treatment.

It will be seen thus far I have described no sudden change in the symptoms of diphtheria, either local or systemic, following the use of antitoxin. I have said the false membrane does not disappear rapidly, the glandular swelling of the neck does not subside immediately, neither does a high temperature always rapidly fall. Nevertheless, there is a marked change seen some twelve hours after the proper dose of antitoxin has been given. *This change is chiefly in the general condition of the patient, and the improvement of some patients in this one respect is remarkable in its extent and suddenness. A bad prognosis given in an individual case can, by the use of antitoxin, be changed to one of almost sure recovery within twelve hours' time.*

It is this one fact which has led me to consider the remarks made recently against the use of antitoxin^a (in spite of the fact that they come from so distinguished and careful a clinician as Dr. Joseph E. Winters), to be an argument in favor of its utility.

Dr. Winters said: "I have failed to see the slightest evidence that it neutralized the toxemia in a single case. I have never found that it exerted the slightest influence for good in a single clinical manifestation of the disease."

Nearly all the cases seen by Dr. Winters were seen by others as well as myself. Our observations differ in great measure from those of Dr. Winters, who bases his conclusions upon the fact that nearly all the cases were mild and would have recovered without any treatment.

On the other hand, we consider that more severe cases of diphtheria have entered the hospital during the past three or four months than ever before. This difference of opinion is explained by the fact that Dr. Winters saw the patients (this applies to a great majority of the cases), some twelve to twenty-four hours after the injection of antitoxin had been made, and some twelve to twenty-four hours after an unfavorable prognosis had been given by those who admitted the patient.

For this reason I believe this difference in opinion only emphasizes the point just made, that *with the proper dose of antitoxin a bad prognosis in an individual case can be changed to one of almost sure recovery within twelve hours' time.*

LARYNGEAL CASES.

I can only mention these cases briefly. The treatment of laryngeal diphtheria with antitoxin can not be intelligently discussed in so short a time; an entire paper could be devoted to this topic with satisfaction.

It is in the laryngeal cases that we see the most marked reduction in the mortality, and this applies to the operative cases as well, either when tracheotomized or intubated.

If we depend upon antitoxin only, in our treatment of this class of cases, we must resort to operative interference earlier than when we use other methods of relief for the stenosis, such as calomel sublimation, poultices applied to the neck and other recognized forms of treatment. The reason for this is evident, the antitoxin not exerting much influence until at least nine hours after injection, while the stenosis may demand immediate relief.

BAD RESULTS.

Numerous skin lesions are seen quite frequently, generally not causing much disturbance to the patient. They assume the different forms of urticaria, erythema, measles and scarlatina, and may appear at any time during the course of treatment.

Some of the cases which were said to have an antitoxin rash resembling scarlatina developed symptoms of some septic infection, followed by pain and swelling of the joints. There is hardly any doubt in my mind that these were true cases of scarlatina; the joint symptoms following the eruption, and in some cases the nephritis, are only additional points in confirmation of this theory. I have never seen any other of the evil effects ascribed to the use of antitoxin by some observers.

In conclusion, I shall endeavor briefly to mention a few of the more important points to be observed in the administration of antitoxin serum.

TIME OF ADMINISTRATION.

Great stress has always been laid upon the necessity of the early administration of this remedy. Too much can not be said upon this subject, for, of course, no harm can possibly be done and benefit should always result from its early administration. Nevertheless, I have reason to believe from experience in consultation, the magnifying of this point by nearly all writers has been the means of depriving not a few patients of the benefit of this treatment. We must constantly hold in mind the fact that diphtheria is one of the most variable diseases with which we come in contact, and that the symptoms on the second or third day of the disease in one case of diphtheria may be even more fully developed than in another patient who has been afflicted for double that time, granting that both are severe forms of the disease. The absorption of the toxins in one case has been extremely rapid, while in the other the absorption is slower, just as certain, and often just as fatal. This difference depends upon the virulence of the bacilli, the susceptibility of the patient to the toxin, and the power to overcome the toxemia when once established.

We see therefore, that we can expect better results in some cases from early treatment with antitoxin than in others: that in many cases the treatment begun late in the disease may save life, and that the classification of cases treated with antitoxin according to the days upon which the treatment was begun is not by any means a sure indication of what the antitoxin has accomplished.

The history of a patient seen some months ago in consultation illustrates well a point in this connection. I saw the child after he had been ill seven days with tonsillar diphtheria. On the evening before the child was seen by me, the symptoms, local and systemic, which up to this time had been very mild, suddenly changed for the worse. The false membrane began to spread and by morning involved the tonsils, uvula, pharynx, posterior nares and larynx, as evidenced by extreme stenosis. The glands in the neck were also considerably enlarged. I advised postponement of operative interference as long as possible and prescribed other measures for the relief of the stenosis. The physician in attendance thought the antitoxin could hardly be of use as the patient had already been ill seven days. I believed the antitoxin would be as efficacious in this case as if it were the second day of the disease instead of the eighth, and the antitoxin was injected. The result in the case proved

the latter to be true, and we felt safe the following day in assuring the mother of the recovery of her child. The recovery of the child was as rapid and complete as in any case I have ever seen.

We must take into consideration in each individual case the rapidity of the onset of symptoms, the general condition and age of the patient, in determining the dose of antitoxin to be administered and the prognosis to be given, and not depend too much upon the duration of the disease as a guide.

SITE OF INJECTION AND PRECAUTIONS TO BE TAKEN.

We must select that place which will give the least disturbance to the patient during and after the injection and which is most convenient for the operator when dealing with a refractory child. If we select the extremities, we are more liable to put the contents of the syringe into some blood vessel, as we have reason to believe has been done before with fatal results. The inter-scapular region or the chest are better places, but I believe, taking all points into consideration, we shall find either of the buttocks the most convenient and satisfactory situation, both to the operator and the patient. They should be thoroughly cleaned with green soap and alcohol, the injection should be made deep and the buttocks should not be rubbed or massaged after injection.

THE SYRINGE.

We can not exercise too great care in the selection of a syringe to be used for this purpose. It should be large enough to contain a single dose of the serum; it should be as simple as possible; it should contain no valves that can not be easily cleaned, and it should be such a syringe that the operator can inject a large quantity of fluid into a struggling child without the danger of the needle being pulled out before the injection is finished or even broken off and left in the child, and further, such a syringe as will preclude the possibility of air being injected.

The Roux syringe up to a short time ago was the only syringe which combined to any considerable extent these requisite qualities. It is elaborate, useful, expensive and can not be obtained without difficulty, as only a limited number have been imported.

A syringe for antitoxin use, recently invented by Dr. Cyrus Edson, is remarkable for its simplicity and utility. After using this syringe on several cases I have found it quite necessary to make several changes in it, which I believe now make this syringe the most satisfactory in every respect of all the syringes used for this purpose. The only defects in the Edson syringe were the straight and smooth cylinder, which allows the finger to slip during use, the direct connection of the needle to the cylinder, which does not allow of any play to the syringe during the injection, the necessity of a separate receptacle for the needle, rendering the sterilization of another tube necessary.

The syringe, as modified, has the following features, which will recommend it to your use:

1. The cylinder is entirely of glass and the piston of metal.
2. The needles are contained in the shank of the piston.
3. There is a rubber tube, which can be changed at each injection if desired, connecting the needle with the cylinder, or the syringe can be used without this tube.
4. There is not a screw joint in the instrument.
5. The washers are simply thin pieces of rubber,

which can be cut from an ordinary rubber bandage, and kept constantly in an antiseptic solution never to be used but once.

6. The entire syringe consists of three distinct parts, viz., the glass cylinder, the piston (containing the needles), and the rubber tube. All these are contained in metal cases together with a pair of thumb forceps and a bottle containing the washers, and the entire outfit, case and all, can be put in a sterilizer or boiling water and quickly and satisfactorily rendered sterile immediately before using.

The accompanying figure will illustrate quite well the simplicity of this syringe.

Fig. 5.

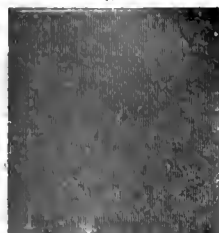


Fig. 1.

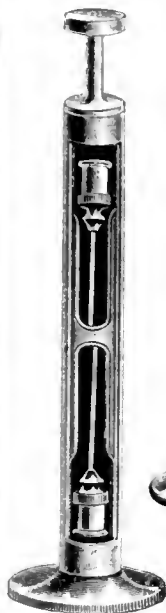


Fig. 2.



Fig. 3.



Fig. 4.

WHITE'S ANTITOXIN SYRINGE.

1. Rubber tube. 2. Piston containing needles. 3. Glass cylinder. 4. Syringe ready for use. 5. Rubber valve.

IN CONCLUSION.

The laboratory, with its animal experiments, the steps taken in the production of the antitoxin, the great mass of clinical evidence combined with the character of the source from which this evidence comes, leads me to believe that the antitoxin theory of the treatment of diphtheria when developed to its fullest possibilities, will prove an unfailing cure in diphtheria toxemia, and my own experience has been such as to convince me that using a reliable serum and with the exercise of ordinary care in administration, there is absolutely no danger to life through its influence upon any of the organs of the body.

Hotel Endicott, West 81st Street and Manhattan Square.

SOMETHING CONCERNING THE DIAGNOSIS AND TREATMENT OF FALSE CROUP.

Read in the Section on Diseases of Children at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY STARLING LOVING, M.D.

FIRST VICE-PRESIDENT, AMERICAN MEDICAL ASSOCIATION 1894.
COLUMBUS, OHIO.

False, or spasmodic croup, or mild acute laryngitis with spasm of the laryngeal muscles, is one of the every-day respiratory diseases of early childhood. It is seen at all times of the year, but is most prevalent in the changeable weather of autumn and in the early part of that season traditionally but improperly called spring.

Every general practitioner sees and treats it, and, when diagnosis is correct, prognosis is uniformly favorable, and treatment successful. Without correct diagnosis, prognosis is wavering, treatment is lame and the most uncomfortable person connected with the case, not even excepting the patient, is the medical attendant.

Discrimination is to be made between false croup and diphtheritic croup, between false and true or membranous croup, and sometimes between false croup and acute laryngitis without spasm, and between false croup and laryngismus stridulus. As true croup, laryngitis without spasm, and laryngismus stridulus are of infrequent occurrence. The decision commonly lies between false croup and diphtheria.

It would seem that differentiation should be easy, but the diseases in their most prominent symptoms resemble each other so closely as to make it often embarrassing. Still, while there are many points of resemblance there are dissimilarities, which, if rightly interpreted, render valuable assistance.

False croup is sporadic, and its course and termination preclude the idea of infectiousness. It is so common that the practitioner is frequently called to two or three cases in a single day, yet it is never communicated, nor does it ever assume epidemic proportions.

True croup is a rare disease, so rare that though one may see a case or two in the course of a month, he may not see another for a year or two. It is sporadic, and is never communicated.

Apparently sporadic cases of diphtheria are not uncommon, and at times there is difficulty in tracing the infection, but when sufficient pains are taken the history of the case is easily completed. Ordinarily, there is no trouble, and when after the usual period of incubation, croupy symptoms develop, there need be little hesitation in regard to the diagnosis.

The onset of all the diseases to which the name croup, has been given is sudden; neither has a well-defined prodromic stage nor symptoms, yet we find events in the early history of almost every case of each which serve to guide us in discrimination.

False croup is frequently preceded a few hours or for a day or two by coryza and hyperemia of the fauces, which may be accompanied by feverishness or slight fever. The child may be listless and drowsy, but is usually more animated and excitable than when well, and is not inclined to sleep at the usual hour. In some cases the catarrhal symptoms are more diffused, the larynx and trachea are involved, and there is cough but without stridor or spasm. Ordinarily, with the development of the croupy cough there is an increase of temperature, and

¹ Read before the Pediatric Section of the New York Academy of Medicine, Nov. 7, 1894, and published in Medical Record, Nov. 17, 1894.

² Medical Record, Nov. 17, 1874.

³ Remarks before New York Academy of Medicine, stated meeting, April 4, 1895, and Medical Record, April 20, 1895.

a sudden suspension of the discharge from the nose; the nasal and pharyngeal mucous membrane becoming dry, and decidedly more hyperemic. There is never any decided chill.

True croup is also generally preceded by catarrhal symptoms but of more decided type, involving the nasal, faucial and bronchial mucous membrane; the patient, for a few hours before the development of symptoms of constriction in the larynx may complain of soreness in the throat and of difficulty in swallowing. There may be also slight swelling and tenderness of the glands at the angles of the jaws, and of those in front of the larynx. Such swelling is never observed during the progress of false croup, nor is there ever tenderness on pressure over the larynx, as found in true croup and in diphtheria. Likewise, diphtheria is sometimes preceded by catarrhal symptoms, but such are coincident, or accidental and have no prodromic significance. The appearance of coryza in the course of a case of diphtheria is usually hours or days after the attack, and may be taken as evidence, not that the disease is beginning, but that the lesion, already developed, is extending. Such symptom therefore is to be regarded as prognostic rather than diagnostic.

Fever marks the onset of each of the three diseases. In either, the degree is sometimes slight, and some cases of false croup and of diphtheria are afebrile. But in the larger number of cases of each, the fever is sufficiently pronounced, the temperature ranging between 101 and 104 degrees F. In a case of false croup which recently came under my care, the temperature was not at any time above 100 degrees F., while in another seen two days later, the temperature, during the fore part of the night of the attack, was 104.5 degrees F. In false croup, fever, when present, commonly develops a few hours (late in the afternoon or early in the evening) before the manifestation of the characteristic cough and dyspnea. It is always most severe during the first twelve hours of the attack. In many cases, with or without the influence of medicines, it diminishes within twenty-four hours after, and does not again reach so high a degree. There is generally an exacerbation during the afternoon and evening of the second day, but the temperature is not so high nor the accompanying symptoms so severe. By the third or fourth day, often by the early part of the third, unless the inflammation has extended to the bronchial mucous membrane, the temperature has fallen to the normal, and the pulse, which has been increased in proportion to the fever and the nervous disturbance, has been reduced to the standard of health. The fever is frequently accompanied by nervous excitement, and the child is frightened by the obstruction to its breathing, but there is no delirium nor convulsion as seen occasionally in the onset of diphtheria. There is no fright in diphtheria.

The onset of membranous croup is pretty uniformly ushered in with rigors, or a decided chill, followed by fever ranging between 102 and 104 degrees F. The pulse is full and bounding, the skin is hot and dry, the child is restless and uncomfortable, but does not show fright, complain of headache, or of pain elsewhere, nor is there delirium, or convulsion. More commonly the fever develops gradually with the catarrhal symptoms, and reaches its intensity when the false membrane has formed in the larynx. It is the continued fever of inflammation. There are

no pronounced remissions, but toward the last, if the case be prolonged, it assumes the asthenic type.

The fever of diphtheria is frequently ushered in by a decided chill, and with the chill, or afterward with the rise of temperature, the patient sometimes becomes delirious or has a convulsion. The elevation of temperature may be slight, but it usually reaches 103 or 104 degrees F. There is no marked remission until the severity of the attack has subsided, or until the patient becomes exhausted and collapse is near. It is asthenic from the onset. The pulse, which is not much accelerated, may be full and strong at first, but is generally compressible and rather weak. Toward the last, in cases which are protracted, or which incline toward a fatal termination it becomes more frequent, feeble and thready. I think what has been stated concerning the fever and the pulse, is particularly true of cases in which the disease has primarily attacked the larynx.

False croup is sometimes preceded or accompanied by symptoms indicative of disordered digestion, as shown by flatulency, nausea, and constipation or diarrhea, with or without "hives", or urticaria, (and there may be some connection between the stomachal, cutaneous and respiratory symptoms) but, in general, beyond slight constipation, there is no disturbance of the digestive apparatus until after medication. The appetite returns as soon as the fever subsides and the use of nauseant medicines is suspended. Neither is there notable disturbance of digestion in membranous croup nor in diphtheria; but in the latter, the loss of appetite and repugnance to medicines is frequently a striking symptom. It is often almost impossible to persuade the patient to take nourishment or medicine even in the smallest quantities, not because the stomach is disturbed, but because of the influence of the malady upon the nervous system. The patient can not eat. While cathartics cause no more than legitimate effect in false and in membranous croup, their influence is apt in diphtheria, even in the onset, to be followed by noticeable and unpleasant increase of general debility.

In false croup, the dyspnea and cough are always notably mitigated by the influences of emetics, but in true croup and in diphtheria, except in those rare cases in which the false membrane is loosened and forced out, though the dyspnea may be somewhat relieved for a brief period, the obstruction is not removed, and the remedy not only does no good, but actual harm by adding to the prostration. The practitioner does not hesitate, if the symptoms require, to repeat mild emetics in the treatment of false croup, but on seeing the prolonged languor and weakness which invariably follow emesis in diphtheria, he delays. The same is true of nauseants and of sedatives.

As already stated, the approach of false croup is generally manifested by catarrhal symptoms and fever. The attack may come without either. With or without, after three or four hours sleep, the child awakens suddenly with a feeling of impending suffocation, accompanied by the peculiar raspy crowing sound and barking cough, which give name to the disease. The head is thrown back, the shoulders are raised, the mouth is open, the nostrils expanded, the face is pale or flushed, the pupils are dilated, and there is agitation and terror. Inspiration is prolonged, noisy and obstructed, while expiration is short but free. The larynx is more prominent, and

moves more freely than during normal respiration, and than during true croup and diphtheria. The pulse is frequent, though usually of good volume, and the skin often moist, especially of the face and neck. The voice is hoarse, and for the time, reduced to a whisper, and if the patient be induced to speak, he utters his words in a short impatient way, after the manner of asthmatics. If the throat is examined (a difficult operation) the pharynx and epiglottis are found hyperemic and may be swollen, but there is no false membrane. Such symptoms develop often in a few minutes, and under proper treatment may disappear in an equally brief period. The child will readily swallow anything in the shape of a remedy which may be offered.

When diphtheria invades the larynx, the attack is not so abrupt. In the larger number of cases, the larynx becomes involved through extension of the lesion from the fauces, in some cases, after all acute symptoms in the throat have subsided, and hopes of convalescence are entertained. It is rare to see the pharynx and larynx invaded simultaneously. When the larynx becomes involved by extension, there is no difficulty in regard to diagnosis. Hoarseness, stridulous breathing (inspiratory and expiratory) and presently the croupy cough, are sounds which indicate too plainly what has happened and what is likely to happen. But when the larynx is involved primarily, it is not always easy to decide the nature of the case. As already stated, usually the attack is more gradual than that of false croup, the patient has fever and is hoarse some hours or for a day or two before the development of the characteristic cough and there is more the appearance of illness and prostration. In false croup the stridor and dyspnea are more or less paroxysmal, and always inspiratory in character, are constantly diminished by the influence of emetics and nauseants, and usually disappear by the second or third day, while in diphtheria both steadily increase with the swelling and the augmentation of the exudate. While there is hoarseness, and even temporary aphonia in false croup, the voice is never entirely lost—the constantly increasing hoarseness, and persistent whisper of diphtheria is never observed. While in false croup, hoarseness and aphonia subside after a paroxysm, and after the action of an emetic, both, in spite of the action of remedies, steadily increase in diphtheria until the case terminates in recovery or in death; death, without the offices of the surgeon, being the usual result.

Cyanosis and orthopnea are not uniform symptoms of false croup. Both, when present come with the early paroxysms, and rapidly diminish under the influence of treatment. Cyanosis is constant, and orthopnea uncommon in diphtheria. The cyanotic condition develops slowly and is most apparent toward the close, when the bluish pallor of the face and lips, together with the child's struggles for air, form a picture not easily forgotten.

Death from false croup is so rare, that (unless the result of injudicious treatment) it should excite suspicion of error in diagnosis, and the suspicion is usually confirmed when an autopsy is made.

If two or more cases of false croup occur in the same house, they follow at irregular intervals, and no connection can be traced; if more than one of diphtheria, the second develops at the expiration of the usual period of incubation.

False croup more frequently attacks children, who

though neurotic, are in ordinary health, while diphtheria prefers such as are debilitated from other causes. A child who has had one attack of false croup seems more liable to future attacks, while there is a question whether a second attack of diphtheria is ever seen in the same person.

The nursing enjoys a degree of immunity from both (indeed from all forms of croup) but is more liable to diphtheria. False croup usually attacks children of from one and a half to five or six years, and the predisposition constantly diminishes, so that the disease is rare after the eighth or tenth year. Diphtheria is most apt to occur in the same class, but attacks susceptible persons of whatever age. Bronchitis is the only sequel to false croup, while diphtheria has many, such as paralyses, albuminuria and swollen glands.

When there is remaining doubt, the microscope should be called into requisition, and the absence or presence of the Klebs-Löffler bacillus ascertained.

It is unfortunate that culture is ever necessary, and that the bacillus can not always be found in the specimens as taken from the throat. In this connection, it should not be forgotten that cases of diphtheria without false membrane occasionally occur, and that such, though usually mild, when the larynx is the point of attack, may prove as dangerous as when the exudate is abundant. In such cases clear diagnosis is obtainable by the microscope only.

Many members of the profession, mostly of the larger cities, especially of New York, doubt or deny the existence of a non-diphtheritic exudative inflammation of the larynx (true croup) and include all cases in which false membrane is found, under the name of laryngeal diphtheria; while others maintain that there is such a disease distinguished not by a slough such as characterizes diphtheria, but by the formation upon the surface of the mucous membrane of a true exudate of fibrinous material, in which the Klebs-Löffler bacillus is not found, and which when the force of the attacks is spent, separates and leaves the membrane intact, and not denuded and ulcerated as in diphtheria after the separation of the slough. Most of those holding the affirmative opinion are general practitioners, ("clinicians who love finalities") of the lesser towns and of the country, but among them are some men of distinction, as Dr. Fagge and Dr. Donkin, and they are supported by some accomplished pathologists, as Dr. Welch, of Johns Hopkins University.¹ It is well known that acute follicular tonsillitis, a common acute disease of the tonsils, and distinctively exudative, is caused by the presence and influences of pyogenic bacteria; no one, so far as my knowledge extends, ever claimed that fibrinous bronchitis, a rare but well-known disease, is diphtheritic in character, and, while pneumonia is exudative, (croupous) there is not much in common between the diplococcus of Fraenkel, or the pneumococcus of Friedlander, and the Klebs-Löffler bacillus; why, therefore, may there not be exudative inflammation of the larynx, as of other parts, of other than diphtheritic origin? We may distinguish false from membranous or true croup, by the greater severity of the catarrhal symptoms, by the occurrence of chills, by the continual fever, by expiratory as well as inspiratory stridor and dyspnea, by increas-

¹ Baginsky, Dr. Welch, and Dr. Sternberg, all agree that while the false membrane may be morphologically the same, it is not always diphtheritic; that is, it may be caused by other agencies than the Klebs-Löffler bacillus.

ing and non-intermittent hoarseness, by the change in the voice which is soon reduced to a whisper, by the cough, which at first resembles that of false croup, but soon loses the tubular quality and becomes hissing.

The larynx is more fixed and more or less tender on pressure from without. The epiglottis is red and swollen, so likewise are the aryteno-epiglottidean folds, and the rim of the glottis; and now and then the false membrane may be seen. Cyanosis is slowly but surely developed, is noticeable first as in diphtheria in the ends of the fingers, at the tip of the nose, and lips, and finally becomes general. The stenosis of the larynx increases, orthopnea develops, prostration becomes marked and without relief there is a steady advance to a fatal termination.

Acute idiopathic laryngitis, non-exudative in type, and of more severe form than has been described, is not of common occurrence. As a secondary disease it is occasionally seen in connection with measles, and with scarlatina, or with other diseases. Sometimes it is of traumatic origin. It may be differentiated from false croup by the greater intensity and persistency of the fever, by expiratory and inspiratory stridor and dyspnea, and by the character of the cough, which, though hoarse and barking, is less resonant and tubular than that of false croup.

Laryngismus stridulus, or child-crowing, is also uncommon, at least in Ohio. It is a purely neurotic, afebrile malady, always affecting anemic delicate children, with or without rickets. It is distinguished by the character of its attacks, which come without warning, is wholly spasmodic, continues for a few moments only, and recurs at intervals, short or long, through a series of months or years. The diagnosis having been established, the treatment of false croup is simple and satisfactory. It consists of measures adapted to the control of fever, inflammation, and nervous excitement, including spasm of the larynx. The old idea that emetics and nauseants are needful for the cleansing of the stomach, and the loosening and expulsion of false membrane, was of course not well founded, but such remedies fill better than any others the objects of treatment—sedation, relaxation and increase of secretion. Therefore a mild emetic, or at least a nauseant should be administered as the first measure, and no medicine is more popular, nor perhaps better adapted than ipecacuanha in the form of powder or other convenient preparation. I prefer the powder. After emesis, a laxative dose of calomel and soda should be given, and followed by small and repeated doses of ipecac and soda, triturated with sugar of milk until relaxation is complete, and the secretions from the mucous membranes have been excited to free flow.

It has appeared to me that for the purpose of maintaining relaxation, ipecac in powder, with soda, is better than any other remedy or combination. This is perfectly safe, and with proper regulation of the doses the needed effect can be uniformly maintained for many hours in succession without great distress to the patient. Occasionally the ipecac, especially when calomel has been administered, causes sharp purgation which is of no disadvantage in cases in which there is high fever, but, in general, when the bowels become loose the remedy should be suspended lest undue prostration result. Some prefer turpeth mineral as an emetic, others apomorphia, squills, the tartrate of antimony, alum, the gillenia or American

ipecac, sanguinaria, etc. There can be no objection to turpeth mineral nor to alum, nor possibly to any of the remedies mentioned, but I never feel quite comfortable, after using apomorphia, until I know the time for injurious influence has passed; and I never prescribe the tartrate of antimony which, even in small doses, causes disproportionate prostration in children. When the fever is high, with or without the emetic, modern doses of aconite with the sodium bicarbonate, forms a combination which fills all the indications admirably. Though so powerful, it is easy to regulate the administration of aconite so that unpleasant effects may be avoided.

Antipyrin and antifebrin, are both effective remedies, causing quick, nervous and arterial sedation, decided increase of the secretions of the mucous surface and of the skin, and they are reasonably safe, provided their administration is properly guarded. They, however, sometimes produce much more effect than is desired, and therefore may not be used without misgiving.

Pilocarpin has greater influence on mucous and cutaneous secretions than any other medicine, and has a sedative effect on the heart. I think its influence on the heart (of small doses at least) is overestimated, and that, with prudence, it may be used in the treatment of croup without risk and with decided benefit. The doses should be small, even proportionally, and should be frequently repeated until the peculiar effects of the remedy upon the skin and mucous membranes become manifest. In a few cases in which I have prescribed it, the dyspnea and spasmodic cough diminished as soon as the skin became decidedly moist. In one case in which the temperature was 104 degrees F., and there was great nervous excitement, a tepid pack, and a few doses of pilocarpin soon brought down the fever and reduced the other symptoms. One hesitates, generally, before administering opiates to young children especially in the treatment of diseases which obstruct the respiration, and hesitation is wise, but in spasmodic croup the difficulty of breathing is due almost altogether to spasm of the laryngeal muscles, and not to swelling, so that an opiate, preferably the tincture of Dover's powder, with ipecac added, can not be considered an objectionable remedy. The opiate should be administered immediately after the operation of the emetic. The dose should be full and should not be repeated too quickly. Often a single full dose will put an end to a violent paroxysm within an hour. Of the use of red iodine of mercury and of belladonna, I know comparatively little, but they are esteemed good and appropriate.

Local remedies are of little service, but every one prescribes them to please anxious friends.

The room should be well ventilated, and the temperature kept at 70 or 75 degrees F.

Surgical interference is never necessary in the treatment of false croup.

DISCUSSION ON PAPERS OF DRs. FISCHER, WHITE, KOPLIK AND LOVING.

DR. GRIFFITH, of Philadelphia—This meeting brings up a reminiscence of the meeting of the American Therapeutic Society two years ago. I was convinced that the New York men had seen a vast deal more of diphtheria than we Philadelphians had ever seen. I am impressed with that fact again this morning. When it comes to the treatment of diphtheria in a large number of cases, the Philadelphia members, to use a slang expression, are not in it. I see Dr. Welsh, of Philadelphia, here, who is the only one among us

who sees a large number. We all see isolated cases, but not enough to treat the matter thoroughly by experience gained from an accumulation of facts. I have had the privilege of seeing some of the cases in the Municipal Hospital treated when Dr. Fischer came to Philadelphia, and have watched the treatment by the authorities.

As to the value of the antitoxin treatment in diphtheria, it seems to me without question a proper treatment, and that is uttered by one who is decidedly skeptical. The treatment by antitoxin I at first received with scruples, and yet so many cases have been diminished in severity by this antitoxin treatment, that if I had diphtheria it seems to me I should like to have the antitoxin theory tried in my case.

I was interested particularly in Dr. Koplik's paper on lacunar diphtheria of the tonsils. I have seen cases where the watchers in a family have been affected with diphtheria, and we are really forced to the conclusion that those suffering with diphtheria may communicate it to others. Therefore, it has been my custom, for some time, with every case of lacunar diphtheria of the tonsils to tell the family, as well as I can do so without alarming them, that the child ought to be isolated until we can find out exactly the gravity of the malady. I am sure that I have seen cases of diphtheria begin in that way and many cases follow.

DR. WELSH, of Philadelphia—I have had limited experience with the use of antitoxin in diphtheria within the last few months. I hardly know just the number of cases which have come under my observation, but something over a hundred. I have been exceedingly anxious that antitoxin should do all that is claimed for it. I feel as we all feel, the great need of a remedy for this disease, and I was very glad to learn of the great benefits that had been derived from its use in Berlin and in Italy, and in Paris, New York and other places. I have been looking for these benefits, watching closely for them, observing every case closely, and looking for evidence to convince me of the great value that has been claimed for antitoxin. I hesitate to express any opinion in regard to antitoxin to-day, but I will say I am disappointed in its use. It does not come up to my expectations, and I do not see the results that have been claimed for it. In a few cases, I have seen very good results follow its use, but whether it was because of its use strictly, I am not prepared to say, for we all know it is very hard to distinguish in these cases. I have seen equally well marked improvement from other treatment. I do not know that I am prepared to give any statistics. I have not worked out these cases carefully, but I intend doing so hereafter. In the first hundred cases I injected in the Municipal Hospital, I can not say that the death rate had been reduced to any great extent. My resident physician informed me that our rate had been 25 per cent. while the loss at the same time from the whole number of cases was only 2 or 3 per cent. more. I might add that I endeavored to select the most suitable cases for injection. It is true that a great many of the cases do not come to us early enough. I think that ought to be stated in justice to the claims made for antitoxin. We have, however, received quite a large number of cases said to have been ill only twenty-four hours. Others were said to have been ill forty-eight hours, and so on. We have tried to limit our injections, as far as possible, to cases that had not existed longer than say four days. It is true some, however, have been injected where the disease had been of some duration. As I tell you in a general way, the death rate among our cases has been 25 per cent. as compared with about 27 or 28 per cent. perhaps, during the same period as to the whole number of cases. That of course would include cases injected with antitoxin, as well as the others. We have excluded all severe cases, all malignant cases, in which there seemed to be no hope. Having excluded all such in the antitoxic treatment, we therefore naturally expected that the general death rate would be higher as they were thrown out. I will say, on the other hand, that we did not inject mild cases where we looked for recovery under any treatment. They too have been excluded.

Another subject has been touched on in this discussion, and that is the diagnosis in lacunar diphtheria as I understand it. It very frequently happens that we receive in a hospital, a subject, showing this form of diphtheria well marked, while another child of the same family will have well marked diphtheria, in which there is variance, and sometimes from the same family will be admitted a case of membranous croup in which there is no exudate whatever to be seen in the process. I have no reason to believe that diphtheria assumes all these different forms, and the specific microbe is present in each. Tonsillitis cases sometimes so thought, are really cases of

diphtheria. I am convinced that frequently, a specific microbe is found in these cases of follicular tonsillitis.

THE CHAIRMAN—Whose serum do you use in Philadelphia?

DR. WELSH—We have used mostly Behring's No. 2. We have used, also, some of Aronson's, and some of Mulford's, and two or three bottles perhaps of the serum prepared in New York. Mostly, however, it has been Behring's.

DR. THOMAS, of Michigan—My practice is limited entirely to private practice, and to twenty-five cases. The community in which I live has a population of 5,000, but it is one in which diphtheria has visited frequently. Our mortality has been simply frightful, averaging 75 per cent. during the last twelve years that I have lived there, although I think the treatment has been the true treatment. Four months ago the epidemic started again. For the first of these twenty-five cases I was unable to obtain any reliable antitoxin, although I made efforts to obtain it in New York, Philadelphia and Chicago. Of the first eight cases, four died. Seventeen I treated with antitoxin, and, without going into any details, I will state that in each of these seventeen cases the bacilli was verified, and I have had a recovery of 100 per cent. (Applause.)

Now, gentlemen, this may be merely a coincidence, but those were severe cases. It is where antitoxin is used before the secondary septic symptoms manifest themselves that it is efficacious. I do not think you can save a case of diphtheria after it has passed into the secondary symptoms, but with my experience, I am certainly an enthusiastic advocate of antitoxin.

DR. LARRABEE—We have certainly had an opportunity to profit by the discussion of this subject so far that it is hardly necessary to add very much to it. The enthusiasm which surrounds new treatment of disease is well known and accepted. Having been a participant in that enthusiasm in 1890, with tuberculin, and having been dampened in my enthusiasm for such treatment, I have been naturally going slow with new treatments since then. Whenever we report every case getting well in diseases of a fatal nature, and no deaths, the mark of suspicion is upon us. We ought to be watched for a while at least. (Laughter.)

There are cases of diphtheria and diphtheria, and there are cases of typhoid fever and typhoid fever, and there are cases of measles and measles, and you may call it all measles, but there is quite a difference in the nature of each case. It might happen to a man that he had this success which has been related, and I do not doubt it. Such success as 100 per cent. of recovery, and not a Dutchman's 100 per cent. either, is very remarkable. It means that every case gets well. Such an experience as that would be a very grand one, if we could carry it out. The point seems to be that we have mild cases and severe cases. We may have very considerable local trouble with very slight constitutional symptoms. It is in these cases that we make a test of the treatment. The point seems to be that in deciding in regard to this great new treatment we might derive a little profit even from a retrospect. It has been about a hundred years since the greatest inroad was made upon disease by Jenner by vaccination. But it must be remembered that Jenner shut the gate of death while the throng was going through. Jenner's discovery was a perfect discovery of a fact which had been observed only by a limited number, but it needed no argument. The shutting of the door against the tide of smallpox was a fact. It swept the earth with great destruction in that time. So in that we saw a perfect discovery needing no modification or building up. Now, the point in these new discoveries, I believe is well taken. I believe we are on the right track. I believe antitoxin is a move in the same direction as Jenner's discovery, and I regret that the profession has been a hundred years in moving upon lines that were developed by the original discoverer. We do not expect after a man has been suffering seven or eight days with smallpox to vaccinate him, and have him recover thereby. Jenner did not do it, and nobody else can do it, but by immunizing with serum you have the best test of its efficacy. Too much stress is laid on the arrest of the disease after it has taken possession of the system and become septic. You might just as well vaccinate a man when he has already contracted the smallpox.

My use of antitoxin is too limited to bring it into the discussion. I can revert to but sixteen cases. These cases all recovered. In two cases where I did not expect recovery under the old treatment, I was very greatly pleased with the results. The other cases, I believe, would have gotten well under the old treatment probably. I can not tell. That is a point we can never discuss. Dr. White discussed a case here that comes to mind. I never diagnose a case of croup or tonsillitis with fever that I do not have a string

tied to it, so that I may pull it back after two or three days if I diagnosed it as a simple disease. The fact brought out in Dr. White's paper comes home to all of us; where we at first think there is no danger, and that we have only a case of tonsillitis to deal with, and where the most pronounced symptoms of diphtheria develop afterward. We have a case of sore throat out our way that we call drain sore throat. It is easily contracted, and if you want to make it to order you can do so at any time, if you will dig a little pit at the back door of your house, and throw the dishwater into it for a few days, and let the July sun get at it. You can then have this drain sore throat. I have named the bacillus of this the seweronicus.

THE CHAIRMAN—What does it look like?

DR. LARRABEE—It has four tails, and is exceedingly lively, and hops about on several legs (Laughter). This is a thing that is communicable, and that will reproduce its kind. It is as contagious a form of sore throat as any other disease. You have the affection of the tonsils. You will have fever and a new set of symptoms coming on the second or third day.

On the subject of false croup, I want to say with all kindness, that I hope our nomenclature of diseases will be changed some time or other. The false things ought to disappear, and the true things come to the surface. False croup is no croup at all. I think that the nomenclature would be benefited by a thorough purgation. We want to get rid of a nomenclature that can only lead to error.

DR. SMITH, of St. Augustine—Are membranous croup and diphtheria to be allowed to stand as distinct diseases, or when are they to be considered otherwise? I would be interested to hear Dr. Koplik on the subject.

DR. INGALLS, of Chicago—I regret very much I did not hear the papers read. I feel as the Doctor feels who has just spoken, that we are probably on the right path with antitoxin, but there are a good many points that should be considered by men who are making these experiments, that have not been explained satisfactorily to my mind, at least, up to the present time. The matter of diagnosis is very important indeed, and in the reported cases which have come under my notice in the journals at large, only in a comparatively limited number were the diagnoses accurately made. As I came to this meeting, a gentleman told me of some one in this community who had been treating a great many cases of so-called diphtheria with antitoxin. This gentleman did not belong to the regular profession, and his method was when called into a house where there was a sore throat, to pronounce it diphtheria, and immediately administer antitoxin. The result of his experience was that those who had been immunized had had diphtheria, while there was no proof that any one in the community had had diphtheria, and I think a great many of our reports in the journals have to do with this sort of cases.

I think the effort is in the right direction, but I do not think we have very much proof at the present time. My own observation has been limited; so far as I have been able to observe, benefit has followed the use of these remedies, but the experiment as a rule has not, to my mind, been satisfactory, and I find upon consulting the literature upon the subject that among the profession who ought to know most of this—the gentlemen in France and Germany, differ upon it. There is a good deal of division of opinion; about one-fourth of them are very sure that antitoxin is a great remedy, and about three-fourths are not at all sure of it.

I find in my reading only one experiment that has much weight with me. In this experiment, the antitoxin was given for a few weeks and there was great improvement in the rate of mortality; when the supply of antitoxin diminished the mortality increased, and when the antitoxin was gotten again, the mortality was again reduced. The mere statement that beginning at a certain time, the death rate was 50 per cent., and beginning at another time the death rate was 25 per cent., is no proof whatever. We all know that the death rate in diphtheria during a bad epidemic will run up to 60 per cent. and sometimes higher. We know that in the beginning of the epidemic the death rate will run up to 60 per cent. and a week or two later drop to 35 per cent., and then be still further reduced until all recover.

On this account the experiments have not been of much value. It seems to me there ought to be experiments made that would be of some value. If cases as nearly alike as can be selected were treated alternately by the different methods, we might then make comparisons of value. These doctors who have been so successful might have gotten hold of cases at the end of an epidemic, and those cases might have recovered even if the physician had not been there at

all. I hope that we are in the line of developing something that will cure diphtheria. Antitoxin is young, and like tuberculin, its estimate in our opinion may have to be revised. I think, however, that a physician who has an opportunity to use antitoxin and does not use it is culpable. We should give the patient the benefit of every chance where there is no risk.

DR. YOUNG, of Newark—I regard antitoxin as a baby with long clothes, from which I hope for much. I believe it will grow to be large. The test for diphtheria, I believe, is the microscope, and that should be carried out as a test. I regard diphtheria a disease as we find it and not as a germ. I regard diphtheria as a systemic affection, and not local. I make no applications to the throat whatever, and the results seem to be good. I find that less than one in ten die when that treatment is adopted. I believe diphtheria is the development of a germ within the system, although you may call it, if you please, the ptomaine of diphtheria. The result of my treatment has been good; it has been entirely systemic, relying largely upon the use of pilocarpin and good nourishment.

DR. WEAVER, of Pennsylvania—The remarks of the gentleman from Newark, as far as diphtheria is concerned, are excellent. In my country diphtheria prevails very largely. I often see in one day three or four cases of ordinary acute tonsillitis, and have come to look upon those cases as dangerous. In the country districts we are compelled to protect ourselves better than you gentlemen in the city hospitals. We have to protect ourselves on all sides. I look upon those cases of tonsillitis from the standpoint of diphtheria; if the case does not turn out to be diphtheria we are safe, and if it does turn out to be diphtheria, we are still safe. The results are excellent when the treatment is begun early. Within two months, two cases have come to my notice where I have used antitoxin. One was the case of a little girl 7 years old. She had come from Philadelphia, where she had been exposed two weeks before. The case seemed mild in its incipency, and I treated it as one of diphtheria, and prescribed accordingly. I visited the patient next day. In the intervening twenty-four hours the disease had spread considerably, and it looked to me as if the child was going to die. A consulting physician was called, and he told the parents, in my presence, that the child would die before the next morning. I agreed with him. I thought that this was a case for antitoxin if there ever was one. We sent for some of Gittings' antitoxin. I administered a large dose, and repeated the dose in twenty-four hours. The effect was immediate in bringing the temperature down from 102 to subnormal. The gentleman who was called in said to me: "Doctor, I think the case is going to die, but if the patient gets well I will credit it to antitoxin." He did not believe in antitoxin then. The child had thrown its head back, and it was impossible to give it nourishment naturally. This condition existed for twenty-four hours, but the child continued slowly to improve, and finally got well. I am as sure as I can be of anything that this case was saved by the use of antitoxin.

There was another child in the same household suffering from diphtheria, but not so ill as the one I have just spoken of. That child died through the carelessness of the nurse in letting her fall out of bed. I am sure that there is power in antitoxin. Of course I can not tell from one case whether it is absolutely good or bad, but from my limited experience I consider it a good thing, and I am going to use it wherever I find a case that I think demands it.

DR. INGALLS—I believe the gentleman who spoke this morning said that he hoped this experimentation would continue. I must differ with him in regard to this being treated as an experiment. When I was in Europe in 1891, Professor Behring, in a lecture on bacteria, said that he had discovered a substance known as antitoxin that would cure diphtheria. This was after the period of tuberculin fame, and the reason the physicians in Berlin would not take hold of antitoxin was owing to the great failure of tuberculin, but as these physicians in Berlin would not take hold of the substance I did not bring any to New York.

It is not a year and a half ago since Professor Werniger came to the Chicago Exposition and brought me some antitoxin. He asked me to use it, but I was afraid to do so. I had samples sent to me from various chemic houses. They called it antitoxin, but I was afraid to use it. I had not then heard of Aronson's. I went to Europe last year, and found there two schools of treatment by antitoxin. There are two factions. One is the school of Behring, who manufactures antitoxin, and who claims priority, and the second is the Aronson faction, which is a rival school, also making

antitoxin, but in a different way from the process followed by Behring. At a recent meeting of the alumni of the Charity Hospital, we laid down the rule that Aronson's antitoxin should be used in a dose of 5 cubic centimeters injected into the interscapular region. When I hear Dr. Welsh speaking of No. 2 antitoxin, I tell him that since I have had more experience I use only No. 3 Behring's antitoxin for healing purposes, and No. 1 for immunity. When I was in the hospital in Philadelphia I asked Dr. Welsh to use No. 3 because it was more concentrated.

One of the gentlemen remarked here that he selects the malignant cases in this treatment, and does not treat the mild cases with antitoxin. I treat every case of diphtheria that comes along. The moment I have a patient that shows an inflamed membrane or an inflammation of the larynx, I know then that I am treating diphtheria, and am justified in using antitoxin. My first report showed a percentage of 5.8 mortality. At that time I had some very mild cases, and the first and second days of the disease I had excellent results. My second report raised the percentage of mortality from 5.8 to 15 per cent., almost three times as great, and it was due to the fact that I injected every case I saw, whether moribund or not. If I thought I could save a person from drowning by throwing a rope, why not do it?

Antitoxin and serum are not synonymous terms. Toxin is a condition of the blood. I would ask Dr. Welsh to be kind enough to use the antitoxin that I send him, and use it without skepticism. When I read a paper on March 4 before the German Medical Society, Professor Jacobi said that he was happy to see such honest statistics, and rather complimented me on such a high rate of mortality. If I included all the cases I had, the mortality would have been very much less.

Dr. Larrabee mentioned a point in the case of immunity. I had a case where I refused to inject antitoxin, where it was a bad case of septicemia, and the child must die anyhow. Of course the antitoxin would have done no good. The Doctor asked me whether we could save the other child with an immunity dose of serum. I told him I thought so, and we injected the child and it remained immune. In such cases we always inject one-tenth of the healing dose of serum.

Dr. White—I think we put too much stress on the importance and value of statistics. I think every man who has had experience in the treatment of diphtheria with or without antitoxin, can make an intelligent comparison of the value of the two treatments without consulting any figures whatever. I have seen something approaching two thousand successive cases of diphtheria in the last two or three years, many of them treated without antitoxin, and quite a large number treated with antitoxin, and have absolutely no hesitancy in stating that where there was antitoxin treatment of diphtheria there was improvement in almost every phase of the disease, particularly in the incubation cases; also in those cases where there is some evidence of approaching sepsis. I know without consulting any statistics that antitoxin has been a benefit in those cases.

It was mentioned during the discussion here that in the literature upon antitoxin about one-fourth, perhaps, of the statistics were in favor of the use of antitoxin, and about three-fourths undecided. Certainly my reading has not led me to believe the same way. I think we have a large amount of evidence in the statistics from Paris and elsewhere that is valuable. There is a large number of cases in the hospitals of Brooklyn, and it has been always noticed that the mortality has diminished upon the introduction of antitoxin, and that mortality increases after antitoxin is removed from the treatment. The answer to that by those who are opposed to antitoxin, is that the epidemic is mild when the antitoxin is in use, and again becomes severe when the antitoxin is taken away. But if that is going to continue, it is all the evidence I want for my belief in the use of antitoxin. If the disease is going to become mild when antitoxin is used, then I say there can be no objection to the use of antitoxin.

Dr. Fischer asked me to speak upon the use of internal medication. He brought out the point that he did not expect to remove the stenosis by the use of antitoxin. I think we do remove it by the use of antitoxin, but it takes ten or twelve hours to get the evidence of relief. I believe also that we should resort to other methods of relief—medical methods. I see no reason why we should not use the same remedies as before. Antitoxin is slow in bringing about its results. I have always advised the use of irrigation of the throat with a pure plain water solution of soft water. I have not obtained any good results from antiseptics.

I also want to express my thanks for the remarks of Dr. Koplik and Dr. Larrabee on the subject of having the names changed with respect to these false diseases, such as false croup and false diphtheria. I think we ought to treat all cases where the bacilli are present as diphtheria. It can certainly do no harm.

Dr. Welsh—I want to ask Dr. Fischer if I understood him to say that in the selected cases where he used antitoxin, the death rate has been 15 per cent., whereas if he took all the cases in which he used it, the death rate would be as high as 40 per cent.

Dr. Fischer—I said that in my first series of cases the mortality was 5.8 per cent. and in my second series of cases, numbering 223, the mortality was 15.11 per cent. and the higher rate of mortality I attribute to the fact that I was called in consultation in many cases that were hopeless, and they begged me for the sake of the family to inject antitoxin, although I considered them fatal cases before I injected the antitoxin. I find in looking over my record of diphtheria cases, that the mortality was about 40 per cent. or over 40 per cent. averaging cases of so-called diphtheria—that is croup and diphtheria—in which antitoxin never had been used. Since the antitoxin treatment has been used, the highest mortality rate in 223 cases was 15.11 per cent.

THE CHAIRMAN—Does this 15.11 per cent. embrace all your cases?

Dr. Fischer—All that I have treated.

Dr. Koplik—We do not know yet of any set of clinical symptoms which will distinguish the lacunar diphtheria from ordinary tonsillitis, and for that reason where the conveniences are at hand, we should always make a pathologic test of the sore throat. Where the conveniences are not at hand, I think the best way in all cases of sore throat is to resort to isolation.

Dr. Loving—I will say to Dr. White and the other gentlemen that so far as my limited experience in the matter goes, my observation corroborates exactly the statements of the papers, namely: that the antitoxin is a curative remedy. Koch's tuberculin was a humbug. I used it in forty-five cases of tuberculosis, and every single patient was made worse by it. One of the gentlemen here asked Dr. Koplik to state the difference between diphtheria and membranous croup. I am not much of a microscopist, but whenever I can, I call in a microscopist. These gentlemen practice in hospitals in large cities. My practice is largely among the country population, where we are not quite so subject to infectious diseases as people living in the city. I find once in a while a case of membranous sore throat, where it is impossible to trace any infection. The case begins as a sporadic disease and ends as a sporadic disease. In the few cases where I have called the microscope into use, we have found the bacteria, the ordinary corpuscles, and that is all. I agree with the other gentlemen here that there should be a correction of medical nomenclature. If I had the power, I should abolish all these forms of false disease, and call them by their proper names.

HYPNOTISM, WITH SPECIAL REFERENCE TO HYPNOTIC SUGGESTION AS AN AID TO THE ANESTHESIA OF CHLOROFORM AND ETHER.

BY CHARLES GILBERT DAVIS, M.D.

CHICAGO, ILL.

Time is the great sieve in which is sifted the accumulated thoughts of men. In it the *débris* is removed and only pure sparkling truth remains. It is strange, but nevertheless true, that every great scientific advance in every department of human life is met by the most determined, and I might say, brutal opposition. And yet, as the years flow on, there is ever but one result for all these conflicts, for truth is and ever will be triumphant. Gradually the ignorant, stupid and cowardly attack ceases, the smoke of battle passes away, the clouds are lifted, the din of contending voices is hushed and, lo! some fair, new form is ushered upon the scene, a living, breathing reality. A new star is added to the galaxy of the scientific heavens.

What can exceed the bitterness of the controversy

that for many years has been carried on over the subject of hypnotism, or hypnotic suggestion? It is not my intention, in this article, to review the arguments, pro and con. The salient points are constantly brought before the minds of the intelligent members of the profession, through the medical journals of the day. Neither do I wish to enter, at the present time, upon an elaborate exposé of my views of hypnotism, as to what it is, how it acts, or its application to the cure of disease. All of this will be reserved for another article, which I hope to produce in the course of time. Suffice it to say, that for many years I have carried on my experiments with an idea of determining its merits, and now I am able to say that I thoroughly believe the nineteenth century has evolved no therapeutic agent or remedial measure, all things considered, more potent or more capable of beneficent results than hypnosis.

In my address on this subject before the Psychical Science Congress of the World's Congress Auxiliary, in 1893, I said: "Surgery and hypnotic suggestion will largely constitute the healing art of the future. It may not be in our day, it may be centuries hence, but it will come." I am not at all convinced that this was extravagant language.

But without wishing to compass the entire scope of the subject relating to hypnosis in its application to disease, I wish now to call attention to its efficiency as an anesthetic, and most particularly as an aid to the anesthesia of chloroform and ether.

Ever since I became a student of medicine I have recoiled from what I call the barbarous method of forced anesthesia. I remember some of my first experiences in witnessing surgery twenty years ago in a Cincinnati hospital. Here, the patient was brought in before the class and told to breathe the chloroform, and if he did not do it willingly he was compelled to do so by being held on either side by two stout porters, while the assistant placed a handkerchief over his face, held it there and poured on the chloroform. Convulsed with terror, screaming, struggling and pleading, his whole nervous system in a furor of fright he was finally overcome. My observations at the time, and I have never had reason to change them, were that this method itself was almost as much of a shock as an ordinary operation. Only a few days after I began my studies there, under just such circumstances as those I have described, I witnessed a death from chloroform. Suddenly, in the midst of all this contest between the patient and assistants, she ceased to struggle, became quiet and the porters released their hold. She was dead. The post-mortem, as usual, said, "fatty degeneration." The scene impressed me, and I am sure has been a life lesson to my profit. Since then I have administered anesthetics a great deal, and had it administered under my directions by assistants thousands of times. I have never had a death. I do not boast of this; I am only glad. But I have always advised gentleness—the calm, quiet, soothing method. A few years ago the old custom was to fortify the patient previous to the operation with a glass of brandy. I believe a few soothing, assuring words spoken into the ear of most patients at the time will, as a rule, do more good than all the drugs of the Pharmacopœia.

Ever since my boyhood I have studied with interest the subject of hypnotism under its various names, phases and aspects. It has had to me a peculiar fascination. Soon after beginning my medical stud-

ies and noting the anesthesia of many hypnotic subjects, the idea naturally presented itself of applying hypnosis to produce anesthesia. Frequently I was successful, but not sufficiently often to indicate that I could rely upon this method in all cases. I have performed a number of minor surgical operations, in which I used hypnotic suggestion with entire success, to produce anesthesia.

For several years the idea has seemed to me feasible of combining in all cases, hypnotic suggestion with the chemic anesthetic. I have been led to this from observing a number of cases during the last few years where such a combination was entirely satisfactory.

In 1888 I was operating on a case of fistula-in-ano. The subject was a man about 32 years of age, very nervous, pale and weak. He got upon the operating table with fear and trembling, begged of me not to give him the chloroform, and was inclined to abandon the operation. I went to his head, closed his eyes, passed my hand quietly over his brow and then made suggestions as to what I wanted him to do, and commanded him to go to sleep. In three minutes he was quiet. Dr. J. B. S. King stood ready with the anesthetic and I motioned him to proceed, while I turned to arrange my instruments. Dr. King immediately ejaculated, "why, he is already asleep!" He had only that instant placed the inhaler to his face. Sure enough, he was sleeping soundly. I proceeded with the operation, which occupied, perhaps, ten minutes. He suffered no pain, did not resist, and was easily aroused after I had finished.

Again about six months later, I had occasion to give an anesthetic to remove a number of wire stitches from the uterus of a patient on whom I had performed trachelorrhaphy. The lady was in a very weak, nervous and exhausted state. She dreaded the anesthetic from recollections of its previous unpleasant effects. I immediately resorted to suggestion till I thought she was quieted and then asked my friend, Dr. M. S. Leech, who was present, to proceed with the chloroform. But as he placed the inhaler to her face he exclaimed: "The conjunctiva is already insensible!" No more than a single whiff of the chemic anesthetic was given. She did not resist during the removal of the stitches, was easily aroused, expressing herself as having felt no pain. Soon numerous other cases followed, in some of which a few whiffs only of the chemic anesthetic were necessary, and others required a continuance of from five or ten minutes.

In July, 1894, I delivered before the Chicago Baptist Hospital Training School for Nurses, a lecture on anesthesia, and presented before the class at that time two young men whom I knew from previous experiments to be slightly susceptible to suggestion. The first, Y. M., a young man of slender build was placed on the operating table and told he was to be put to sleep. The proper suggestions were made, the dry cone was placed over his face, and he was told to breathe deeply. He soon slept soundly and the conjunctiva was insensible. No chemic agent was employed. The second, V. P., of strong vigorous constitution, mounted the table with an incredulous smile. I produced a bottle of water from my pocket, saying I would give him a newly-discovered and more powerful anesthetic. With strong suggestions he soon yielded and slept. The conjunctiva was insensible, and he showed every evidence of thorough anesthesia.

Recently, I have made careful note of a number of cases, both with and without suggestion. The following, taken consecutively from recent clinical work, are sufficient for illustration:

CASES WITH SUGGESTION AND ETHER.

Time.	Time.
Mrs. N. . . . 12 minutes	Miss M. M. . . 12 minutes
Mrs. C. . . . 8 minutes	Mrs. G. L. L. . . 8 minutes
Mrs. J. . . . 15 minutes	Mrs. J. B. B. . . 7 minutes
Miss S. . . . 7 minutes	Mr. J. G. . . . 13 minutes
Mrs. H. M. L. . 9 minutes	Mrs. G. D. B. . . 9 minutes

Average time from beginning of ether to complete anesthesia, ten minutes.

CASES WHERE ETHER WAS EMPLOYED WITHOUT SUGGESTION.

Time.	Time.
Mrs. W. B. . . . 24 minutes	Miss D. C. . . . 18 minutes
Mrs. G. H. . . . 20 minutes	Mrs. G. H. B. . . 18 minutes
Mrs. E. 16 minutes	Mrs. W. A. D. . . 17 minutes
Mrs. F. D. . . . 21 minutes	Miss S. B. . . . 18 minutes
Mrs. T. K. . . . 18 minutes	Mrs. W. C. B. . . 20 minutes

Average time from beginning of ether to complete anesthesia, nineteen minutes.

There is no doubt but that any one of these patients in either of the lists might have been anesthetized more quickly than they were. But in no instance was there any effort at haste, and in each individual case all due precautions were used to insure safety. I am sure that the patients are often overcome, asphyxiated, as it were, by shutting off the air and crowding the anesthetic in three, four, five and six minutes, but in all the above cases the correct gradual method was employed. And so far as possible, exactly the same method was used in each individual case.

It will be seen from these two tables that the time necessary for complete anesthesia, is reduced nearly one-half by the use of hypnotic suggestion. I have no doubt that with more care a much greater reduction might be obtained.

The beneficial results from using hypnotic suggestion as an aid to anesthesia are obvious:

1. It calms the nervous system, and fortifies the patient to withstand the surgical operation.
2. It lessens the danger of shock.
3. It lessens the time, and consequently the amount of anesthetic.
4. The patient awakens as if from a natural sleep.
5. I believe recovery in these cases is more rapid and satisfactory.

There is a wide difference between individuals as to their susceptibility to suggestion. On some it has but little effect; on others it enables us to reduce the chemic anesthetic more than half, and occasionally we meet cases where it is within itself quite sufficient.

It can never, when properly used, cause harm. Then why not always employ it? I can not conceive of a case where it can not be applied. The more intelligent the patient, the more readily we may speak to the nerve centers and have them obey. Still to the insane, to the idiotic, and the unconscious babe, we may make suggestions to the sleep centers by gentle motions and soothing tones.

I believe that hypnotic suggestion will, in many ways, but most particularly as an aid to the anesthesia of chemic agents, prove a blessing to mankind.

THE MEANING AND IMPORT OF CASTS IN THE URINE WITHOUT ALBUMIN, AND THE INADEQUACY OF THE ORDINARY CHEMIC TESTS.

BY LUDWIG BREMER, M.D.

ST. LOUIS, MO.

The microscopic examination of the urine, though resorted to more frequently now by the general practitioner than ten or twenty years ago, is still too little practiced and is underestimated as to its value by the vast majority of physicians. In suspected cases of renal diseases or complications, the chemic test, frequently a very crude one, is relied upon exclusively, and in case of absence of albumin the verdict is rendered: there is nothing the matter with the kidneys. How erroneous such a course is on the part of the physician, what dangers it involves to the patient, what damage it may cause to the reputation of the medical attendant, and how important it is to the medical man to emancipate himself from a time-hallowed and pernicious delusion, viz., the all-importance of the chemic urinary tests, I shall try to demonstrate and emphasize in the following remarks.

The diagnosis, albuminuria, is unscientific. Albuminuria, as is well known is not a disease, but a symptom of a number of diseases. Not only a variety of diseases but a variety of altered conditions still within physiologic limits, may give rise to the presence of albumin in the urine. Thus a full meal or great bodily fatigue may cause it in some persons. A certain percentage of cases of albuminuria during pregnancy also belong in this category.

Now, in my experience and opinion, the presence or absence of albumin in the urine is not nearly of the diagnostic and prognostic importance, as the morphologic evidences of kidney disease, i.e., the presence or absence of casts. I venture the broad statement that a person who constantly or periodically passes urine containing casts, even without albumin, or perhaps albumin in chemically demonstrable quantities, is not in good health. Such a person in my opinion has a damaged constitution; his kidneys are, to say the least, vulnerable. The irritative process which gives rise to the formation of casts may not amount to an actual state of inflammation; above all there may not be the recognized somatic signs of fully developed kidney disease, and yet the subjective symptoms may be very pronounced. They often are unaccountable, because sufficient importance is not attached to the presence of casts in the urine of such persons. Many obscure and inexplicable nervous disorders of an apparently functional character are, however, rendered intelligible when viewed in the light of uremic or uro-toxic conditions. A vulnerable kidney is naturally more easily disturbed in its function, more prone to perverted action than the normal one. If it be true (and the trend of modern views and observations point in this direction) that there is an internal secretion in the kidneys, it can be easily conceived how, beside the deficient activity of the kidneys, causing a lack of elimination of the body's waste products, there may be a vitiated metabolic process in the kidneys, processes whose products are of a toxic character and when absorbed give rise to a multitude of nervous and mental symptoms. From a single indisposition and malaise, from a slight soreness of the skin to the most torturing of neural-

gias, from an insignificant and often unheeded feeling of depression to the most aggravated cases of melancholia or mania, all these shades and different intensities of nervous and mental disorders may arise from such vulnerable or damaged kidneys, the demonstrable evidence of disease in these organs being casts alone, the albumin being completely absent.

Again, there are a number of cases, and I have quite frequently met them in my practice during the last five or six years, in which periodical or intermittent albuminuria is the feature and where the albumin is in evidence only when a nerve storm of unusual severity has set in. I have often diagnosed in such persons by the presence of casts, the vulnerable kidney which for want of a better name I have described as latent and intermittent nephritis without albuminuria (*Medical News*, Oct. 20, 1894). For a long time, often for weeks or months, such patients may not have any albuminuria, casts only being demonstrable; or even these may disappear and the urine be absolutely normal, and yet there is a dormant pathologic condition under which certain and favoring conditions are rekindled into activity. Such persons may live in comparative comfort for a time, until a nerve and kidney storm brought on by a variety of causes, a cold, excessive physical or mental strain and worry, an attack of an infectious disease, a fall, etc., renders the latent affection an active one.

In my practice it is an almost daily experience for me to hear that my diagnosis of vulnerable kidney, which I held responsible for certain nervous or mental affections had not been corroborated or verified by other physicians, who had repeatedly examined and "analyzed" the urine and found everything in a normal condition. Aside from such examinations, which are based upon chemic analysis exclusively and which I once more desire to state are unreliable, misleading and fallacious, there are such as, made with the microscope, fail to reveal any morphologic evidence of kidney disease in the shape of casts. There are several reasons why the examination for casts under such conditions may prove negative or may be looked upon as negative: 1, Microscopic incompetency, which is very general.¹ 2, the kidney trouble may have become latent, the casts are really absent, and there being neither albuminuria nor casts, the unwarrantable statement is made, there is no Bright's disease, the kidneys are healthy, while the correct statement would have been that at the present time there is no evidence of kidney disease. 3, in spite of competency, the casts are not detected because of insufficient instrumental equipment. No examination of this sort ought to be considered as final without the use of the centrifuge, an instrument which ought to be in the hands of every physician who is often called upon to make urinary examinations. 4, the examiner, even if he finds casts, may not attach any importance to them if unaccompanied by albuminuria. This, in my opinion, is an error of vital importance and one that is widely spread. Misleading experiments have helped to strengthen this misconception. Among other reasons why the presence of casts in the urine is alleged to be compatible with perfect health, is the finding of casts in the urine of athletes after great muscular

exertion. Now nothing is more fallacious than to say that because a man is an athlete, therefore he is a type of health. The well known and often commented upon liability of such persons to disease, especially of the heart and the blood vessels in general, ought to counsel caution; again, the fact, that they generally die young, ought to serve as a pointer to the real state of affairs. So far as my own experience in this matter goes, I have time and again had an opportunity of demonstrating in young men, who used to be college athletes, the existence of hypertrophied hearts and the presence of casts (without albumin) in the urine. The clinical symptoms of their disease presented the mottled picture of neurasthenia. These were certainly damaged men and their kidneys were not only vulnerable, but actually diseased.

Besides neurasthenia, other neuroses, notably hysteria in its manifold manifestations, grow and thrive on a soil prepared by diseased kidneys in the pre-Brightic or pre-cirrhotic stage. By this I do not mean that hysteria is a result of this form of kidney disease, but the latter acts as provoking agent and converts into a fully developed disease what otherwise would have remained simply a predisposition.

Among the other symptoms which latent or intermittent chronic parenchymatous nephritis may give rise to, is that known as "dead fingers." I must confess that I have seen but few patients who complained of this symptom. Quite frequent, however, are disturbances of speech and memory. Aphasic phenomena are particularly apt to manifest themselves, often only in a rudimentary or fragmentary way. Inexplicable diarrheas, harassing coughs, huskiness of voice, itching of the skin, nettle rash, muscular twitchings, hot waves and rushes of blood to the head, with a host of other symptoms may be present.

In my experience, many cases of supposed malaria and gripe were nothing else than cases of acute or subacute nephritis, developing from the mild chronic form above alluded to. On the other hand, I believe that both these diseases are powerful factors in producing the trouble under discussion, giving rise to an acute infectious nephritis which ends in a slow, insidious chronic form without albuminuria. Especially is gripe apt to leave a chronic parenchymatous nephritis behind.

Migraine is often nothing else than a uremic paroxysm. During the attacks the casts increase in numbers. The same is true of other periodic headaches.

I have found casts in almost all cases of tabes and and paretic dementia that I have had an opportunity of examining. These patients rarely die from kidney disease, it is true; although they have casts in the urine for years, they may not present any uremic symptoms, but it is reasonable to infer that the diseased kidneys help to develop the disorders of the central nervous system and invite the diseases to which such patients finally succumb, such as pneumonia, erysipelas, etc.

As a prominent physical symptom of an existing chronic parenchymatous nephritis I have often seen, especially in men, a slight thickening of the temporal artery, with the characteristic tortuosities so common in the cirrhotic form of Bright's disease. Often it is only indicated by a temporal pulse stronger than normal. The main symptoms, however, are generally the subjective ones briefly outlined above.

¹ Microscopic incompetency is especially prevalent and apt to cause mischief in those who have taken a course in microscopy, bought an instrument and consider themselves experts. The curious notions some of these microscopists have about casts are almost incredible.

In conclusion, I would say that a person who has constantly, or from time to time, casts in the urine, even if they be only of the hyalin variety, must be considered damaged and prone to contract and succumb to other diseases. Again, albuminuria without casts is of exceedingly rare occurrence, while the opposite, casts without albuminuria, is very frequently met with.

A rational course of dietetics, above all the avoidance of rare meats and the derivatives of meat, such as meat soups and rich gravies often bring about great improvement and in some cases total disappearance of the casts, together with the subjective symptoms. As a curative remedy I have great faith in mercury, especially blue mass, administered in 5 grain doses twice a week, and small doses (5 grs.) of sodium iodid.

I have had patients under observation for many years who, by prudent living have managed to remain in a fair state of health, attending to their business and enjoying life in a quiet way, although casts would be from time to time demonstrated and slight uremic disturbances were not infrequent. If a proper hygiene is observed, latent or intermittent chronic parenchymatous nephritis does not seem to interfere materially with longevity in the well-to-do. It is different with people who have no means of properly taking care of themselves.

SOCIETY PROCEEDINGS.

American Association of Obstetricians and Gynecologists.

Abstract of the Proceedings of the Eighth Annual Meeting, held in Chicago, Sept. 24, 25 and 26, 1895.

FIRST DAY—MORNING SESSION.

The Association met in the South Parlor of the Auditorium Hotel, and was called to order by the PRESIDENT, DR. J. HENRY CARSTENS, of Detroit, Mich.

After an Address of Welcome by DR. WM. E. QUINE, of Chicago, and a response by the President, the reading of papers was proceeded with.

DR. JAMES F. W. ROSS, of Toronto, read a paper entitled

BILATERAL SUPPURATIVE PAROTITIS.

He narrated a case in which after vaginal hysterectomy, the tenth day after the operation, the temperature rose to 103 degrees, and a swelling in each parotid gland presented itself. The swelling gradually increased. The sides of the face became enormously swollen, the eyelids were puffed, and the patient could scarcely open them. The complication he believes to be an unusual one, and for that reason brings it before the Association. Double parotitis is seen occasionally as one of the sequelæ of the infectious diseases, a distinctly septic disease. It is difficult to believe that the removal of the ovaries can produce a parotitis. If parotitis has a peculiar tendency to follow the removal of the uterus, we should have sufficient data upon the subject to make us well aware of this fact also.

DR. EDWIN RICKETTS, of Cincinnati, related a similar case in which two days after the removal of the diseased appendages, a double parotitis made its appearance.

DR. C. C. FREDERICK, of Buffalo, saw a case in the practice of a prominent practitioner in Buffalo a few years ago in which a double parotitis followed ovariectomy. The woman made a good recovery. No suppuration in the case.

DR. JAMES F. BALDWIN, of Columbus, narrated an instance in which the parotitis was limited to the left side, it having followed a vaginal hysterectomy about the third day, accompanied by elevation of temperature, pain and swelling.

DR. W. G. MACDONALD, of Albany, said that parotitis associated with the removal of the uterine appendages was not a new thing. Among the earlier operators it was not an unusual or uncommon complication. The patients, however, usually died. He saw one case following a supravaginal hysterectomy. He had also seen it after amputations of the thigh.

DR. JOHN M. AULD, of Chicago, had seen one case of non-suppurative parotitis of one side. It followed perineorrhaphy and hemorrhoids.

DR. H. W. LONGYEAR, of Detroit, had seen parotitis associated with typhoid fever.

DR. A. H. CORDIER, of Kansas City, Mo., said parotitis occurs with greater frequency than is supposed in connection with operations involving the ovaries and tubes. He is inclined to believe that there is a sympathetic relationship between the ovaries and the parotid gland.

DR. A. H. FERGUSON, of Chicago, asked as to the condition of the patient's mouth at the time of the parotitis. In scarlet fever, diphtheria, and a number of diseases associated with disease of the uterine appendages, extension takes place to the parotid gland. In such cases the mouth is foul, and if it can be kept clean parotitis is not so apt to occur.

DR. ROSS said it is well known that the parotid glands, the thyroid glands, and the submaxillary glands frequently become inflamed in inflammatory disease of the testicles; but as to inflammation of the ovaries, we are not so sure. He could not say as to the condition of his patient's mouth at the time of operation.

INTERMEDIATE TREATMENT OF PUERPERAL SEPSIS.

This paper was read by DR. A. B. MILLER, of Syracuse, N. Y. The author summarized his remarks as follows: 1, that suspected infection of the birth canal should be confirmed when possible by a bacteriologic examination of vaginal secretions, and every means of differentiating it from other affections should be resorted to, that it may be treated rationally either by medicine or surgery; 2, irrigation and antiseptics destroy the nutrition of the parts when continued, and, furnishing increased moisture, improve the field for the development of microorganisms, aside from the danger of death resulting from the antiseptic used; 3, that the birth canal can be kept comparatively dry by absorbent dressing, removing the culture media and arresting the development of germs and infection until the abraded parts have been repaired.

DR. L. S. McMURTRY, of Louisville, Ky., followed with a paper entitled

THE INDICATIONS FOR OPERATION IN PUERPERAL SEPSIS.

Since operative surgery a few years ago disclosed the various lesions of pelvic disease, it has been known that pregnancy and the puerperal state may be complicated by pre-existing inflammatory diseases of the uterine appendages, tumors, and septic accumulations inside the pelvis. Chronic and circumscribed disease of this character may be converted into acute and diffuse inflammatory conditions by the trauma of labor. Puerperal sepsis may in this way be the result of pre-existing disease. This class of cases must necessarily be small, since women thus diseased are as a rule, sterile. That such cases necessarily come within the scope of operative treatment will be generally conceded. The indications and guides for operative interference in this class of cases were then considered by the author. In all cases of puerperal sepsis the most careful examination of the pelvic organs should be made.

In conclusion, he alluded to the class of puerperal cases wherein the local symptoms are those of diffuse peritonitis without localization of lesions, but where the uterus is presumably the focus of infection. This class of cases has recently been discussed extensively in relation to treatment by hysterectomy. Empirical operations in surgery are likely to prove more disastrous than similar methods of treatment in medicine. The gravity of such cases may often justify exploration and drainage, but the more extensive operation of hysterectomy will almost invariably prove disastrous.

DR. W. E. B. DAVIS, of Birmingham, said with reference to cases of puerperal sepsis, where the temperature runs high, they usually die in from a week to ten days, and he believes surgery offers very little hope.

DR. HERMAN E. HAYD, of Buffalo, said that where a septic condition takes place in the endometrium, or where there remains a portion of the placenta which breaks down, he is satisfied that a sharp curette should be used. With a sharp curette the surgeon can scrape away a good piece of tissue and yet do very little harm.

DR. WM. WARREN POTTER, of Buffalo, said there was no puerperal fever except it be due to infection; that if the history of these cases were carefully traced, the gynecologist would find underlying somewhere infection, which may be carried into the genital tract either by the obstetrician himself, or by the environment of the puerperal woman; hence the great collateral interest lying closely alongside this subject was the one of preventive medicine. The impor-

tant question was aseptic midwifery. If aseptic midwifery were practiced in every case there would be no puerperal sepsis, no ophthalmia neonatorum.

Dr. W. P. MANTON, of Detroit, had never had in his private practice a case of puerperal sepsis. In reference to the use of the curette it is an instrument, if properly used, which is absolutely devoid of harm.

Dr. H. W. LONGYEAR believes that when the uterus is packed full of gauze, it prevents the flow of mucus, blood and serum. While more or less serum may possibly come away, fragments of placenta or blood clots will certainly be retained. Rise of temperature, etc., should not be an indication for surgical interference in puerperal sepsis.

Dr. WM. H. MYERS, of Fort Wayne, emphasized the importance of differentiating between septicemia and pyemia in considering the subject under discussion.

Dr. C. C. FREDERICK said that out of forty cases of puerperal septicemia which he had seen in consultation in the last eight years, only two had died. Nothing could be found in the uterus and there were hardly any localized symptoms.

Dr. JAMES F. W. ROSS, of Toronto, said the subject was of the greatest importance, inasmuch as a new craze at the present time had seized the profession, that of taking out the uterus in cases in which it is unnecessary, in his opinion, to remove that organ. The pendulum had swung too far, as it did when the removal of the ovaries was undertaken for vague symptoms, and the Association should take some means of swinging it back again to its normal position.

Dr. W. G. MACDONALD, of Albany, related a case in which he favored the use of the sharp curette.

Dr. SHERWOOD DUNK, late of Paris, France, said that in the Broca Hospital, Paris, there were 184 beds, 48 of which were devoted to obstetrical cases. In his three years' connection with the hospital service there, no case of confinement had ever been followed by any septic condition.

Dr. A. J. BURGESS, of Milwaukee, said in cases of uterine traumatism, especially in abortions, where there are retained septic tampons within the uterus, it is absolutely impossible to curette them away with a dull instrument. He had seen the dull curette used for half an hour at a time, and yet two days afterward pieces of membranes or clots had come away, the size of a hen's egg. With a sharp curette everything can be removed.

Dr. A. H. CORDIER, of Kansas City, Mo., emphasized the importance of treating every case of puerperal sepsis as an individual one. Where surgical interference is called for, it must be resorted to early if we expect to save lives.

Dr. G. E. KRIEGER, of Chicago, predicted that in time we would treat puerperal sepsis very much in the same manner as we treat diphtheria with serum.

Dr. J. HENRY CARSTENS, of Detroit, emphasized the importance of differentiating between the different forms of infection. While the obstetrician may in some cases infect his patient, he believes in auto-infection. He thinks a sharp curette is not necessary for removing the shreds of membrane or other debris that may be left.

Dr. FREDERICK BLUME, of Pittsburg, said it had been proved years ago that in 50 per cent. of healthy women there were found streptococci or other pathogenic microorganisms in the vagina. He uses a sharp curette for curetting the uterus.

Dr. MARCUS ROSENWASSER, of Cleveland, Ohio, read a paper entitled, "Exceptional Location of the Blood Clot in a Case of Ruptured Ectopic Pregnancy." The case reported was an extremely interesting one, and it was presented with the hope that the knowledge of such possibility might prevent future confusion of an otherwise clear diagnosis.

Dr. H. W. LONGYEAR, of Detroit, reported a case where a woman bled for several months. On opening the abdomen, the cavity was found filled with blood and clots, and after a tedious operation he was compelled to leave some of the clots in the abdomen. The patient died of shock some three or four hours after operation.

Dr. JAMES F. W. ROSS, of Toronto, reported a case of acute general peritonitis produced by the rupture of a suppurating clot. After an ectopic gestation this clot was found lying in the neighborhood of the broad ligament, and was not in the least connected with the tube.

Dr. EDWIN RICKETTS, of Cincinnati, said the cases reported impressed us as to the importance of the earliest possible diagnosis. The subjective symptoms should be more carefully considered.

Dr. W. E. B. DAVIS, of Birmingham, related a case, the wife of a physician, who was delivered at full term of uterine pregnancy. Then a mass was detected in the right lumbar region which continued to grow larger. The patient was losing blood. Operation revealed ectopic gestation. The

bleeding was easily controlled, a rapid operation done, but the patient died from shock. Dr. Davis also cited another interesting case.

Dr. RUFUS B. HALL, of Cincinnati, emphasized the necessity of early operation, or, at least, an early exploration in all instances of obscure abdominal disease. After an experience of fifteen operations for ectopic pregnancy, he is more and more convinced of the necessity of early operative interference.

Dr. THOMAS J. MAXWELL, of Keokuk, Iowa, called attention to transfusion with common salt solution to tide over severe cases of hemorrhage.

Dr. L. H. DUNNING, of Indianapolis, followed with a paper entitled

RUPTURED INTERSTITIAL PREGNANCY.

After describing the case in detail, the author drew the following conclusions:

1. Ruptured tubo-uterine pregnancy is more frequently fatal than ruptured tubal pregnancy, for the reasons that in the latter case the rupture frequently takes place through the abdominal end of the tube, in which case but slightly vascular adventitious tissue is torn, while in the former case vascular uterine tissue is torn. Again, in tubal pregnancy not infrequently the rupture takes place through the inferior surface of the tube into the folds of the broad ligaments, and thus the amount of hemorrhage is limited, while in tubo-uterine pregnancy such a rupture is rare.

2. In ruptured tubo-uterine pregnancy before the fifth month, unless the abdominal section is done early, the anemia will be profound, so that the patient will be unable to withstand any operation involving prolonged anesthesia and manipulation. The operation should be as free from shock as possible.

3. There is no pedicle to tie.

4. All actively bleeding points must be secured by ligature.

5. Mr. Tait proposes hysterectomy as a proper procedure in such a case. Unquestionably, if the patient is not too greatly shocked or anemic, such procedure would be clearly indicated.

6. As a measure attended by less risk of shock, the writer proposes the tying of bleeding arteries, clearing the gestation cavity of the ovum, the establishment of free communication between the gestation cavity and the uterine cavity; the establishment of free drainage by means of tube and gauze, and finally the closure of the rent in the uterine wall by deep and half-deep sutures, or by Czerny and Lembert stitches, or instead of this method of closure, the stitching of the walls of the gestation cavity to the lower angle of the incision with the drainage from above and through the uterine cavity, and finally closure of the upper opening by tying deep sutures placed and left untied at the time of the operation. This latter method will probably be found applicable only in a limited number of cases, namely, in those where the uterus is freely movable and can be brought to the abdominal wall without tension. Whether the methods proposed by the writer have ever been employed, he does not know, and whether they will prove of value, a trial must demonstrate.

Dr. T. J. WATKINS, of Chicago, had met with a number of cases of extra-uterine pregnancy, but none of interstitial pregnancy with rupture. He had one case where the tube had ruptured, the placenta had grown fast to the cornu of the uterus, and where it was impossible to form a pedicle, the condition in the case being similar to that of an interstitial pregnancy.

Dr. BYRON ROBINSON, of Chicago, was fortunate enough to examine a specimen of Mr. Tait's. So far as operating on these cases is concerned, it seems to him that anything other than hysterectomy means death to the woman.

Dr. HENRY T. BYFORD, of Chicago, said that while he had never encountered a case of interstitial pregnancy, it was very essential to know how to proceed in such cases by surgical interference.

Dr. A. H. CORDIER, of Kansas City, Mo., had seen one case of interstitial pregnancy in the practice of Dr. Lanphear, the uterus containing in addition several fibroids. An abdominal hysterectomy was performed.

Dr. E. T. TAPPEY, of Detroit, read a paper entitled "Intra-Peritoneal Adhesions." He said that abdominal surgery in the last few years had established among other things, that many of the pains, vague uncomfortable feelings and so-called dyspepsias are caused by adhesions of various organs in the abdominal and pelvic cavities. The question of diagnosis is often perplexing, and in many instances impossible without abdominal section. Wherever there is

pain and palpation does not reveal any tumor or other enlargement, adhesions are one of the possible causes. The author believes it proper to subject cases of chronic dyspepsia, chronic and obstinate constipation, and cases of persistent pain which is caused by the accumulation of flatus, to exploratory incision to determine whether there be adhesions and for the purpose of severing them.

Dr. W. G. MacDONALD, of Albany, read a paper entitled

INTESTINAL OBSTRUCTION—CLINICAL OBSERVATIONS.

He said in no branch of abdominal surgery is precise diagnosis so difficult or operative procedures more taxing to the ingenuity of the surgeon. At the present time, surgeons of experience are quite unwilling to give a definite opinion until the abdomen is opened and closed. There are a large group of cases of ileus which may be regarded as purely symptomatic, a condition in which the continuity of the intestinal tube is interrupted, but the obstruction is due to conditions of paralysis in the intestinal wall. The treatment can not always be preventive from conditions which arise during operations. The enucleation of pus tubes or an extra-uterine pregnancy involves the leaving of extensive denuded surfaces to which intestines readily attach themselves, and those who have done secondary section can readily testify to the number of innocent adhesions found as a result of primary operations.

A CLINICAL CONTRIBUTION TO THE STUDY OF THE LATERAL DISPLACEMENTS OF THE UTERUS.

Dr. EDWARD J. ILL, of Newark read this paper. After reviewing the literature, the reader speaks of the importance of this abnormal condition, and thinks it has been generally overlooked, the patient's symptoms being attributed to other ailments. He had collected from his last year's office case-book all cases of lateral displacements except such as come with tumors. He shows that 14.2 per cent. had lateral displacement. He draws especial attention to those cases which he considers to be congenital and where the pain is referred to the elongated broad ligament. The symptoms begin early in the patient's sexual life, in severer cases progressing gradually to complete invalidism. He then relates *in extenso* several histories. He describes a typical case. The non-operative treatment consists of endeavoring to elongate the shortened ligament by the use of dry wool or oakum tampons pushed between the cervix and ilium on the side of the shortened ligament, keeping the tampon in place by a second and third one. All this is to be retained for forty-eight hours. A hot douche with the patient on her knees and elbows twice daily when the tampons are *in situ*, is also ordered. He related two cases of extreme suffering where total extirpation of the uterus, tubes, ovaries and broad ligament was deemed advisable after years of unsuccessful treatment, both of which are much relieved of their suffering.

Dr. X. O. WERDER, of Pittsburg, read a paper on

SOME OF THE INDICATIONS AND ADVANTAGES OF VAGINAL HYSTERO-SALPINGO-OÖPHORECTOMY.

He said the operative results in suppurative disease of the pelvis in the hands of the abdominal surgeon form one of the proudest chapters of modern surgery. While a more careful technique and a more thorough operation has lessened the number of fatal cases, they had not been entirely eliminated. Hysterectomy with salpingo-oöphorectomy in suppurative disease of the pelvis not only allows us to remove the nidus of infection more completely, but it gives the patient the very best chance for complete recovery without adding any additional risk to the operation. The mortality compares favorably with that of salpingo-oöphorectomy alone. He thinks hystero-salpingo-oöphorectomy is unquestionably the operation of the future; but whether vaginal or abdominal, still remains *sub judice*. The vaginal method has many features to recommend it. It precludes the possibility of ventral hernia and intestinal and omental adhesions to the line of incision; is followed by less shock because of the minimum exposure of the peritoneum during the operation, and absence of manipulation of the abdominal viscera. Convalescence is more rapid and recovery more complete. Two cases of vaginal hysterectomy were then reported by the author.

The PRESIDENT, Dr. J. HENRY CARSTENS, of Detroit, delivered his Address. He selected for his subject

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

The Address was replete with interesting points concerning the growth of the Association. In speaking of specialists, he said: "What we do is not for us, but for the whole profession. We think we can do more by limiting ourselves

to a particular branch, and what little mite we add is not for us specialists, but is to be the inheritance of the whole profession. We want the whole profession to be elevated, to become accurate and as near scientific as possible in medicine. We want to raise medicine in the estimate of the laity, so that it shall not be laughed at and ridiculed in the pulpit or court room, but that it shall shine forth as an art and as a science and the noblest vocation."

Dr. F. BLUME, of Pittsburg, read a paper entitled

ETIOLOGY OF ECLAMPSIA GRAVIDARUM.

He said the etiology of this grave complication of labor is still undecided. The theory, which has found the most advocates, is based upon the investigations of Lever, who first called attention to the relations between albuminuria and puerperal convulsions. Lever's observations were confirmed by various authors and led to the view that the attacks were the result of blood poisoning by urea; that they were uremic and identical with those occurring in kidney diseases. According to Spiegelberg, all cases of true eclampsia are of uremic origin. The cause is a kidney lesion which either preëxisted or developed during pregnancy. In 400 cases of eclampsia observed by Olshausen, Dührssen and Gusserow, albuminuria was present in 98 per cent. Trantenroth found that albuminuria developed during the second half of gestation in 46 per cent. in women whose kidneys were normal before conception took place.

THE PROPHYLACTIC TREATMENT OF ECLAMPSIA GRAVIDARUM.

This paper was read by Dr. H. W. LONGYEAR, of Detroit. The author recognizes two varieties of convulsions that may occur as a result of the pregnant or puerperal condition—first, those of a purely nervous character, which usually occur in women of neurotic habit, and those who are predisposed to epileptic attacks; and, second, convulsions which occur as a result of some change in the blood and tissues of the patient due to renal disease, as especially indicated by the presence of albumin in the urine.

Early diagnosis is of the utmost importance to the success of any preventive treatment, and to insure this the urine of every pregnant woman should be systematically examined by the physician every two weeks after the sixth month. When albumin is found to be present, immediate treatment should be begun and daily examinations of the urine made thereafter. The author divided the prophylactic treatment into dietetic, medicinal and operative, the latter to be adopted as a last resort. In simple cases of albuminuria without scanty secretion, many patients will do well and be tidied along to safe confinement on an exclusive milk diet with medication.

Dr. W. P. MANTON, of Detroit, followed with a contribution entitled

SO-CALLED PUERPERAL ECLAMPSIA IN ITS RELATION TO INSANITY.

The author had recourse to three sources of information—statistics from private practice; statistics from the lying-in hospitals, and the records of hospitals for the insane. Never having had a case of insanity following eclampsia in his own practice, he had collected 8,868 cases of delivery reported by eight competent observers, published in current medical literature. In this number he found that eclampsia is noted as having occurred thirty-three times. In not a single instance is it stated that insanity followed the convulsive attacks. During the four years 1891-1894 inclusive, 282 women were delivered in the wards of the Detroit Woman's Hospital, eclampsia occurring in 2 cases. Both of these recovered without symptoms of mental alienation. This seems the more remarkable, since of the 282 patients confined, 233 were unmarried. During the same period there were admitted into the three principal asylums of Michigan with which he is connected, 1,271 female patients. In this number, the insanity was attributed to puerperal causes in 110 instances, but in two cases only was eclampsia put down as the exciting cause.

Dr. RUFUS B. HALL, of Cincinnati, Ohio, read a paper upon

THE PREVENTION OF PELVIC INFLAMMATION IN WOMEN.

He pointed out some of its most frequent causes, placing septic infection following abortion and gonorrheal infection as the most important. He advocated the dissemination of knowledge among the laity by the family physician as a potent remedy for the prevention of these troubles. He especially advocated that women should be warned by their physicians of the great danger of abortions in the early months of pregnancy. It is well recognized by the profession that many married women produce abortion in the early weeks of pregnancy, and it is during this time that the membranes are retained and septic endometritis is induced,

leading to salpingitis, pyosalpinx, and suppurating ovaries later. He also advocated that the profession should impart knowledge on every legitimate occasion on the subject of gonorrheal infection in young men and boys. It is well known that men frequently infect their wives, years after they themselves believe they are cured of their gonorrhea. The author believes that if the profession impart this knowledge to the laity, it will only be a short time when many of the abdominal sections now made for the relief of inflammatory diseases will not be called for.

DR. A. H. CORDIER, of Kansas City, Mo., read a paper entitled

DIAGNOSIS OF INTRA-ABDOMINAL TUMORS.

The author outlined the methods and procedures which should be followed in examining patients. Tumors through which gases are detected by gurgling indicate either an involvement of the bowel in the tumor, or pressure of the growth on the bowel with adhesions to the same. If this symptom be coupled with a history of a pyloric cancer or a cecal growth, it is confirmatory in its indications. Some growths have a disposition to change positions, but all growths have one or more attachments, and it is safe to infer that this attachment is to the site at which the neoplasm had its beginning, and its movements will be only around an arc of a circle with the pedicle attachment to the diagnostic point. Adhesions may prevent a growth from moving, or may anchor a tumor in a locality far from its original point of starting. The history of inflammatory attacks and the pain will come to the rescue here. The character of the pain and the amount and area of tenderness are invaluable aids. The withdrawal of free fluid from the peritoneum will often show the presence of a tumor before undetected. Pus in the pelvis is one of the easiest conditions to diagnose.

DR. JAMES F. W. ROSS, of Toronto, read a paper entitled

PNEUMO-PERITONEUM.

The author reported a very instructive case of this disease. He classified pneumo-peritoneum as follows: First, *tympanites intra-intestina*. Second, *tympanites extra-intestina*. (a), traumatic: 1, from without; 2, from within. (b), non-traumatic, or spontaneous: 1, without liquid, gas odorless; 2, ascites and gas odorless or fetid; 3, pus and fetid gas. Third, *tympanites intra et extra intestina*.

With regard to the treatment, exploration by means of a knife and the finger is free from the objection that obtains in the case of a stab in the dark by a trochar. In all of these cases the author believes an exploratory celiotomy should be performed. Even after the removal of the pressure on the diaphragm the breathing improves. It has been stated by one operator that it is necessary in puncturing such cases to allow the gas to escape very gradually.

DR. HERMAN E. HAYD, of Buffalo, reported a case of

LARGE HYDRONEPHROTIC CYST SIMULATING OVARIAN TUMOR—ABDOMINAL HYSTERECTOMY, FOLLOWED BY RECOVERY.

This case was interesting: 1, on account of the large size of the hydronephrotic cyst, as well as the absence of pain or distress in its formation; 2, the obscurity of diagnosis, or, at all events, the simulation of the cyst with ovarian tumor; 3, the increased functional activity of the one kidney—in fact, its ability to vicariously functionate for the other organ; 4, the ease and facility with which the tumor was removed through the abdomen, and the uninterrupted convalescence for thirteen days; 5, at no time was albumin found in the urine, and quantitatively and qualitatively the secretion of urine was above the average. At one testing, she passed 287 grains of urea in twenty-four hours. There was no evidence of stone or symptoms of previous ureteritis.

DR. WM. H. MYERS, of Fort Wayne, Ind., read a paper entitled

THE LIMITATION OF CRANIOTOMY.

The author said that of late years the happy results following Caesarean section and Porro's operation have done much to efface a dreadful feeling that we must in such cases decide whether the life of the mother or that of the child is to have preference, seeing it is now quite possible to save both. The high death rate after craniotomy we must refer to the period preceding the introduction of asepsis and antiseptics. The fatality of Caesarean section has radically changed owing to the modifications in the treatment of the uterine wound, and a perfect technique; these have lowered approximately the death rate to that which is claimed for difficult embryotomy, a mortality of 10 per cent. with the saving of 95 per cent. of infantile life. The author urges that Caesarean section should be performed as soon as we can be assured of diagnosis.

DR. EDWIN RICKETTS, of Cincinnati, reported three cases of gall bladder surgery, and drew the following conclusions: 1, the continual absence of bile in the intestinal discharges does not necessarily signify that there is no operative condition of the gall bladder existing; 2, the bile may flow periodically, and when this is true, symptoms demanding surgical interference are generally present; 3, jaundice, when present, is very satisfactory evidence of biliary obstruction, although it is not always present; 4, pains in the region of the gall bladder coming on at intervals and in connection with jaundice, or without jaundice, in connection with clay-colored stools, is positive proof of biliary obstruction, and when this is true, an operation should be resorted to; 5, persistent clay-colored stools, whether we have severe pain or jaundice with them, are the most reliable symptoms governing operative interference; 6, when a stone is primarily engaged in the gall bladder, then a pathologic lesion begins; 7, we may have an obstruction of the common duct due to external trauma, such as a blow received over the region of the liver. This may produce a catarrhal condition of the common duct amounting to entire stoppage of the flow of bile; 8, we may have a solitary calculus engaged in the lower end of the gall bladder, causing thickening of the bladder wall and causing periodical escape of the infected or non-infected contents; 9, we may have calculi formed in the hepatic or common duct; 10, the importance of probing the hepatic duct through the incised bladder in all cases operated upon, whether the condition present be catarrhal alone or with the presence of stone.

DR. W. E. B. DAVIS, of Birmingham, Ala., contributed a very interesting paper entitled

OPERATIVE PROCEDURES FOR THE RELIEF OF OBSTRUCTION OF THE BILIARY DUCTS.

The author alluded to a large number of experiments which he had made on dogs, and in which he had tested the value of gauze in draining bile in injuries of the gall bladder and ducts. He reported cases where he had removed the gall bladder without tying the duct by packing with iodoform gauze. The animals got well. In other instances where he incised the gall bladder and ducts and packed with gauze around the openings, no stitches being used, the animals recovered. Complete walling off of the general cavity was noted when the abdomen of the animals was re-opened. A number of cases were examined at the end of forty-eight hours. Dr. Davis also reported a case on the human being in which he had removed the gall bladder and a portion of the cystic duct where there was obstruction in the common duct, packed with gauze after introducing a glass drainage tube, and there was also complete walling off of the general cavity. He advises that in cases of obstruction of the common duct, that no attempt should be made to suture the opening after the obstruction has been removed, as the patient's condition is nearly always serious and a prolonged operation will terminate fatally. The obstruction should always be removed, if possible. Dr. Davis' experiments demonstrate conclusively that the peritoneum is capable of taking care of a small amount of bile, but that large quantities or the constant extravasation of it will produce a fatal peritonitis usually in twenty-four to forty-eight hours. He thinks the field of cholecystenterostomy is a very limited one.

DR. W. B. DORSETT, of St. Louis, read a paper entitled

THE USE AND ABUSE OF THE UTERINE CURETTE.

The more the author had used and seen used the uterine curette, the more he was impressed with the following ideas: that when used, the selection as to the shape and form of the instrument in a given case is not always a wise one; that a proper knowledge of its use should be obtained before trying to use it; that it is not a cure-all. Its use should be only in conjunction with other treatment. He looks upon the blunt curette (as sold in the shops) as a dangerous instrument. The instrument with a sharp cutting edge, properly constructed, is a most useful one, and in the treatment of intra-uterine inflammatory conditions is the *sine qua non* of success. In order to secure a good scraping instrument the sharp edge should stand at an angle of 60 degrees to the shaft or handle. A greater angle will not scrape thoroughly, and a lesser angle is liable to incise the uterine wall unless used with a great deal of care. Cases of perforation of the uterine wall are on record, and he thinks they are due to want of care in the selection of the proper instrument. The dull or blunt curette should never and under no circumstances be used.

DR. THOMAS J. MAXWELL, of Keokuk, Iowa, followed with a paper on

SOME ANOMALIES FOUND IN ABDOMINAL SURGERY.

In the first case reported by the author, he made an incision in the linea alba and discovered a reddish tumor quite unlike a pearl-colored ovarian cyst. The tumor was about seven inches in diameter and proved to be the uterus containing an interstitial fibroid. An incision about four inches in length through the anterior fundus was made and a white fibrous tumor was shelled out with the fingers, of the dimensions of a coconut. The incision into the uterus was closed with buried catgut sutures, fortified with one silk suture in the center of the cut. A large ovarian tumor was then brought into view, attached by a very broad pedicle to the right broad ligament. The tumor was emptied of its contents, two and one-half gallons, and proved to be a monocyst. The author thinks the surgeon of to-day would have performed an hysterectomy. He believes it is the first case where an interstitial fibroid, complicating a large ovarian tumor, was enucleated, leaving the uterus intact. He is of opinion that many uteri and their adnexa might be preserved by a similar procedure, and the patients left unimpaired. The patient recovered. Two other interesting cases were reported.

SHOULD INTRA-UTERINE INJECTIONS OF GLYCERIN BE USED FOR THE INDUCTION OF LABOR?

This paper was read by Dr. B. M. HYPES, of St. Louis. The author concludes that these injections are often inefficient, especially so in doses under 50 c. cm.. They are liable to be followed by shock, air embolism, thrombosis, metritis and sepsis. They may and sometimes do produce glycerin poisoning—that is, decomposition of the blood corpuscles, resulting in diseases of the various organs, but more especially in nephritis with hemoglobinuria. The method involves no consideration of the life of the child and hence results in great mortality. Its use should be abandoned, or the dosage reduced, especially in subjects with prior existing kidney affections.

Dr. M. B. WARD, of Topeka, Kan., read a paper entitled, HAS GYNECOLOGY RECEIVED JUST RECOGNITION AS A SPECIALTY?

The purpose of this paper was to call attention to the efforts necessary on the part of the Fellows of the Society, and other members of the profession, to elevate to a position with the other specialties the standard of gynecology, and at the same time to discuss the best means to educate the profession and laity to the all-important truth that to be a gynecologist one can not at the same time be a general practitioner. As specialists, our duty is clearly in the line of spreading the gospel of truth regarding the proper methods of examination and treatment of the numerous diseases peculiar to the female sex, in order that every physician shall have a reasonably intelligent understanding of the methods of dealing with the simpler forms of diseases. Dr. Ward said the line must be drawn, and when once fixed, strictly followed, before we can expect to command and receive just recognition as gynecologic specialists. This advice must naturally mean a great financial sacrifice on the part of those who have been combining the entire field of surgery with gynecology. Such a sacrifice, however, will be as bread cast upon the waters to return after many days. It may even temporarily almost take the bread from the mouths of our children, nevertheless it is the only course to pursue if gynecology is ever to be recognized as a specialty whose disciples shall receive the encomiums to which they are justly entitled.

Dr. L. H. LAIDLEY, of St. Louis, Mo., read a paper entitled SURGICAL TREATMENT OF PERFORATION OF THE BOWEL IN TYPHOID FEVER.

The author in reviewing this subject concludes that an early diagnosis and operation offer the greatest chances for recovery. If perforation of the bowel exists, it is the duty of the surgeon to make an exploratory incision, close up the opening and cleanse the abdomen. The more rapidly the operation is made in closing the perforation, which is usually single, and because of the danger in prolonging the operation, the better. In selecting a method for the closure of the perforation a Lambert suture should be used in small openings; in the larger openings, when the lumen of the bowel is contracted by the use of the interrupted suture, resection with the use of the Murphy button is the most advisable course to pursue. The author urges that greater interest be taken in educating the profession to select the cases, many of which are overlooked, to be placed in the hands of the surgeon and thereby reduce the mortality less than 100 per cent. which heretofore has prevailed.

Dr. J. B. MURPHY, of Chicago, followed with some remarks

on "Typhoid Peritonitis," in which he reported some twenty-eight cases that had been operated upon by different surgeons. A case reported by Dr. Van Hook, of Chicago, was the first to recover. Another case was operated on by Dr. Abbe, and one by Dr. Ill, both of which recovered. Dr. Murphy also reported cases upon which he had himself operated, which were followed by recovery. He holds that early diagnosis and prompt operative interference offer the greatest chances for recovery.

Dr. H. W. LONGYEAR, of Detroit, read a paper entitled

KRAUROSIS VULVE—A CONTRIBUTION TO ITS PATHOLOGY AND THERAPEUTICS.

All of the cases of this affection seen by the author had been in women who had passed the fortieth year, and in each case the symptoms were manifested coincidentally with those experienced by the patient due to the menopause. In the first case in which he recognized the disease the woman was still menstruating, although irregularly, and the symptoms of the kraurosis had troubled her for about a year, the local appearance of the disease indicating that it was in an early stage of development. In the second case the symptoms had been manifested for six or seven years, the patient's ovaries having been removed two years before he saw her, and before the menstrual function had entirely ceased, and the kraurosis was found to be in the advanced stage of atrophy. In the third case the symptoms of the disease began with the cessation of the menstrual function, and when examined by the author four years later, the kraurosis had attained what might be called, for comparison, the middle stage. The author then dwelt upon the treatment of this affection, which is both operative and medicinal.

NEURASTHENIA ACCOMPANYING AND SIMULATING PELVIC DISEASE.

This was the title of a paper contributed by Dr. C. C. FREDERICK, of Buffalo. The author defined neurasthenia as an exhaustion of the nervous system, more particularly the sympathetic nervous system, due to malnutrition. After dealing with the symptoms encountered, he said there was a class of women in whom neurasthenia simulated pelvic disease. It occurs in those of a nervous temperament. It is a frequent ailment among our American women. It is seen alike among the rich and the poor, the fleshy and rotund, as well as the thin and spare of form. With reference to treatment, to correct so far as possible the habits of the patient which lead to nerve tire, general tonic treatment and good environment, and above all, the rest treatment of Mitchell, bid fair to do as much for these women as human skill had thus far devised. Many of them can be nearly or quite cured, and others only partially relieved. Removal of tender tubes and ovaries which are simply tender and not diseased, always adds to their suffering.

The following officers were elected:

President, Dr. Joseph Price, Philadelphia, Pa.
First Vice-President, Dr. A. H. Cordier, Kansas City, Mo.
Second Vice-President, Dr. Geo. S. Peck, Youngstown, Ohio.
Secretary, Dr. Wm. Warren Potter, Buffalo, N. Y.
Treasurer, Dr. X. O. Werder, Pittsburgh, Pa.
Judicial Council, Drs. C. A. L. Reed, James F. W. Ross, L. S. McMurtry, A. Vander Veer, and J. Henry Carstens.
On motion, the Association adjourned to meet in the city of Richmond, Va., the second Tuesday in September, 1896.

Chicago Pathological Society.

Regular Meeting, June 10, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

(Concluded from p. 499.)

Dr. ARTHUR R. EDWARDS, of Chicago, read a paper on

A CASE OF SYRINGOMYELIA WITH BULBAR, CERVICAL AND LUMBAR LOCALIZATION AND ARTHROPATHY OF CERVICAL VERTEBRÆ.

The patient is a Bohemian, single, aged 25 years, and a shoemaker by profession. He has been in America two years and has had no previous disease. His father died at the age of 70; his mother is in good health. No nervous nor other disease exists in the family of patient. Uses beer moderately and denies any venereal history.

The present trouble began in May, 1893, two years before entrance into Cook County Hospital, with gastric disturbance, vomiting and eructations. Hematomesis is also recounted. At the same time, cramps and stiffness were observed in the arms, and in December, 1893, rigidity in the legs was noticed. Fibrillary contractions appeared in the

arms in direct ratio to a loss of their muscular power. Formication appeared eight months ago in the arms and had just been noted in the legs. Constipation has existed for one and one-half years. In December, 1893, a disturbance in speech alarmed the patient, but the trouble lasted only three weeks. Four months later, dysphagia prevented the patient from drinking or eating fluid foods with any facility and at the present time swallowing is only effected by flexing the head strongly upon the sternum. The patient at-
tends. He has noticed no intellectual alteration. The forearm tributes his loss of power to carrying loads upon the shoulder-paralysis appeared at once on both sides. The spinal deformity appeared a year ago, after other symptoms had inaugurated the disease. The patient suffers from no pain over the spinal deformity, but rheumatic pains exist in the arms and over the trapezii muscles. Pains radiate from the



shoulders into the arms, but are not severe and are most frequent in warm weather. Slight pain has been experienced across anterior surface of ankles. Regarding sensation, the patient has observed that he can not feel well over the left sterno-cleido mastoid muscle.

Physical examination: scalp, skull, nose and ears negative. In pharynx, the examining finger detects a hard swelling corresponding to the spinal deformity. Tongue negative; also teeth, skin, lymph glands and joints. The pupils are equal and react perfectly to light and accommodation. Ophthalmoscopic examination negative. Ocular muscles and facial muscles normal. Intellect bright. Muscles of head and neck normal. Sterno-mastoids prominent on both sides of neck. Marked spinal prominence in cervical region, involving lowest three cervical vertebrae, convex posteriorly, admitting of motion in all directions without pain and

tenderness. Shoulders can not be elevated very well. There is marked atrophy in trapezius, rhomboidei and *lv. anguli* scapulae group on both sides. Also atrophy and paresis in deltoid and pectoralis muscles. Adductors of shoulders quite strong. Extensors and flexors of elbow and supinator and pronator group fairly preserved. Finger flexors distinctly weak, especially on the right side. Fingers firmly flexed and rigid, resisting passive and active efforts at extension. The wrist joints can be flexed and extended, but not when any considerable resistance is exerted by examiner. Adduction and abduction of fingers, good upon the left and limited upon the right side. Moderate respiratory expansion. Abdominal muscles weak (constipation). Flexors of trunk are weak while the extensors are strong. Flexors of thighs are normal on the left and somewhat weak on the right side. Extensors of both hips weak and considerably spastic. Knee extensors somewhat weaker, right than left, and the flexors of the same joint are markedly weaker on the right side. The ankle joints can be extended and flexed with moderate freedom and force. Adductors, abductors and both external and internal rotators fairly



strong. As the patient stands, the kyphosis in the cervical region is very pronounced as is a compensatory lumbar lordosis. The abdomen is prominent, the shoulders are decidedly round and the chin is held to sternum.

There is considerable wasting of both thenar and hypothenar eminences of hands. Slight wasting of forearms and in the regions most atrophied, fibrillary contractions are frequent. Triceps and forearm reflexes exaggerated considerably. Very marked periosteal reflexes. Abdominal, pectoral and gluteal reflexes very marked. Enormously tetanic patellar reflexes. No ankle clonus. Knee, hip and ankle joints spastic. Marked cremasteric reflexes. External genitalia negative. No ataxia. Marked girdle sensation across epigastrium.

Sensation: muscular sense perfect throughout body. Tactile sense normal everywhere save just beneath clavi-

cles and on sides of shoulder, where complete anesthesia exists. Sense of cold and heat correspond fairly well, although appreciation of heat is less preserved than that of cold. The photographs fully indicate to what extent the thermo-anesthesia obtains. All of the neck, part of face near the angles of the inferior maxillæ, the chest above the nipples, a small plaque in the right hypochondrium, the extensor surfaces of both arms and fore-arms, the flexor surface of the right fore-arm, the finger tips to a slight degree and the antero-external surface of the right thigh are the areas affected. Corresponding very accurately with areas of thermo-anesthesia above outlined, we find an absence of sense of pain. The skin areas in which analgesia and thermo-anesthesia are found are, however, acutely alive to tactile impressions.

In the case presented, the main interest centers in the diagnosis, since prognosis and treatment depend logically and chronologically upon the accuracy of the diagnosis. Grouping the symptoms, it is found that they fall under four main heads. Those referable: 1, to the pons; 2, to the cervical enlargement of the cord; 3, the lumbar enlargement; 4, to the spinal deformity.

The symptoms referable to the cervical enlargement of the cord are so characteristic that from them the diagnosis of syringomyelia can be made, and with them all other symptoms and signs can be harmonized. The muscular weakness and atrophy, especially of the muscles of the shoulder and of the small muscles of the hand, the fibrillary contractions and increased reflexors (wrist clonus) are characteristic of syringomyelia, when accompanied by sensory phenomena—partial or "disassociated" anesthesia. The photographs indicate the sensory disturbance as dark areas, produced by painting the skin with iodine. Over the dark areas there is an anesthesia to heat and cold and to pain. Heat and cold anesthesia in syringomyelia do not always exactly correspond, and in this case there are numerous very circumscribed areas on the border of the stained area where heat sensation is present and cold is absent and *vice versa*. The dark plaques represent areas where anesthesia to both heat and cold prevails. Tactile sensation and muscular sense are present everywhere except where tactile sense is impaired over small areas on the neck and chest. They are found even where thermo-anesthesia and analgesia exist.

In most instances the arm symptoms are the main findings. In the present case there is a small area (indicated in the illustration) in the right hypochondrium where thermo-anesthesia and analgesia are found. Also upon the antero-lateral surface of the right thigh, extending from the anterior superior spine of the ilium to the patella, is an extensive area over which the same partial anesthesia is present.

A fourth complexus of symptoms relates to the basal nuclei of the last of the cerebro-spinal nerves. The dysarthria and dysphagia are due to a gliomatosis in the medulla. Bulbar symptoms are not rare in syringomyelia^{50, 51, 52}. Disturbances in deglutition are frequent (Leyden, Schultze, Westphal). Nausea and vomiting, due to irritation of the nucleus of the glossopharyngeal, occur as well as tinnitus aurium, vertigo, singultus, polyuria, amaurosis, amblyopia, unequal pupils, nystagmus. Facial paralysis is rather rare (Westphal, Schultze, Grasset, Starr, Chabanne, Raichline⁵²). Paralysis of one vocal chord, of the tongue, of the ocular muscles and of the fifth nerve are recorded. Disturbances in the circulatory and respiratory mechanisms occur.

Multiple anatomic foci, which must be assumed to explain the separate groups of symptoms, occur in syringomyelia, either as separate deposits of gliomatous tissue or continuous gliomatous degeneration through the entire length of the cord. This anatomic fact explains every symptom in the case, if we can account for the spinal deformity.

A conspicuous physical sign in examination is the spinal deformity. The cervical kyphosis led several examining surgeons to diagnose tubercular spondylitis and recommend suspension. The difference between the two diagnoses, spondylitis and syringomyelia, in prognostic and therapeutic import is obvious. The subject of arthropathy in syringomyelia has attracted but little attention.

In syringomyelia, simple, painless, intermittent, obstinate hydrarthroses are observed. They resemble the analogous disturbances of tabes, occur chiefly in the arms and may result in epiphyseolysis.

With the preceding statement the subject of joint or bone alteration in syringomyelia is usually dismissed. The most exhaustive study of the affection is that of Sokoloff², who collected twenty cases and described three of his own. Graf added thirteen instances and Klemm reported two instances, so that some thirty-six reports exist.^{1, 2b}

While considerable attention has been devoted to changes in other joints, not much has been written with reference to spinal alterations. Scoliosis is frequently observed. Broca⁴, Morvan⁶, Bernhardt⁴³, Roth (50 per cent., Morvan and Bruhl; Bernhardt sixteen times in eighteen cases; Roth five times in eight cases). Scoliosis corresponds in location to the earliest and most advanced intra-medullary changes.⁴² Kyphosis is more rare. Scoliosis and kyphosis may be explained neuro-trophic (Kroenig) or as due to muscular weakness (Roth). Lordosis is rare. In the side view of photograph of our case, the kyphosis is explained by the action of the thoracic muscles antagonistic to the posterior muscles of the shoulder girdle, second by the action of gravity, and third by trophic changes. Comparison of the spinal arthropathies with those in other joints is appropriate in order to determine possible points of similarity.

Sokoloff believes more joint lesions will be found in syringomyelia when greater knowledge and more common recognition of the disease prevails.

In analyzing the symptoms of gliomatous arthropathies, we consider several criteria by which their existence is established.

1. *Latency*.—The joint affection is often overlooked by the patient or the lesion is first noted by the examining physician, who rarely can tell when the affection began.

2. *Fluid in Joint*.—Again, in marked contrast to tabes, the arthropathy of syringomyelia seldom produces those marked exudations which at once attract the attention of the tabetic patient. Klemm²⁷ admits that fluid plays a subordinate rôle in syringomyelia joints, while they constitute an important factor in tabes. In exceptional cases of syringomyelia, acute exudation may be observed in the joints and para-articular connective tissue, but it is usually transitory, unnoticed by patients and rarely marked in degree.

Klemm has stated that fluid is more frequent in neuropathic joints than in ordinary arthritis deformans, in which exudation is comparatively rare, or, if present, never so copious. Even in some cases of arthritis deformans of neuropathic origin the process runs without effusion. The rapidity of the secretion, its greater extent, and the invasion by the fluid of the para-articular tissues, differentiates neuropathic joints from arthritis deformans. Accurate differentiation from arthritis deformans is not superfluous, as joint alteration occurring in syringomyelia may be non-exudative, the arthritis sèche of French writers. Krauss³⁷ and Thiersch³⁸ recorded cases in which the primarily incorrect diagnosis of arthritis deformans was finally changed to arthropathia gliomatosa. In syringomyelic and tabetic arthropathies, however, intra- and extra-articular exudation plays a prominent part.

3. *Pain*.—Arthritis deformans is excessively painful, while there is no pain in neuropathic joints. A case is related²¹ in which a patient painlessly opened a joint with a pair of scissors, and two cases are recorded (Czerny and Sokoloff) where the joints were resected without anesthesia. This complete or relative analgesia is an important diagnostic datum for tabetic and syringomyelic joints. Spontaneous painless fractures (three cases) and luxations also occur.

4. *Extra-articular bony Deposits*.—It is characteristic of neuropathic arthropathies that para-articular changes occur, expressed as ossification in the soft and bony structures near the joints as well as exostoses at some distance from the articulations. In syringomyelic and tabetic joints, osteophytes are observed external to the joint capsule in the muscles, tendons and fasciæ, while they are intracapsular in arthritis deformans—a most important and characteristic difference, according to Volkmann. Rotter believes that nodes occur only in the lower extremities after fracture, from separation of small particles of bone. Klemm combats this view and asserts that in the absence of history of joint trauma, extra-articular growths are highly characteristic of neuropathic joint disease. Previous change in the soft parts probably favors osseous deposit (atrophia muscularis lipomatosa pseudo-hypertrophica of Sokoloff and stretching with thickening of the joint capsule, favoring luxation).

5. *Prognosis*.—Sokoloff believes that the prognosis in gliomatous joints is not always unfavorable, but rather the reverse, consisting in a subluxation alone, stretching of the capsule or an inconspicuous cartilaginous erosion, which may exist for years without progression.

6. *Influence of Trauma*.—Sokoloff, the most exhaustive writer on the subject, lays much stress upon trauma, emphasizing the following points: that syringomyelia occurs in the laboring classes, that it may be easily overlooked on account of the analgesia present, and that trauma is an

important factor in tabetic arthropathy. Virchow, Rotter and v. Volkmann believe that trauma is always the cause³⁶ and that tabes is only a predisposing factor. Sonnenburg's conception³⁵ is that the mechanical theory is not sufficient, that tabetic arthropathies stand in a very intimate, if indeed not wholly investigated, relation to tabes, and that trauma may produce joint disease, protract and modify its course.

7. *Localization.*—Rotter found 18 per cent. of tabetic arthropathies in the upper and 80 per cent. in the lower extremities. Syringomyelic changes almost always occur in the upper extremities, a fact which can be used in differential diagnosis. The pathologic changes are in the upper extremities identical in the two affections. In the lower extremities, syringomyelic arthropathies occur so rarely as to prevent comparison.

8. *Motility.*—The joints are very movable in syringomyelia, contrasting sharply with the rigid articulations of arthritis deformans.

9. *Age.*—Syringomyelia occurs usually in the young, while arthritis deformans is a senile or adult disease.

10. *Course.*—Regarding chronicity, the gliomatous arthropathies present more chronic clinical history, in this respect resembling arthritis deformans. Syringomyelia has run as protracted a course as forty-three years (Marwedel²⁹), thirty-six years (Gilles de la Tourette), forty years (Déjérine).

11. *Pathology.*—Anatomic differences between tabetic and gliomatous arthropathies do not exist, although local findings, either post-mortem or operative are rare. The pathologic changes vary greatly, there being dropsy in some parts and hypertrophy in others. Most frequently the two forms co-exist. The initial change is usually degeneration in the superficial parts of the articular cartilages (Virchow and v. Volkmann), while the deeper parts hypertrophy and ossify. The synovial membrane thickens, relaxes and is the seat of villous growths and osseous deposits. The bones are not proved to be friable, as in tabes.

Regarding the pathogenesis, some writers consider the arthropathies due to trophic disturbance, since they occur with acromegaly (Karg, Charcot,^{30, 34, 46, 47}) and with hydorrachis and spina bifida.^{48, 49}

12. *Diagnosis.*—Joint affections in the upper extremities pursuing a chronic course without inflammatory manifestations, producing spontaneous dislocations, speak for gliomatous arthropathy, especially when there is joint deformity, a disproportion between the change of form and any inflammatory symptoms (should any exist), flail joint, crepitation and relative or complete painlessness.

A cutaneous dystrophy, scars of burns, vestiges of paratritia, muscular atrophy in peripheral parts of the upper extremities, "disassociated" anesthesia, especially thermoaesthesia, speak for syringomyelia.

13. *Treatment.*—Resection and immobilization have been practiced. Drainage for adventitious secondary infection is sometimes indicated. The therapy in other directions is that of the disease itself, expectant and symptomatic.

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DR. HUGH T. PATRICK showed some microscopic preparations from cases of syringomyelia. With regard to these preparations, Dr. Patrick made the following remarks: I have set up for your inspection about twenty slides, taken from five different cases of syringomyelia, and I have selected those which seem to illustrate the various conditions found in this disease. The specimens speak for themselves, and I wish to mention only one or two points in connection with the pathology. The first point which the specimens illustrate very well is that in the great majority of cases the process does not originate, as is generally supposed, in the central canal. You will see in many of these specimens directly in front of an enormous syringomyelic cavity, the central canal perfectly normal, or simply distorted by the pressure and displacing influence of the pathologic process. In one slide it can be seen that this syringomyelic cavity has at last invaded the central canal, and the anterior part of the cavity is lined with perfectly normal epithelium which belongs to the central canal, but has taken no part whatever in the pathologic process (in the cavity formation).

The origin in these cases seems to be in the embryonal tissues which lie just posterior to the central canal and which constitute the remains of the fissure made by the closing up of the spinal groove.

Another point which the sections well illustrate is, that the various and seemingly anomalous symptoms of syringomyelia are dependent upon the varying location and size of the central spinal lesion. It will be seen that in some instances the cavity invades particularly one, sometimes both anterior horns, is sometimes almost completely limited to the exact center of the cord, and in one case affects one posterior horn exclusively. In some instances again, the cavity has extended into the lateral columns; in some cases there is descending degeneration of the pyramidal tracts, and in others not. The process is generally supposed to consist of a gliosis of the cord, but in some cases it is scarcely to be distinguished from a diffuse gliomatosis. Two of the sections show this excellently well, and it is astonishing to what a degree the entire cord has been infiltrated and the normal tissue destroyed. In this case, too, the process has invaded the membranes, which are enormously thickened. Clinically, this case passed for many years as one of hysteria. One section, the one in which one posterior horn alone is affected, shows the rare condition of syringomyelia limited to the lumbar region.

I also show you sections of hydromyelus and of syphilis of the cord, either of which may closely simulate the condition of syringomyelia. I would call your attention, too, to the sections showing an artificial post-mortem cavity in one anterior horn which so closely resembles syringomyelia that the sections were demonstrated as such by a neurologist of international reputation.

DISCUSSION.

THE PRESIDENT—Just a word in reference to the joint trouble or deformity in these cases of syringomyelia. The most recent studies I have found on the subject of joint diseases in connection with gliosis and tabes are published in the *Deutsche Zeitschrift für Chirurgie* by Klemm, and his conclusions are that these arthroses found in these two diseases are of the same nature pathologically and anatomically as those which we find in arthritis deformans. He finds no difference at all. Probably, etiologically, great differences will be found when further investigations have been made on the subject.

DR. SANGER BROWN—I would like to ask Dr. Edwards if suspension or extension has been tried in order to reduce the deformity of the neck?

DR. EDWARDS—The patient has never been suspended.

DR. BROWN—You do not know how far it might be reduced if suspension or extension was tried.

DR. EDWARDS—So far as manual strength goes, you can not make much difference.

DR. BROWN—I feel thankful to Dr. Edwards and Dr. Patrick for allowing me to see the case and specimens. I had

the privilege of seeing the case before in the Cook County Hospital. But I think it is a rare treat to see such a large number and variety of specimens of this rare form of disease, and so far as the specimens go, they leave nothing to be desired. If we had been able to have a history of each case it would simply have been a lesson in the practical physiology of the spinal cord, and I may say, that a lesson in the practical physiology of the spinal cord is not so clear and definite as it was two or three years ago; that is to say, recent and more careful experiments upon the lower animals have demonstrated that the views established in reference to the sensory functions of the spinal cord are not as we have been taught for the last ten or fifteen years. It has been ascertained that some of the degenerations which have formerly been regarded as dangerous in the sensory tracts were the result of clumsy and careless operations, and enough has been determined to show that our ideas hitherto held in regard to the spinal cord were not altogether sound. Enough advancement has not been made to warrant us in stating at the present time just what changes we will have to make in our physiology. But, as has already been stated, and as explained from these excellent sections, the symptoms of syringomyelia are extremely various. I asked Dr. Edwards a question in reference to the deformity of the neck in his patient, simply because it occurred to me that it is quite possible that the deformity in that case was caused by a lesion affecting the muscles which support the head, and as many of these muscles are rather deeply situated and might atrophy to a considerable extent without the atrophy being very appreciable to external observation, it occurred to me that the deformity might be due largely to such atrophy. I can not conceive how any deformity having occurred in that situation at the outset could produce the symptoms, because the pathologic process, whatever it might be, would have to be external to the cord, and the first symptoms would have been those of compression if the disease had begun there, and it is incredible to suppose that the disease began in the cord and spread to these parts. I think, to assume that the deformity in the bones of the neck were trophic is hardly feasible, inasmuch as, if they are due to trophic changes, these are the only ones. In syringomyelia several types have been readily recognized and marked out, that is, a type without any material trophic manifestations, and a type in which trophic manifestations are strongly marked. The latter is the type in which we have the trophic changes within the fingers, especially in the nails of both the hands and feet, and all the symptoms taking place in the bones. Cases are recorded in which enlargement of the bones of the hands and of the tissues of the hands have occurred which were similar to and suggestive of acromegaly, but they probably were not the same disease.

Dr. Patrick spoke of the pathologic lesion as being invariably a gliosis, and I believe that in most of the cases undoubtedly the condition was a gliosis; but when this matter was up for discussion, if I remember rightly, at the last International Medical Congress, held at Rome, a case was reported there in which the pathologic findings were those of leprosy, that is the bacillus of leprosy was found in the cord, there being a proliferation of tissue about the bacillus which constituted the pathologic lesion, and in the discussion it was generally conceded that syringomyelia was not at all synonymous pathologically with gliosis. Any pathologic process of a progressive nature which involves and destroys these tissues in the central part of the cord will produce the symptoms, and contrary to what had hitherto been supposed, there are cases in which the leprosy bacillus is found as a cause of the pathologic process. The symptoms of syringomyelia and those of leprosy have been placed side by side on account of the peculiar anesthetics, and the diseases have been thought of in the same connection. Dr. Patrick drew our attention to the fact that the disease does not begin, as we were formerly taught, in the central canal but outside of it, in the epithelial structures, of which the central canal is composed. In the process of closure, portions of these structures are pinched off on each side and are placed in the posterior horns.

Dr. HAROLD N. MOYER—I feel there is an apology due the society for not presenting my case of anesthetic leprosy to-night. I had a man looking for the patient this afternoon, and could not get him. He objected to being exhibited and has grave suspicions of his trouble.

I can not help referring to a few interesting analogies between the case referred to by Dr. Edwards and my case of leprosy. The young man first came to the clinic at Rush Medical College, for nervous diseases, and I demonstrated

his case as one of syringomyelia. In a subsequent conversation with Dr. Patrick, he suggested leprosy to me. The young man returned and I again discussed the analogy between these two affections, but neglected to ask the young man where he lived, or where he was born, but after he left the college and was walking down the street he informed me that he was born in Australia, and when 4 years of age he was taken to the Sandwich Islands and lived there a year. Of course, that made the probable exposure to leprosy imminent.

Regarding the symptoms, they are almost identical with the case which you have seen demonstrated to-night. The anesthesia, however, extending up the limbs, on one arm to near the shoulder, the other arm to just above the elbow; on both legs to the middle of the thigh. There is absolute loss of pain sense, but pressure and muscular and some degree of tactile sense remain. There is also the same claw position of the hands. The patient can not extend the fingers. There is not the regularity of anesthesia about the shoulders such as we have here; but there are irregular patches on the side of the abdomen, chest, shoulders and on the back, more or less circular in outline, presenting at their periphery slight discoloration of the skin, which is not raised, and the cuticle is not abraded in any way. We simply note in the area surrounding the anesthetic patches that the cuticle is somewhat darkened. In the anesthetic portions, the skin is lighter than normal, and the anesthesia in these patches presents the same characteristics as that upon the extremities, namely, loss of temperature and pain sense; but the tactile, muscular and pressure sense is retained, although impaired.

There is the same increase in the reflexes which we have here. Aside from these symptoms, I think there are no differences to be noted. The relation between the two diseases, as pointed out at the International Medical Congress, may throw additional light upon this subject. It is an interesting fact that most cases of syringomyelia have been reported by French writers, and they have largely come from certain sections of France in which leprosy was exceedingly rife during the Middle Ages.

Dr. HUGH T. PATRICK—The deformities that occur in syringomyelia, especially in the type of Morvan, bring up the interesting question regarding the relation of syringomyelia to Morvan's disease. I suppose most of the members know that twenty cases of Morvan's disease were described in a territory with a population of only 50,000. One of the arguments used by those who would separate it from syringomyelia was that an equal number of cases of syringomyelia had not been found, representing an equal population; in other words, that syringomyelia is much more rare. This argument and one or two others of minor importance are about the only ones which still seem to indicate the difference of these two diseases. Post-mortem examinations point to their being the same disease. I have seen two cases described as Morvan's disease, and I have photographs of such a case which I believe must be syringomyelia. The case was seen some years ago by Dr. Church and myself. He had the photographs taken and I am indebted to him for them. At that time, we discussed the question whether it was a case of Morvan's disease, or whether it could not be regarded as one of syringomyelia. Dr. Moyer in the discussion at that time said that an autopsy had recently been made in which the lesions of syringomyelia and Morvan's disease had been found, and that it was therefore, without doubt, the same disease. This case manifested trophic trouble in the hands and scoliosis. That leads to the question upon which Dr. Brown has spoken, namely, that there may be different types of this disease, and that the different locations of the lesion will generally account for the difference in symptoms. The trophic troubles begin sometimes in the soft parts, sometimes in the skin and muscles, and at other times in the bones. They may begin in the upper or lower extremities. The process usually starts in the cervical enlargement, so that the upper extremity is first invaded. A case is reported in which it began in the lumbar region. The trophic disturbance began in the toes in one case and it simulated tabes. Cases are reported also where post-mortem examination has shown a combination of syringomyelia and tabes. Then again, the location of the process determines the area in which the symptoms appear. Sometimes the analgesia is first to appear. Generally there is no anesthesia, but there may be. Sometimes the trophic trouble begins in the soft parts, and then again in the bones; sometimes the soft parts are not involved at all, and the same may be said of the bones. It depends a good deal upon the location of the lesion.

With regard to those cases in which the bacillus of leprosy was found, I do not lend any support to that view. There are only two men of note who support it, and the evidence is not sufficient from their contributions on the subject.

As to whether syringomyelia in different cases may not be really a different disease, a gliosis, a central myelitis, or something else, I think such a view should be discounted at the present time. In the majority of cases it has been shown to be a gliosis, and the symptom-complex is sufficiently well known to form a distinct type of disease and the name should be limited to such. Of course, the same symptoms may be produced by central myelitis. I have seen one case in which an injury was followed by a central hemorrhage in the cord. The case progressed slowly. What the process was in that case I do not know. I do not imagine in that case that there was gliosis at all. It was wrongly called a case of syringomyelia. A central tumor of the cord may cause the same symptoms as syringomyelia. The tumor may be softened secondarily in the center, make a cavity, but I do not think it should be called syringomyelia. I have seen cases of acute central myelitis with interference with pain sense with all the symptoms of acute syringomyelia, such a diagnosis being made post-mortem. A few months ago Cantaninni, an Italian, published some cases which show the disease to be family in type. A mother and three children were all affected with syringomyelia, and one of the conclusions that he draws is that in all cases of syringomyelia it is only a matter of location. I do not think that is the proper and logical view to be adopted at the present time; that whenever the disease process is located in the central part of the cord, producing the symptoms of the disease, therefore it should be called that disease. I do not think that is the proper thing to do, because the process is now sufficiently well known. Other diseases produce the same symptoms as typhoid fever, but we do not call them typhoid fever.

With regard to leprosy, in a given case of this disease it may be difficult to distinguish it positively from a case of syringomyelia, but such a difficulty is rare. In most cases the diagnosis can be made without an examination for the leprosy bacillus. In the first place, the trophic trouble in leprosy affects by preference the skin, and the subcutaneous tissues, the muscles secondarily, and the bones last of all. When the phalanges are affected, they are not affected in the same way as in syringomyelia. In the latter disease if the phalanges are affected, as the thumb, there is suppurative and necrosis with casting off of bone. The patients many times pull out pieces of necrosed bone. In leprosy there is a great deal of atrophy without suppuration. In syringomyelia there are frequently secretory and vasomotor disturbances. The function of the secretory glands may be affected. That is rare in leprosy. The skin trouble which is present in leprosy is rare in syringomyelia. There are pustules in the latter disease, but no skin eruption. The only skin eruption so-called in syringomyelia is a spurious urticaria from scratching caused by irritation. In syringomyelia, we frequently have symptoms referable to the eye muscles, or a reflex action of the iris, or some nervous affection of the eyes. There is a difference in the pupils; one pupil does not react to light as well as the other. These things do not occur in leprosy. In the latter disease we have only a superficial trouble of the eye, which does not occur in syringomyelia. Furthermore, the anesthesia in leprosy differs from that of syringomyelia. In the former disease the anesthesia is due to a multiple neuritis and it affects most intensely the periphery of the extremity and gradually approaches the trunk; in other words, the multiple neuritis, as Dr. Moyer said, is along the lower extremities and extends from the feet up to the middle of the thigh. That is not apt to occur in syringomyelia. In syringomyelia, the anesthesia corresponds to the spinal segment. If in the cervical region, it corresponds to the distribution conforming to it. The anesthesia of which Dr. Moyer speaks does occur in syringomyelia, but it is very rare. These are the principal points in the differential diagnosis between the two diseases. Ordinarily the difficulty is not very great.

(To be continued.)

SELECTIONS.

Cultivation of the Gonococcus of Neisser.—Redner lately exhibited a series of twenty-four hour gonococci cultures from acute and chronic gonorrhea. The culture medium con-

tained $3\frac{1}{2}$ per cent. agar, 5 per cent. peptone, 2 per cent. glycerin, 5 per cent. common salt. Reaction neutral. The gonococci thrive well in this, and the excessive growth often seen seldom occurs. He called attention to the sensitiveness of the gonococcus to fluctuations of temperature. In his mind, the varying opinions of writers with regard to the applicability of Gram's method of staining to the gonococcus is due to the use of solutions of different strength, also to variations in the length of the staining and decolorizing processes. Others beside Redner have noticed that if the gonococcus is overstained by standing several minutes in the concentrated anilin-water-gentian-violet solution, fifteen seconds in alcohol will decolorize, while all other diplococci, after overstaining, retain their color longer. For contrast staining it is recommended to use very weak solutions; for instance, 3 drops of concentrated alkaline solution of fuchsin to 30 to 40 c.c. of water, applied for forty-five seconds. Lewin has often cultivated the gonococcus on urine agar very successfully. Varying results may depend upon the reaction of the urine. Good cultures were also obtained with urine containing sandal-wood, so that the efficacy of sandal-wood against gonorrhea appears very doubtful.—*Wiener klinische Rundschau*, July 14, 1895.

Mechanical Treatment of Pleurisy in St. Petersburg.—The movements, according to the directions of Ling and Hartelius, consist in quick elevation of the thorax of the sitting patient, twisting and bending of the trunk in various directions, with changing positions of the arms and fixation of the extremities. In order to work upon the side containing the effusion, for instance the left, the movements are directed chiefly to the right, in such a way that inspiration occurs at a moment when the left side is most favorably situated to admit the air. For respiratory exercises, the patient is placed on a sofa on the sound side, with a rather firm pillow; the corresponding hand remains under the pillow, the legs slightly flexed to relax the abdominal muscles, the head somewhat backward. The arm of the affected side is raised up and back as far as possible. In this way the sound side is in the position of expiration, pressed upon the pillow by the weight of the body, and its movements are lessened, while the affected side is in a favorable position for respiration. The position of the head and arms contributes to the elevation of the ribs and so affords the auxiliary muscles of respiration the possibility of developing greater power. The patient remains in this position some time, while he takes 16-20 inspirations a minute with closed mouth. Meanwhile the physician massages the intercostal muscles.—*Therapeutische Wochenschrift*, July 21, 1895.

Union by First Intention in Nerves.—Gluck presented before the Berlin Medical Society the case of a child of a year and a half, operated on May 7, 1895, for extensive tuberculosis in the right radius. In the operation the radial nerve was severed. After careful disinfection the nerve was sutured and then the external wound closed. Primary union of the wound resulted. After fourteen days, the first symptoms of restoration of the nerve were shown and after about four weeks the functions of the muscles supplied by the radial nerve became normal. This is the first instance of primary union in human nerves. Experimental investigations on animals show that after such nerve suturing a portion of the nerve filaments retain their vitality.—*Deutsche Medicinische Wochenschrift*, July 4, 1895.

Pernicious Anemia.—At the Berlin Medical Society, Senator recently exhibited a microscopic blood preparation from a case of pernicious anemia, which showed very clearly those peculiar reddish corpuscles, possessing amoeboid movements, which Perels denoted as characteristic of pernicious anemia. Senator also found them frequently in similar cases, yet he regards it as doubtful whether they are characteristic, since he observed them in one case which could not be so diagnosed.—*Wiener klinische Rundschau*, July 14, 1895.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, OCTOBER 5, 1895.

LOUIS PASTEUR.

And the King said unto his servants, "Know ye not that there is a Prince and a great man fallen this day in Israel?"

LOUIS PASTEUR, the distinguished chemist, who has contributed so largely to the scientific standing of the French Academy, died of paralysis at his home in Paris September 28, in his seventy-third year.

For a period of half a century his researches and achievements have commanded the attention of the scientific world and his death will be viewed not as a loss to France alone, but as a universal calamity. His career is characterized by indomitable energy, and his successes have been due to his earnest application and strict adherence to a single line of research, easily traced from his first discovery, that relating to crystallography, to those of later days. LOUIS PASTEUR, like most scientists, was often assailed by unbelievers, but guided by mathematical precision and armed with the arguments supplied by careful research, he lived to see his important theories accepted by those who were formerly most active in their denunciation. So invincible did his theories prove that his colleagues became somewhat chary of taking exception to his statements, and on one occasion it is said that when a member of the Faculte de Medecine announced his intention of proving the fallacy of one of his arguments, a member of the Academy of Sciences called him aside, saying: "*Beware! PASTEUR is always right.*"

His discoveries were those of great principles, and hosts of scientific workers were given their cue by some general principle enunciated by him, which when followed into its legitimate ramifications, seemed almost to become a new creation. Thus TYN-

DALL followed, when he demonstrated the aerial currents of bacteria. Thus LISTER followed, when he formulated the antiseptic plans of wound treatment, and others have walked in the rays of the same radiant light when they went a step beyond LISTER, and created *aseptic* surgery.

The industry, the modesty, the perseverance, and scarcely less the intense patriotism of this wonderful man, must commend his memory to posterity, by whom he will be appreciated for these characteristics almost as much as for his science.

The editor of this JOURNAL, as he writes, recalls the appearance of PASTEUR as he appeared in 1890 in his laboratory, in the famous Institute erected during his lifetime as a perpetual monument to his greatness.

A man of delicate frame, advanced in years, wearing a skull cap, with well cut gray beard, plainly dressed and modest in his demeanor. A thoroughly pre-occupied student, was our thought, as we approached him. In the pleasant interview which followed, PASTEUR was informed that the first steamer built by the United States Government for the Quarantine Service was named the "LOUIS PASTEUR." He simply expressed his thanks and bowed politely. Continuing the conversation, he was told that the second steamer for the United States Quarantine Service was named the "ROBERT KOCH." He became animated and said with much fervor: "*C'est bien fait.*" He evidently had great admiration for his German contemporary; there was not a tinge of jealousy. "May I ask," said PASTEUR, "what names you have chosen for the remainder of your quarantine fleet, as I understand from you that there are three more contemplated?" "We shall honor our own countrymen next," he was told. "The third and fourth vessels will be named respectively the WILLIAM H. WELCH and the GEORGE M. STERNBERG; the fifth is not yet named." "Again, well done," said PASTEUR, with interest.

A hurried walk with the savant and a friend through the laboratory and the museum ended this visit which, to the editor, will always be a fragrant memory and one of the pleasurable events of a lifetime.

LOUIS PASTEUR was born in the Department of Jura, Dec. 22, 1822. His early education was received in the College of Arbois, from whence he entered Besançon where he received the degree of *bachelier des lettres*, and was appointed tutor in the same college. In the intervals of his duties he followed the course of mathematics necessary to prepare him for the scientific examinations at the École Normale. In October, 1843, he entered the institution, passing fourth on the list of candidates for admission, and received his doctor's degree in 1847. He taught the physical sciences at Dijon from 1848 to 1849, and chemistry at Strasbourg until 1854. In 1857 he returned to Paris and took charge of scientific instruc-

tion in the École Normale, where he remained until 1863, at which time he became professor of geology, physics and chemistry in the School of Fine Arts. He was appointed professor of chemistry at the Sorbonne in 1867 and remained in that position until 1875. In 1868 he was retired with a pension. From 1886 most of his work was at the Pasteur Institute.

His first triumph was in crystallography when he discovered the "left-handed" tartaric acid and the constitution of paratartaric acid. For his researches on the relations of the polarization of light to hemihedrals in crystal he received the Rumford medal from the Royal Society of London. His next achievement was the theory of fermentation and was followed by a series of studies on the manufacture of vinegar and studies on wine. In 1865, at the request of the civil authorities, he directed his investigations to the diseases of silk worms, which were ruining that great industry in France. For three years he was actively engaged in the study of this disease, and when he had arrived at a solution of the problem, which was to the effect that all unhealthy moths should be rejected and destroyed in order to prevent infection, he was stricken with paralysis, from which he never fully recovered. In 1860 he exploded the theory of spontaneous generation at the Academy of Sciences. He next took up the problem of splenic fever, from which he passed to fowl cholera, at the same time directing his attention to JENNER's discovery of vaccination. He communicated to the Academy of Sciences the important facts that sheep and cows vaccinated with the attenuated bacilli were protected from subsequent inoculation with virulent virus.

Of these remarkable discoveries PASTEUR said: "I have lent to the expression vaccination, an extension that I hope science will consecrate as a homage to the merit and immense services rendered to humanity by one of the greatest men of England—JENNER."

His next great work was on hydrophobia, and his first case was upon a boy named JOHN MEISTER. His theories on this subject have continued to gain credence and are now accepted by the majority of scientists. His discoveries in relation to chicken cholera clearly forestalled the antitoxin hypotheses in treatment.

In 1887 the Institute Pasteur was built by public subscription and the average number of inoculations has been nearly one hundred a day.

In 1892 the municipal council of Dôle placed a commemorative tablet over the door of the house in which he was born.

ON THE INFECTIVITY OF THE URINE IN TYPHOID FEVER.

Two professors of the British Army Medical School at Netley make a joint contribution to the London *Lancet* touching the important rôle played by the ty-

phoid bacillus in the urine of patients suffering from typhoid fever. Their names and positions are A. E. WRIGHT, professor of pathology, and D. SEMPLE, Surgeon-Major, assistant to professor of pathology.

Their examinations for the article in question were seven in number, the most approved methods of bacterial investigation being employed by them. In six of the cases the bacillus was readily detected in the urine; and this fact, they claim, should bring into greater prominence the diagnostic value of bacterial work in doubtful cases of fever. The writers are free to admit that the presence of typhoid bacilli in the urine is not a new fact. It has heretofore been pointed out by SANERELLI, working under the auspices of METSCHNIKOFF, and by them made the basis of a new theory, namely, the theory of blood infection in contradistinction to the intestinal intoxication process theory, which is the one that is now generally worked under by the profession. Their line of argument begins with the parity of pathologic processes that takes into consideration the conditions of organs remote from the intestinal tract, in the case of this fever, as compared with certain other febrile diseases. One of the phenomena first to be explained, they assert, is turgidity of the spleen and the presence of typhoid bacilli in the splenic tissue.

"Now, this turgidity of the spleen and this presence of microorganisms in the splenic tissue is an invariable accompaniment of every septicemic process. We find it in the case of such blood infections as anthrax in cattle and spirillum fever and malaria in man. And we have the explanation of this phenomenon in the experiments of WERIGO, which show that the introduction of any foreign particulate matter into the blood invariably results in a deposition of that particulate matter in the spleen (and other internal organs), and in an aggregation of polynuclear white blood corpuscles round the foreign particulate matter, and finally, in a process of phagocytosis. Everybody who has a rabbit, and a little carmine, or any bacterial culture at his disposal, can readily verify these facts for himself. The enlarged spleen and the presence of bacteria there are thus quite in harmony with the theory of a blood infection in typhoid fever. The fact that the white blood corpuscles are diminished in the circulating blood in typhoid fever is also in harmony with this explanation. We have further, in connection with typhoid fever, to account for the eruption of pink spots on the skin. These were inexplicable on the intoxication theory of typhoid fever. They are, however, of the easiest explanation if we make the assumption that typhoid fever is characterized by a blood infection, for here, as in other cases, we may instance the skin eruption in the case of human glanders, the spots evidently corresponding to lodgments of the bacteria in the capillaries of the skin. This interpretation of the skin eruption in typhoid fever has been borne out in the case of typhoid, just as it has in the case of glanders, by the fact that the specific bacteria have been cultivated from the spots."

The writers quote the findings of WATHELET in his series of investigation of the stools of typhoid patients.

His object was to answer the question as to whether, in addition to the bacillus coli communis, the true typhoid fever bacillus is not also to be found in the stools of patients suffering from typhoid fever. The following are the results of WATHELET's careful examination of this question. The true typhoid fever bacillus was detected in the stools of only four of the twelve cases of typhoid fever which were studied by this observer. In the case of these four patients the typhoid fever bacillus was detected only four times in a total of twenty-four examinations; and even on these four occasions the true typhoid fever bacillus was outnumbered by the bacillus coli communis in the proportion of about 3 to 1. In the case of the other eight cases of typhoid fever the bacillus appeared to be absent from the stools throughout the whole course of the disease. WATHELET has further shown that if the bacillus typhosus and the bacillus coli communis are implanted into one and the same tube of nutrient broth, the bacillus coli communis will outgrow and kill off the typhoid fever bacillus, even when at the outset an enormous numerical preponderance is given to the typhoid bacillus over the bacillus coli communis. Again, WATHELET has shown that whereas the bacillus coli communis will flourish in a nutrient medium containing the toxins elaborated by the typhoid fever bacillus, the typhoid fever bacillus will not grow in a nutrient medium containing the toxins elaborated by the bacillus coli communis."

The conclusions of Drs. WRIGHT and SEMPLE may be summarized under four principal heads namely:

"1. It is true that the typhoid bacilli are present in the urine of patients suffering from typhoid fever, and if, as we shall see typhoid bacilli are generally absent from the feces, it will be evident that it is the urine, and not the feces, of patients suffering from typhoid fever which is responsible for the spread of typhoid infection.

"2. If typhoid bacilli are constantly present in the urine of typhoid patients, it may be possible to diagnose the presence or absence of typhoid fever by undertaking a bacteriologic examination of the urine.

"3. If it is true that typhoid bacilli are constantly present in the urine in cases of typhoid fever while they are generally absent from the feces, it will be evident that the conception of typhoid fever upon which the ordinary clinician proceeds is an entirely erroneous one.

"4. The working hypothesis regarding this fever, in the minds of medical men generally, favoring, as it does, the notion that this fever is an intestinal intoxication process should be revised, and substituted for it, one that will have regard to the wide range of pathologic appearances, some of which at least fit in well with a hypothesis of blood infection, such as malarial fever in man and anthrax in cattle."

The importance of thoroughly disinfecting the urine of typhoid patients rather than the feces is insisted upon, as the great hygienic lesson to be learned in this view of the case. They say:

"We thus see that in six out of seven cases examined, the typhoid fever bacilli were easily detected in the urine. In view of this fact it seems to us that the bacteriologic examination of the urine ought not to be neglected in any doubtful case in which typhoid fever is suspected. It is hardly necessary to do more than merely advert to the hygienic aspect of the matter. It was only a natural outcome of the intestinal intoxication theory of typhoid fever that the greatest precaution should have been enjoined with regard to the stools of the patient suffering from typhoid fever while the disinfection of his urine was neglected. If, however, the recent observations on the almost constant absence of typhoid fever bacilli from the stools are to be trusted, the disinfection of the feces will have to rank not as an article of faith, but as a mere "counsel of perfection." On the other hand, the most careful attention will have to be given to the disinfection of the urine. In some cases the urine even before incubation is absolutely turbid with typhoid bacilli."

CONCERNING GALL-STONES.

Gall-stones are a rather common phenomenon in the daily work of a physician with a large practice. In fact, they are so common as to lull the vigilance of the unwary practitioner, and these notes are for the purpose of directing attention to some of the curious conditions connected with their presence, and to show that they are often an unmixed evil. To begin, then, with their frequency: It is commonly stated that from 4 to 12 per cent. of individuals are affected with gall-stones. This figure has been copied for many years and is probably too high. PAULSEN, of Copenhagen, has recently published statistics showing that in Denmark this per cent. is decidedly too high. During the period 1870-1890, only 111 cases—30 men, 81 women—of cholelithiasis were treated in the Communal Hospital of Copenhagen. During these years 9,172 necropsies were performed, and calculi were found in but 3.78 per cent.

Mankind enjoys no monopoly of these concretions, for they are found in most vertebrates, especially in stall-fed oxen, and in mollusks and insects among the invertebrates. As regards number, they may range from one up to hundreds and even thousands—7,802 seems to be the high-water mark thus far.

The size of gall-stones ranges from mere detritus—*sable*, as they say in French—up to masses of several square inches. It is given to but few persons to harbor a concretion measuring four and a half by two and a half inches, yet such a stone was recently removed from an old woman in England who otherwise was not at all remarkable. Fresh calculi are always heavier than water and only float after becoming dry; hence, in washing fresh feces to discover them, they will be found at the bottom and not at the top of the vessel. It may be noted that GERHARDT asserts lately that physical diagnosis of biliary calculi can be made, even before any pain is present, by this palpable tumor which disappears when the stone passes into the bowel. The

walls of the gall-bladder quickly fall together and a slight rubbing can be felt; the colic ends with this sign, but the pain does not always end. Sometimes a diastolic rubbing sound is heard in the region of the gall-bladder which disappears with the ending of the attack, and this author states that in a prolonged attack a friction sound remains which can be heard with the stethoscope or even felt. PETIT, one of the early French surgeons—he of the triangle fame—long ago likened the audible presence of calculi in the gall-bladder, which can sometimes be heard, to nuts rattling in a bag.

Calculi invariably form in the gall-bladder or the bile passages and well-behaved specimens stay in the bladder or leave through the bile ducts. In cases of innate depravity, however, these concretions will pursue a most circuitous and bizarre course. They may ulcerate through the biliary passages, usually by passing directly through the ductus communis into the bowel, or indirectly by a fistulous passage either into the adjoining bowel or through the integument. Having escaped through the biliary passages, calculi may appear in the stomach; one weighing sixty-five grams was thus ejected; from a fistula at the umbilicus a stone one and a half by three-fourth inches escaped; from another thirty calculi were discharged. They may become encysted in peritoneal adhesions and may pass from the urethra or from a fistula between the bile ducts and the kidney. In one remarkable case, 200 calculi were passed from the urethra in one week. They were analyzed and found to be biliary and not urinary in character. Very large calculi occlude the gut, giving rise to serious or fatal obstruction; of course, this necessitates a large-sized stone and, these are fortunately rare. LEICHTENSTERN, in a total of 1,152 intestinal obstructions from various causes, gives only 41 as due to gall-stones.

Lastly, a hint as to treatment. As already stated, calculi are very common in stall-fed oxen and disappear when these are turned out in spring to grass. The eminent Dutch physician, VAN SWIETEN, arguing from this observation advised that patients with cholelithiasis be restricted to a diet of grass like NEBUCHADNEZZAR of old. As yet no one has taken his proposal seriously. A great deal of misapplied energy has in the last 200 years been directed toward attempts to dissolve urinary and biliary calculi *in situ*. Any one who tries to dissolve calculi in a test tube in his laboratory will be convinced of the hopeless character of the task and the uselessness of the so-called solvents. The ingestion of large quantities of olive oil is, perhaps, one of the most useful of modern internal remedies and yet it only operates through mechanical action as a lubricant. The recent marvelous advances in gall-bladder surgery render the removal of calculi of so little moment as to be almost a minor operation. The physician owes to himself

and to his patient, once the diagnosis is made, to call in surgical aid and relieve the patient from the embarrassment of passing calculi through his urethra, navel or other outlandish route.

NEW MEXICO FOR CONSUMPTIVES.

The climatic treatment of pulmonary tuberculosis by physicians began when it was observed that the natives of certain regions were more or less immune from the disease, and that subjects removing there from other regions improved or recovered. The climatic conditions in these favored regions were not identical, but quite diverse; and naturally a diversity of opinion arose as to the conditions of climate most favorable to the consumptive. In this country the resorts are of two classes, in the main well marked. The first class we will call the "mild and equable," in other words, the warm and moist; of these the resorts of Carolina, Florida and Southern California may be taken as types. The second class of resorts are characterized by a dry and bracing climate, cold and elevated, as in Colorado.

Each class has its advocates; and the advocates of each in some cases go to extremes. This must be obvious to all who consider some of the arguments advanced by certain somewhat heated exponents of the cold and dry theory, and the extreme low temperatures they advise; while, on the other hand, it is a matter of common observation that the debilitating warmth of the southern seashore is indiscriminately prescribed by physicians of the opposite school.

Differing on most points, both schools agree in one opinion: that the worst climate is that which is both cold and moist. This gives us a clue to the solution of the matter in dispute—a solution which is beginning to be recognized, and, we may hope, will soon be universally recognized. It is that both disputants are right—the one in advocating dry and bracing air, the other in insisting upon mild temperature. These conditions are all met in certain parts of New Mexico, for instance, where the elevation secures a stimulating air, the latitude a mild air, and the sunshine and small rainfall a dry air. In Central New Mexico these attributes are combined in greatest perfection. Further north there is more rain and snow, less sun, occasionally intense cold, and there are sudden and violent changes in the weather at certain seasons. Further south the heat is apt to be excessive in summer; though (be it remarked in passing, as a set-off to the claims of those who urge the mid-winter Adirondack treatment) many people claim to have been cured by the summer furnace heat of such places as Tucson and Yuma.

But in Central New Mexico we have the best year round climate for out-door life in the United States. And the topography of the country is such, that the health-seeker there, if at any time dissatisfied with

local conditions, can find within a few miles, north south, east or west, anything in the way of change that he can reasonably desire.

In order to ascertain the rate or activity of combustion at different altitudes, PROFESSOR TYNDALL, during one of his Alpine outings, burned candles at the foot of the mountains, and other candles precisely similar on the summit, and noted the time required to consume similar lengths of candles at the different levels. Contrary to expectation, we may suppose, he found that the high candles burned faster than the low ones; in other words, that combustion was more rapid as the air became thinner and the amount and density of the oxygen less.

This was certainly a striking result, but beside the well-known effect of pressure, it is probably not inconsistent with the theory that the increased activity of oxidation is due to the thinning of the inert nitrogen; which in air of ordinary density may be assumed to oppose a much greater mechanical obstruction to the action of the oxygen molecules, than in the case of thin air. Moreover, we may assume that the moisture in the air mechanically obstructs the action of its oxygen, in the same way that nitrogen does; and that the oxygen of an air at once thin and dry is most fully and promptly available.

If this theory be correct, the physiologic and pathologic application becomes at once evident, and the known effects of thin and dry air in certain pathologic processes become theoretically explicable. For if we consider the physio-chemic processes in the animal organism and recall what a prominent part oxidation plays in them, and the disastrous results of incomplete oxidation, we have reason to believe that imperfect oxidation lies at the basis of most of the disorders characterized by, or caused by, products of abnormal or imperfect (generally retrograde) tissue metamorphosis. Such diseases are many forms of so-called dyspepsia, rheumatism, gout, lithemia and tuberculosis—the latter essentially so, though with a specific element ingrafted.

These disorders are notoriously benefited by thin and dry air, and the inhabitants of elevated inland plateaus are largely exempt from them. And our object in this article is to suggest that it may be worth while to inquire: 1, whether the beneficial effects of high and dry resorts may not be largely due to more perfect oxygenation of blood and tissues; and 2, whether this more perfect oxidation may not be due to diminished mechanical interference of molecules of nitrogen and aqueous vapor with the molecules of oxygen in the air of the lungs.

CHRISTIAN "SCIENCE."

The health problems connected with religious faith, which in a large way are troubling the English authorities in their Eastern possessions, seem to be

likely to be in evidence here on a smaller scale, if the Christian science and faith cure craze is not soon eradicated.

The report comes from Indianapolis that the alarming spread of diphtheria in that city has been found to be largely due to the practices of "Christian scientists" who have honeycombed whole districts with their doctrines, taking in among their proselytes not only the ignorant, but the fairly educated and intelligent classes. Not only have the cases been left without proper medical treatment and unreported, but the simplest sanitary precautions are disregarded and it is the custom of the believers to rendezvous at the bedsides of the sick, and go from house to house carrying the contagion, while refusing admission to health inspectors and claiming a higher than human law to control them in their disobedience to sanitary regulations.

The "grand idol of human credulity," as MAGENDIE denominated popular medicine, has many worshipers, but there are some municipalities that deal with this craze with a heavy hand. In Memphis, recently, one of these persons who had treated a case of childbirth, and refused to allow a physician to be sent for, was promptly indicted for murder. A few more such indictments will have a healthy effect.

A VALUABLE CONTRIBUTION TO MILITARY HISTORY.

The members of the ASSOCIATION will be pleased to learn that PROF. JOSEPH JONES, of New Orleans, is engaged in the compilation of a medical history and roster of the medical department of the Confederacy, with biographical notices of its principal surgeons. The work will contain about five hundred pages and will be presented at the next session of the Confederate Veterans.

The position of PROFESSOR JONES during the Civil War, gave him ample opportunity to observe the methods and acts of the Medical Corps of the Confederate Army, and since the war he has been accumulating data bearing upon this subject. It is to be hoped that the Confederate veterans will see their way clear to publish this record, which will probably be the only complete one in existence.

The careful and painstaking work of PROFESSOR JONES, in regard to the condition of the prisoners at Andersonville military prison, as published in the memoirs of the U. S. Sanitary Commission, gives ample evidence, if any were needed, that the forthcoming book will be accurate and impartial. Few of our generation, who were identified with one or the other of the great armies, are better equipped by past training to write impartial history than PROFESSOR JONES.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office. Write for them; sent free.

CORRESPONDENCE.

Library of the American Medical Association.

Chicago, Sept. 25, 1895.

To the Editor:—For the first time in several years, if not in its history, this library has been united and roughly sorted into periodicals, transactions, monographs and pamphlets. There are about two hundred and fifty incomplete sets of periodicals, mostly United States, with some English, French and a few German, Italian and Spanish. Some of these, mostly the older United States periodicals, have been bound in a cheap but durable style, but the greater majority are unbound. This number includes some not now received in exchange, but this deficiency is made up by new periodicals, so the number remains about the same.

By the terms of the contract, the library does not receive all periodicals and books sent to the JOURNAL. Some of these are kept for office copies and some become the property of the reviewers. The value of these sets is their incompleteness, as enabling the Newberry Library to fill up many of the deficiencies in its sets, particularly of the United States periodicals, a procedure which has been anticipated for some time.

There are some good things in the older United States periodicals, those now extinct. For instance, there is almost a full set of the *New York Journal of Medicine*, sometimes called *Purple's Journal*, from the name of the most prominent editor. This was in some sense the forerunner of the present *New York Medical Journal*.

There is also a set, fairly complete, of the *Medical Repository*, edited by Samuel Latham Mitchell, a distinguished New York physician and United States Senator. Started in 1797, this periodical turned the century and ran until 1824, to be practically succeeded by *Purple's Journal*, and this, later, by the present *New York Medical Journal*.

The *Philadelphia Journal of Medical and Physical Sciences* is nearly complete. This is the direct antecedent of the *American Journal of the Medical Sciences*. Strange as it may seem, the proverb of the shoemaker's child comes true in this library, for there is not a set or even a volume of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

The Canadian journals are well represented, as also are the Central and South American periodicals. These latter are valuable as an exponent of what is being done in these countries which are so near to us, and which are opening such prosperous fields for commerce.

There are also a few French and German periodicals. About one hundred and thirty societies are represented by their Transactions, and in the majority of cases these Transactions as well as the periodicals are unbound.

Nearly all of the State medical societies are here, and the various local and national societies also. There are some valuable foreign Transactions, and these, as is well known, can only be secured by exchange. With the State Transactions already in the Newberry Library, these will, in many cases, make complete sets. The AMERICAN MEDICAL ASSOCIATION heads the list with a full set of its own Transactions and the Index.

As to monographs or books, there are no especially rare or valuable works in the collection. A few old English works have drifted in, and these will be noted:

Heister, Lawrence: *Medical, Chirurgical and Anatomical Observations*, vol. II, London, 1755, quarto. This copy has lost both covers, and in addition the bands have been torn through. It is a raised band book, and why the vandal should have spoiled it by tearing the bands out is a mystery.

Astruc, John: *Treatise of Venereal Diseases in Nine Books*. London, 1754, quarto. There are two copies of this work.

Mead, Richard. *Medical Works*, London, quarto, 1762. Has a fine portrait of the author as a frontispiece.

Winslow, J. B.: *An Anatomical Exposition of the Structure of the Human Body*; 3d edition, two volumes in one, London, 1769, quarto.

There is an edition of Boerhaave in six volumes. London, 1742-1746.

Van Swieten: *Commentaries on Boerhaave's Aphorisms*. Eighteen volumes. 1766-1776. This has the stamp and signature of Dr. John Redman Coxe, a well-known Philadelphian, a man of note, a teacher, and editor of a dispensatory, who was born in 1773 and died in 1864.

There are two sets of works of Benjamin Rush, easily the first man in United States medicine.

There is an imperfect copy of the sixty volume, 1812-1822, *Dictionnaire Encyclopedique*.

The bulk of the books are those received during the last fifty years and represent all branches of science. There are comparatively few standard books among them. The pamphlets are largely reprints, but there are scores of hospital reports, health reports and college catalogues. The card catalogue and accession register, both of course imperfect and incomplete, are also here. These show that an attempt was made to carry on the library as a library.

The collection is now where it will do the most good, that is, in completing another and larger collection. It never was a library, simply a mass of unorganized matter.

Newberry Library.

G. E. WIRE, M.D., Librarian.

Tuberculous Patients—a Misquotation
Corrected.

ST. LOUIS, Sept. 27, 1895.

To the Editor:—In the JOURNAL of September 21 (in the report of the Society Proceedings), I am represented as having said at a discussion of the Mississippi Valley Medical Association, at Detroit, Mich., that tuberculosis patients could not live in Colorado or New Mexico; that they would be more apt to die there quicker than anywhere else. I beg to say to you that I have never made such a remark anywhere, and that your reporter must have mistaken my statement. I did say something to the following effect: "That patients suffering with acute tuberculosis do not find a Colorado or New Mexico climate favorable, and that in such altitudes acute tuberculosis runs its course more rapidly than elsewhere at low altitudes." I had in mind simply acute tuberculosis, and nothing else. Please publish this letter in a prominent place among the Society Proceedings, in order that those to whom any injustice is done by the misquotation may read it. I remain,

Very truly yours,

PAUL PAQUIN, M.D.

A Correct Nomenclature.

LA FAYETTE, IND., Sept. 28, 1895.

To the Editor:—There is a growing tendency by physicians to call their practice by the name of "business." While the practice of medicine has its business side, which should be carefully guarded, it surely is not all business, except with those fellows who prostitute the practice to get out of it all the money they can, by leaving out of sight all the other attributes which characterize a good physician's practice. When a physician calls his practice "business," we naturally look for those tricks of trade which are reprehensible in the practice of medicine. Often we do not have to look far to find them either. In the name of the good system under which we were reared, let us cease to lower ourselves in the estimation of others by calling what we do "business;" but rather let it be known by the name by which it has always previously been called, "practice."

Fraternally,

GEO. F. KEIPER, M.D.

BOOK NOTICES.

Fuller on Male Sexual Disorders. DISORDERS OF THE SEXUAL ORGANS IN THE MALE. By EUGENE FULLER, M.D., Instructor in Venereal and Genito-Urinary Diseases, New York Post-Graduate Medical School. In one very handsome octavo volume of 238 pages, with 25 engravings and 8 full-page plates. Cloth, \$2. Philadelphia: Lea Brothers & Co., Publishers. 1895.

This book contains seven chapters, as follows: Anatomy, Physiology, Pathology, Clinical Features, Differential Diagnosis, Treatment and Prognosis, and Illustrative Instances.

In this work the author correctly says that the anatomy, which lies at the foundation of all medical science, should properly precede any discussion of a subject, and proceeding therefrom, the physiology and pathology follow in logical sequence. The book, which is a valuable one as far as it goes, seems to be devoted much more to diseases of the vesiculæ seminales than to any other affections, and, strictly speaking, its title should be sexual disturbances in the male with incidentally the anatomy, physiology and pathology of those diseases of some of the organs connected therewith. For specialists the book will be an instructive one, and the latest illustrations giving all the operative methods for the treatment of vesiculitis will be very interesting. The history and methods of incisions for operations on the vesiculæ seminales are given, but all those familiar with the literature of the subject, and especially with the work of Monod and Terrillon, on diseases of the testicle, published in Paris in 1889, will see that comparatively little on the general subject with the exception of the operative measures named, has been added. The diseases of the testicle are hardly mentioned in the book, and then only incidentally. We trust that should the work pass to a future addition, the author will change the name, or have it include the diseases of the testicle. As a monogram on seminal vesiculitis, it is without doubt the most comprehensive of any.

Hare's Text-Book of Practical Therapeutics. A TEXT-BOOK OF PRACTICAL THERAPEUTICS; With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. DE SCHWEINITZ, EDWARD MARTIN and BARTON C. HIRST. New (fifth) edition, thoroughly revised. In one octavo volume of 740 pages. Cloth, \$3.75; leather, \$4.75. Philadelphia: Lea Brothers & Co., Publishers. 1895.

As this book has now passed to its fifth edition, it needs no special commendation on the part of the writer of this notice. The revision has brought the book down to date. Each article has been revised and the antitoxin treatment of diphtheria has been introduced. The author mentions with approval that the "gross percentage of mortality without taking favorable cases alone and including operative cases, ranges from 5 to 23 per cent. as against the ordinary mortality of about 50 per cent. The dose of the antitoxin serum is to be judged by its known strength and power, when conferring immunity, by the severity of the disease and the susceptibility of the patient. The present common dose of the antitoxin serum of Behring and Parke, Davis & Co., is 5 to 10 cubic centimeters, while that of the strongest serum is much less. One valuable feature of this book is the posologic table at the end, where doses of all the medicines are given in the metric system, as well as in the old British apothecary system.

Some of the Physiologic Factors of the Neuroses of Childhood. By B. K. RATCHFORD, M.D. 8vo., pp. 122. Cincinnati: Robert Clarke Co. 1895.

This little book is a republication of a series of papers first published in the *Archives of Pediatrics*, and for the benefit of

those of our readers who have not seen that publication we give the following general synopsis of the contents: Chapter I, normal Function of Nerve Cells; II, Physiologic Peculiarities of the Nervous System of Infancy from Childhood; III, Fever and Variable Temperatures of Childhood; IV, Heat Dissipating Mechanism; V, Autogenetic and Bacterial Toxins; VI, Venous Condition of the Blood; VII, Impoverished Condition of the Blood; VIII, Reflex Irritation, and IX, Excessive Nerve Activity.

The author uses the term, "neuroses of childhood," to cover all local and general nervous disorders which do not have any known pathologic lesions of the nervous system. It is thus seen that the title of the book is more comprehensive than its style and general make-up would seem to indicate. The papers contain the result of much original research. The chapter on auto-intoxication is alone worth the price of the volume.

Charaka Samhita. Translated into English. Published by AVINASH CHANDRA KAVIRATNA. Calcutta. 1895. Part XIII

The thirteenth fasciculus of this interesting work has reached us, and on examination we find it completes the twelve groups of food and drinks. Lesson XXVIII sets forth very quaintly the difference between men that are wise and those that are ignorant and foolish. Lesson XXIX gives some curious observations on quacks: "Bad physicians or killers of life and helpers of disease." The good physician is thus described by the illustrious Son of Atri: "Those that are well born, of clear understanding, possessed of experience, skillful, of pure behavior, possessed of mastery over their hands, with souls under thorough control, equip with every necessary object, with every sense in order, capable of reading the disposition of others, furnished with knowledge of results (processes, operations, drugs, etc.) are said to be saviors of life and destroyers of diseases."

Black on the Urine. THE URINE IN HEALTH AND DISEASE, AND URINARY ANALYSIS. PHYSIOLOGICALLY AND PATHOLOGICALLY CONSIDERED. By D. CAMPBELL BLACK, M.D., L. R. C. S., Professor of Physiology, Anderson College Medical School. In one 12mo. volume of 256 pages, with 73 engravings. Cloth, \$2.75. Philadelphia: Lea Brothers & Co., Publishers. 1895.

This book is an English printed one, for the use of students. It is very condensed, concise, well illustrated, and will be found extremely useful for those who wish to have in a small compass a recent work on the science of urology. It has been carefully brought down to date and will be found a valuable book of reference on the subject. Practitioners will find it desirable to have a book handy for reference in the examination of specimens. The only defect in it, so far as our observation has extended, is that too little attention has been paid to the examination of urine for bacteria. The bacillus tuberculosis and bacillus ureæ are the only ones mentioned; and no specific directions for tests are given in the book, which we take to be a defect of omission, as in an authoritative work of this kind everything relating to the subject should be set forth.

Manual of Organic Materia Medica; BEING A GUIDE TO MATERIA MEDICA OF THE VEGETABLE AND ANIMAL KINGDOMS; for the use of Students, Druggists, Pharmacists and Physicians. By JOHN M. MAISCH, Ph.M., Ph.D., etc. Sixth edition, revised by HENRY C. C. MAISCH, Ph.G., Ph.D. 8vo., pp. 526. Philadelphia: Lea Bros. & Co. 1895.

This, as its name implies, is a manual or hand-book of materia medica, adapted to the use of medical students and students of pharmacy. The new Pharmacopœia has been adhered to, and the doses are given in metric terms. Although the matter in the present volume has been increased by slight enlargements of the pages and condensation, the bulk of the volume is not materially augmented. It will, as heretofore, without doubt, continue to be a favorite with students.

A Manual of Obstetrics. By A. F. A. KING, A.M., M.D., etc. Sixth edition, 221 illustrations, 8vo., 533 pages. Philadelphia: Lea Bros. & Co. 1895.

This is one of the most popular treatises on obstetrics that has been issued for some years, a fact which has been attested by its having passed its sixth edition. We trust, however, that in the next edition our friend will recast the chapter on inflammation of the breast, especially the section thereof which refers to the causes of mammary inflammation, in order that the bacteriology of the subject may be brought to conform to modern views. A similar criticism might, without being hypercritical, be extended to the entire Chapter XXXIV, on puerperal septicemia, septic and "non-septic" puerperal inflammations, etc.

PUBLIC HEALTH.

Smoke Abatement.—It will not be very encouraging to the authorities of the many towns and cities in this country who are striving to abate the "smoke nuisance" to read the latest utterance of Sir Douglas Galton, the eminent President of the British Association for the Advancement of Science, on the subject. It occurs in his Presidential Address, at the opening of the recent meeting of the Association on the 11th ult. After pointing out that much may be done by care in firing, by using smokeless coal and by washing the soot out of the products of combustion, he intimates that in the general use of electricity lies the only adequate remedy and that this is too costly where it must be generated by the use of coal. "I can conceive, however, that our descendants may learn so to utilize electricity that they in some future century [!] may be enabled by its means to avoid the smoke in their towns."

"Quis Custodiet Ipsos Custodes" Again.—What can be expected of the ignorant and uneducated when those who are to guard their health and cure their sickness openly violate the simplest hygienic precautions? Professor Virchow, Rector of the University of Berlin, declares that in spite of the large number of suitable receptacles for saliva, placed by his order at all convenient places in the university building, the students continue, as in the past, to defile the floors of the halls and rooms that they frequent with their expectorations. It is now suggested that a rule be adopted, imposing a penalty for each offense against this common requirement of decency and sanitation, similar to that decreed by the municipality of Sydney in New South Wales, where a fine of \$5 is levied upon every person detected spitting in public buildings, vehicles or streets.

Diphtheria Antitoxin Statistics in Russia.—Dr. Zabolotnui has furnished the following figures of the results of the antitoxin treatment of diphtheria in the district of Podolia, which have been reprinted from a local journal of the district in the *Meditsinskoe Obozrenie*: In 109 cases proved bacteriologically to be true diphtheria, injections of antidiphtheritic serum were employed. The number of deaths was 14; the percentage death rate was therefore 12.8. Previously, under the old forms of treatment, the death rate had been 48 per cent. Prophylactic injections were given to 228 healthy children, stated to be members of families in which cases of diphtheria had occurred. None of these persons contracted the disease. Dr. Zabolotnui himself underwent the treatment for an attack of diphtheria, and describes graphically the rapid subjective improvement after the first injection, the disappearance of headache and of the apathetic state into which he had fallen, with corresponding rise in spirits and improvement in all the specific symptoms. The temperature fell from 39.6 C. to normal after the first injection.

Suicide in European Cities.—Recent vital statistics show the following numbers of cases of suicide per 10,000 of population: Munich, 1.93; Berlin, 2.98; Vienna, 3.2; Brussels, 3.29; Paris, 3.6; Breslau, 3.91. The Vienna correspondent of *The Lancet* furnishes some interesting data concerning suicides in that city. In every 100 cases, 77 were men and 23 women. Adolescents appear to have even more frequent recourse to this method of terminating their real or supposed miseries, the highest rate being registered at the age of 16 to 25 years. Among 100 suicides, 32.5 ended their days by hanging; 23.5 by pistol shots; 22.4 by poisoning; 5.8 by drowning. With respect to the poisons, cyanid of potassium was resorted to in 12.7 of the cases, caustic lye in 22.7, phosphorus in 26.1, and sulphuric acid in 7.2. As for seasonal distribution the proportions were: in January, 8.5 per cent.; in February, 7.6 per cent.; in March, 8.9 per cent.; in April, 9.1 per cent.; in May, 10.5 per cent.; in June, 8.7 per cent.; in July, 8.1 per cent.; in August, 7.2 per cent.; in September, 7.4 per cent.; in October, 8.3 per cent.; in November, 7.8 per cent.; and in December, 7.9 per cent.

School Diffusion of Diphtheria.—Although there was some increase of diphtheria noted throughout the country toward the close of August, the weekly mortality reports for September indicate a much greater prevalence of the disease since school has "taken up." In New York city this increase is so great that the antitoxin supply is inadequate and orders for the serum from other communities have been refused. In Chicago the number of deaths during the month has increased fully one-third over that of August. In a recent report to the London County Council, Shirley Murphy shows in a very striking manner the relation of the autumnal increase of diphtheria to the school population. Taking three periods of four weeks before vacation, the four vacation weeks and the four weeks after vacation, he finds a remarkable reduction in the vacation period from the ante-vacation period, followed by a still more remarkable increase in the post-vacation period. In 1892 this reduction was 3 per cent. and in 1893 it was 27 per cent. The increase in 1892 was 29 per cent. and in 1893 it was 81 per cent. It is to be especially noted that there is no such constant and marked relation discoverable in other age periods, but that it is confined to children of the elementary school age—in that country between 3 and 13 years. There is, of course, some decrease and some increase at other ages, but this may be fairly attributed to lesser or greater infection derived from and secondary to the school cases.

Returns of Sanitation.—At the recent meeting of the Sanitary Association of Scotland held in Greenock, the medical officer of health of that town presented some statistics which speak eloquently of the value of sanitation and of the returns from sanitary expenditure. Prior to 1860 the town had been repeatedly scourged by outbreaks of the contagious and infectious diseases—the death rate for the twelve years 1843–1854 inclusive being 35.5 per 1000 of population, rising to 61.3 in 1847 and to 64.2 in 1848. The cholera epidemic of this latter year caused an inspector to be sent to the town by the General Board of Health in London, who pointed out glaring defects in the main drainage and other matters. This was followed by radical improvements of the health administration; further pollution of the harbor was remedied by the construction of a complete system of main sewers; the water supply was improved at a cost of nearly two million dollars; another million was expended in alterations under the Artisan Dwellings Act; numbers of dilapidated dwellings were destroyed, new streets were opened, letting in sun and air, and sanitary reforms were carried out in other directions. The increased working force of the population, its saving of doctors' bills, medicines, nursing, wasted time, suffering, funeral expenses, etc., may be inferred from the following

figures: from 1865 to 1869 the death rate was 32.46 per 1000 of population: from 1870 to 1874 it was 29; from 1875 to 1879 it was 23.09; from 1880 to 1884 it was 22.13; from 1885 to 1889 it was 18.28. What is true of Greenock is true of every other place where systematic, organized sanitary effort is made. As Professor Hay said during the Congress: "With a rapidly growing knowledge of the laws of health, derived from extended experience and the laborious observations and investigations of many workers, in recent years we have been making a freer and more intelligent use of the powers conferred by the Legislature. Our forces in the war against disease and death are being marshalled and outlined with something like military order and precision. It were an easy task, if time permitted, to cite instance after instance of victorious progress." And for this country—*Let us have a Department of Public Health!*

Longevity of the Typhoid Bacillus.—The present serious increase of typhoid fever in Chicago, as well as its epidemic prevalence elsewhere, gives especial interest to the recently published studies of Prof. Edwin O. Jordan, Ph.D. of the University of Chicago, on the conditions affecting the behavior of the typhoid bacillus in water.¹ Professor Jordan has already indicated in this JOURNAL² some of the difficulties that environ the identification of this organism—difficulties which, as he has pointed out, make it imperative to record the source, age and character of the culture used, and in the present elaborate paper he gives additional reasons for vigorous precaution in this particular. Among the other practical points with which the paper abounds, a large number of experiments, conducted with painstaking thoroughness, show conclusively that the bacilli invariably live longest in waters containing the largest amounts of organic nitrogen. It is a noteworthy fact that this holds true even when no appreciable multiplication occurs. This latter interesting circumstance is open to the interpretation either that the lives of individual bacilli are conserved by the presence of organic matter, which acts as a kind of "elixir of life," or that the more hardy bacilli are able to multiply for one or two generations on the slight amount of peptone supplied them, a multiplication that, however, is masked by the mortality occurring among their less resistant companions. For obvious reasons the second explanation seems the more plausible. Briefly stated, the results of the experiments made and recorded by Professor Jordan are as follows:

1. The age of the typhoid stock influences greatly the life of the bacilli introduced into water, a freshly isolated stock possessing distinctly greater vitality than one that has been under cultivation for some months.

2. The typhoid bacillus when introduced with proper precautions into sterilized Lake Michigan water does not multiply but may, under certain conditions, maintain its vitality for upward of ninety-three days.

3. The colon bacillus, on the contrary, under similar conditions undergoes rapid multiplication and may remain alive for upward of 262 days.

4. In redistilled water the typhoid bacillus perishes much more speedily than in the water of the lake.

5. The quantity of organic matter (peptone) in redistilled water influences fundamentally the life of the typhoid bacillus; so small an increment as 0.0126 organic nitrogen (parts per 100,000) causing a perceptible lengthening of life.

6. In sterilized lake water the addition of a still smaller quantity of organic nitrogen—0.0012—affects the longevity of the typhoid bacilli introduced.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, September 14 to 21, 12 cases.
Michigan: Detroit, Battle Creek, Battle Creek Township, Marshall Township, Bedford Township, smallpox reported present September 25.
Pennsylvania: Philadelphia, September 14 to 21, 1 case.
Tennessee: Memphis, September 21 to 28, 3 cases.
West Virginia: Wheeling, September 15 to 28, 1 death.

SMALLPOX—FOREIGN.

Buda-Pesth: September 2 to 9, 1 case.

Dublin: September 7 to 14, 9 cases, 1 death.
London, Eng.: September 7 to 14, 42 cases, 2 deaths.
Naples: September 7 to 14, 2 cases, 2 deaths.
Nogales: September 14 to 21, 1 case.
Odessa: August 31 to September 7, 3 cases.
Prague: August 31 to September 7, 1 case.
Rio de Janeiro: August 17 to 31, 121 deaths.
Rotterdam: September 7 to 14, 2 cases, 1 death.
Rouen: August 1 to 31, 40 cases, 6 deaths.
St. Petersburg: August 24 to September 7, 7 cases, 1 death.
Trieste: August 31 to September 7, 1 case.
Warsaw: August 31 to September 7, 1 death.

CHOLERA.

France: Cognac, August 31 to September 6, 1 case, 1 death; Paris, August 18 to 31, 6 cases.¹
China: Hong Kong, August 10 to 24, 7 deaths.
Japan: Nagasaki, August 23 to 30, 54 cases, 51 deaths; Osaka and Hiogo, August 17 to 31, 346 cases, 264 deaths.
India: Madras, August 17 to 23, 3 deaths.
Austria-Hungary: Galicia, August 28 to September 2, 9 cases, 2 deaths.
Russia: Volhynia, July 7 to 12, 49 cases, 13 deaths; July 21 to 27, 222 cases, 72 deaths; July 28 to August 3, 406 cases, 166 deaths; August 4 to 10, 1,004 cases, 322 deaths; August 10 to 17, 2,025 cases, 718 deaths; Warsaw, August 26, 1 case; Ostrog, Kremenetz, Sarpaw, Starokoustantinow, Nowogrod-walynski, Dubno, cholera reported present August 11 to 17.
Turkey: Hudavendkjar (vilayet), August 18 to 25, 82 cases, 56 deaths; Konia (vilayet), July 25 to August 25, 5 cases, 4 deaths; Adana (vilayet), August 12 to 24, 34 cases, 17 deaths; Aleppo (vilayet), August 6 to 20, 191 cases, 98 deaths; Diabekir (vilayet), August 12 to 24, 184 cases, 223 deaths; Broussa, August 26 to 19, 47 cases, 19 deaths.

YELLOW FEVER.

Cuba: Havana, September 12 to 19, 120 cases,² 39 deaths; Sagua la Grande, September 7 to 14, 1 case.
Brazil: Rio de Janeiro, August 17 to 31, 12 deaths.
Mexico: Vera Cruz, September, 12 to 19, 5 deaths.

NECROLOGY.

HENRI ADOLF BARDELEBEN, M.D., of Berlin, Germany, aged 77 years. He was born in Frankfort-on-Oder, and studied medicine in Berlin, Heidelberg and Paris. He became professor in the University at Giessen in 1848, subsequently leaving to take the chair of surgery in the University of Griefswald. In 1868 he became a director of surgical clinics in the Royal Hospital of Charity at Berlin. He was chief of the medical and surgical staffs in the wars of 1866 and 1870, and was associated with Professors Virchow and Muller in several medical works.—J. W. McAlister, M.D. of Albany, Miss., September 17.—E. W. Burnette, M.D. of New York, September 20, aged 52.—H. N. Hollifield, M.D., of Sandersville, Ga., September 23, aged 63.—Charles Bain, M.D., of Murphysboro, Ill., September 27, aged 70.

MISCELLANY.

The American Public Health Association, have elected Dr. Eduardo Liceaga, of Mexico, Mex., President of the Association for the ensuing year. The next meeting will be held in Buffalo, N.Y.

The Long Island College Hospital.—According to the *Brooklyn Medical Journal* for September, this institution has received a handsome gift from the widow of a recently deceased agent, Mr. Henry D. Polhemus. That gentleman, during his lifetime, had been a frequent contributor to the support of the school. He, with others, had more than once come to the front and saved the school from extinction. His widow now purposes to construct a memorial which will bear in perpetuity her late husband's name, and which will facilitate the training of students in an institution with which he was closely identified for so many years. The building which Mrs. Polhemus will erect, and when completed will present to the Long Island College Hospital, will be both a dispen-

¹ The Medical News, Sept. 28, 1895.

² JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 22, 1894.

¹ Choleraic deaths.

² Largest mortality from yellow fever in Havana since 1884.

sary and a medical college combined. It will be situated directly opposite the present college structure. The plans are now being prepared by the architect, and it is expected that it will be ready for occupancy in September, 1896, at the time of the opening of the college, and happily coincident with the beginning of the graded system of instruction which the college has adopted. The estimated cost of the property and building is \$250,000, and it is the purpose of Mrs. Polhemus to endow the memorial for its permanent maintenance with an additional sum of \$250,000.

New Anatomy Law in Wisconsin.—Section 1437, of chapter 58, of the annotated statutes of Wisconsin, was amended by the last Legislature so that every public officer having charge of the body of any deceased person, required to be buried at the public expense, not merely "may," but "shall without charge," deliver such body to that member or agent of the State or any county medical society, or of any legally organized medical college who shall first present to him an order therefor, signed by the president or secretary thereof, "stating" that such body will be used only for the promotion of anatomic science within the State, and that the remains shall be afterward decently buried without public charge. But, as heretofore, no body of any person who in his last sickness requests to be buried, or of any stranger or traveler who shall have suddenly died, shall be so disposed of. And no person so having charge of any such body, it is added, shall sell or deliver the same to any one to be used for scientific or any other purposes outside of the State of Wisconsin. Any officer or other person violating any of the provisions of this act shall be liable to the person, society or corporation aggrieved in the sum of \$50 damages, to be recovered in an action therefor.

The Red Cross Society of Japan.—The Japanese have grasped the humane principles and practice of the Red Cross with wonderful avidity. Miss Clara Barton, President of the American Red Cross, says: "Japan is one of the strongest Red Cross nations in the treaty since 1886, in some respects the most advanced Red Cross country in the world, with its every right protected, its Emperor and Empress not only at the head officially, but actively at the head of its national society, directing all its hospital and relief work, and challenging the world in its efficacious methods." Its first active service of importance was during the insurrection of 1877, which lasted eight months. It was then known as the "Hakuaishaka," or Society of Benevolence, and the society was not affiliated with the great international movement. When "The Red Cross Society of Japan" was finally formed, the Emperor and Empress granted it an annual subsidy of 5,000 yen (a yen is 99.5 cents) and large money and land gifts for the erection of hospitals. Princess Arisugawa, a royal scion, Princess Komatsu, with several other princesses, and a large number of ladies of distinguished families, meanwhile formed a band of nurses. After that point was reached the development was rapid, and at the present time the total membership in Japan is probably not less than 100,000 souls. Almost every prominent officer is connected with it. Altogether the society has received in gifts from the crown between 200,000 and 300,000 yen for the purpose of increasing its efficiency.

Amblyopia in Recruits.—The seventh annual session of the Ophthalmological Society of the Netherlands was held at The Hague early in June. Dr. Straub presented a report, on a series of examinations of eyes of young men, entitled "Amblyopia in Eyes of Normal Appearance." He stated that "he had examined 350 young men of almost the same age, all of whom had a visual acuity less than that required for military service, without its being possible with the ophthalmoscope to find disturbances in the media or alterations in the deep membranes. On eliminating those whose vision was not less than the average vision proper to their degree of refraction, and hysterical cases and cases of simulation, there remained 171 cases. To be absolutely sure of not fig-

uring on cases in which errors of refraction could play any part, sixty-five of these were excluded. The 106 remaining cases were divided into isometropes and anisometropes. Each group thus obtained was divided according as only one or both eyes were amblyopic, and the latter group was again divided into two parts: those with binocular vision, and those without it. The figures thus obtained seemed to prove that neither anisometropia nor absence of binocular vision can account for the amblyopia. The existence of an amblyopia, in the sense of Schwiegger, must, then, be admitted.

"Goldzieher attributes this amblyopia to traumatism of the eye at birth. Nounhoff, who has examined the eyes of fifty children who died during delivery, has found hemorrhages of the choroid in half of the cases. It is very probable that congenital amblyopia is caused by very small ruptures of the central portions of the retina, occurring during labor."

An Ancient Fee-Bill.—In a late number of *Le Progrès Médical* appears the price list charged by the executioners of ancient Paris for their services to the State, in taking life, or cutting off an organ, of convicted culprits. The writer of the article has unfortunately omitted to affix the probable date of the schedule of prices, and he does not inform us when the polite Parisians ceased to deal out the terrible punishments of "those former days." There is one item, "the Gehenna torture," that is very suggestive of heat and suffocation, but the explanatory foot note is not supplied. The executioner seems to have had two different prices for quartering a man.

AN EXECUTIONER'S PRICE LIST.

	Livres.
To boiling a malefactor in oil	48
To quartering him while alive	30
To affording a criminal passage from life to death by the sword	20
To breaking the body on the wheel	10
To fixing his head upon a pole	10
To cutting a man into four pieces	36
To hanging a culprit	20
To enshrouding the corpse	2
To impaling a living man	24
To burning a sorceress alive	28
To flaying a living man	28
To drowning a child murderess in a sack	24
To burying a suicide at cross-roads	20
To applying the torture	4
To applying the thumbscrew	2
To applying the buskins	4
To administering the Gehenna torture	10
To putting a person in the pillory	2
To flogging	4
To branding with a hot iron	10
To cutting off the nose, the ears or the tongue	10

Statement of Facts to be Covered by Medical Certificate of Lunacy.—The Massachusetts Legislature has suggested a form for a medical certificate of lunacy, covering: 1, sex, age, nativity, color, occupation, whether single, married, or widowed. 2, number of previous attacks, when present attack began. [If the patient has ever been an inmate of an institution for the insane, when, where, and for what length of time, and whether discharged, recovered or otherwise.] 3, was present attack gradual or sudden in its onset? 4, what is the bodily condition of the patient? 5, has the patient been physically injured? If so, when and to what extent? 6, is the patient subject to epilepsy? 7, is the patient cleanly in dress and personal habits? 8, is the patient paralytic, violent, dangerous, destructive, excited or depressed, homicidal or suicidal? 9, what is the supposed cause of the patient's insanity? [State both the predisposing and exciting cause.] 10, has the patient insane relatives, and if so state the degree of consanguinity, and whether paternal or maternal? 11, what are the patient's habits as to the use of liquor, tobacco, opium, chloral or other narcotic? Following this statement of facts, the examiner who makes certificate that the patient is insane, and a proper person for care and treatment in an institution for the insane, is required to state the facts on which he has formed his opinion—what the patient said to him; what the patient did in his

presence; the patient's appearance and manner; other facts indicating insanity, including those communicated by others, and what, if any, change there has been in the patient's mental condition and bodily health.

Soloids for Antiseptic Uses.—Under the above style, a well-known London firm of manufacturing chemists has introduced three or more forms of antiseptic tablets for sanitary, gynecologic and surgical purposes. One form is that of corrosive sublimate, with a sufficient quantity of an alkaline chlorid to prevent decomposition in hard water; one of these soloids dissolved in ten pints yields a solution sufficiently strong to destroy micrococci and bacilli, but this must be increased ten times—one soloid in one pint of water—for the purpose of destroying the spores of microorganisms referred to; and this is the strength usually employed in dealing with exposed surfaces, such as walls and floors of infected rooms, textile fabrics used in connection with patients, to purify the hands of operators in various surgical work, and for the proper cleansing of given skin areas whereon it is intended to make incisions. One of these soloids to a quart of water will suffice to secure an antiseptic solution suitable for sponges, instruments, etc. These soloids are colored in such a way as to make the resultant solution unlike any other liquid usually associated with the operating table or the sick room. A second variety of soloid is that of a combination of the iodids of mercury and potassium. It is claimed that this soloid possesses twice the bactericidal strength of the sublimate salt, does not precipitate albumin, is much less toxic and less liable to cause irritation. Each soloid contains .875 of the double salt, so that one dissolved in a pint of water gives a solution of 1 to 1,000 for use in the treatment of newly exposed surfaces in surgical operations, and to insure the perfect asepsis of the hands and instruments. A third preparation is called the "Local Government Board" soloid, because it is made up in such a manner that two of these soloids will afford a solution of the strength and character recommended by the Local Government Board Memorandum of 1892. These L. G. B. soloids are highly convenient, and rapidly soluble in ordinary well water, and their peculiar but perfectly harmless coloration and terebinthine odor are safeguards against poisoning by accident or mistake. White fabrics soaked in the soloid solution are stained a very light blue, but this color is nearly discharged by merely rinsing the fabric in cold water, so that no damage is caused to linen, etc., with which it may come in contact. The prices of these antiseptic tablets, per hundred, vary from 50 cents to \$1.45, "on the other side."

Abandonment of Fort Hancock, Texas.—This military post has apparently fulfilled the purpose for which it was established, for, by direction of the Secretary of War, Sept. 6, 1895, it will be discontinued and the public lands on which it is situated will be turned over to the Department of the Interior. This post was established in 1872 as an outpost on the Rio Grande, fifty-two miles southeast of the town of El Paso. At first it was called Camp Rice, and was looked upon as of so temporary a character that no mention was made of it in the Barrack Circular published by the Surgeon-General's office in 1875. At that time Dr. J. J. Hammond gave advice as follows to medical officers who were ordered to duty in the Department of Texas: "The service is essentially frontier service, including garrison duty, escort duty and duty with scouting parties, and medical officers coming here for a tour of duty should provide themselves accordingly. There is little time or opportunity for the enjoyment of luxuries. There is no society outside of the garrison; and this gives an opportunity to officers to avoid living beyond their means. Letter paper, envelopes and pens should be brought along; slat cots with legs to fold up, for bedsteads and lounges, and hair mattresses and pillows are most suitable. Wash stands and ottomans can be extemporized from boxes and barrels. Chairs not glued together, or camp stools are the best as being less costly to transport. Bare floors in summer, and mat-

ting or oil cloths in winter, are more healthy and more appropriate than carpets, etc."

All this became changed with the opening of the Southern Pacific Railroad. Fort Hancock became a permanent post built of brick, raised two feet from the surface on stone foundations. Although 2,500 feet above the sea level the site was a flat of sandy loam, covered with chapparal and liable to overflow because only a few feet higher than the banks of the Rio Grande. The barracks was a long, two-storied building, roofed, like all the other buildings at the post, with shingles, and with a wide veranda along its sides. The lower story contained the orderly room, store room, library, kitchen and dining room, baths and tailor's shop; the upper, the dormitories, well lighted and with ridge ventilation. The officers' headquarters were commodious brick cottages. The hospital consisted of one ward of eight beds, with doctor's office, dispensary, steward's room, attendant's room and baths in the main building, and kitchen, dining room and store rooms in a frame addition. The water supply was pumped from a well near the bank of the river into tanks, one of which was used for sedimentation, a second was used as a distributing reservoir, and a third with a higher water level was kept as a reserve in case of fire. There were three-fourth inch pipes for service in all the buildings and nine hydrants at suitable points for the fire service. Waste water was carried into cesspools; excreta disposed of by the dry earth system in galvanized iron boxes, and garbage carted to a dumping ground a mile distant from the post. During the day in summer the temperature ranges from 95 degrees F., to over 100 degrees, but the nights are generally cool and comfortable. The mean temperature of the winter months is about 40 degrees, but sudden changes are then more likely to occur than during the summer months. Fogs are of rare occurrence, but high winds and dust so frequently prevail as to be a cause of nasal and bronchial catarrh. Many cases of malarial fever have been reported from this post, but in most of them the disease was probably contracted when the troops were on scouting duty in other parts of the Department.

Electrolysis in Detachment of the Retina.—The *Annales d'Oculistique* for July contains a report by Dr. Terson, of Toulouse, of twelve cases of the above treatment. The cases were all serious and some of them desperate in their gravity. One of these resulted in a recovery that has lasted nine months; there was improvement in five cases continuing from two to nine months; there were two with negative results and in one case the trouble was aggravated. The report of the successful case is given, in part, below:

"A female 34 years of age, a seamstress, came to the ophthalmologic clinic of the Hôtel-Dieu at Toulouse, on August 6, 1894, stating that eight days before she had lost the sight of her right eye. She had at first noticed a black mass which prevented vision on the nasal side, and then in a few hours the curtain advanced to the middle of the eye, and little by little invaded the entire eye, so that on the next day she could only distinguish light from darkness. It was in this condition that I saw her. She had always been myopic, and had always seen less with the right eye than with the left, of which she did not complain. On inspection, I noticed that the anterior chamber was of abnormal depth, the pupil reflex was very weak, and the iris trembled slightly. The fundus of the eye had a dirty, yellowish appearance, like that seen at the commencement of infection. The tension was manifestly diminished. On ophthalmoscopic examination, I found an extensive sac-shaped detachment, which included more than a third of the retina. The disc was scarcely distinguishable, on account of a generalized cloudiness of the vitreous humor. The left eye was myopic 7 dioptries with weak vision.

"Although considering this condition as desperate, I submitted the patient to electrolysis, and applied a current of $5\frac{1}{2}$ milliampères for one minute. No reaction occurred. Forty-eight hours after, I had the patient get up to make an ophthalmoscopic examination. The removal of the bandage was a revelation. The vitreous, which had regained its transparency, enabled me to see atrophic disseminated choroidal plaques and a macular lesion. There was no longer a trace of detachment of the retina. The anterior chamber had become more shallow, and the pupil reflex was normal. Wishing to follow the experiment to the end, I did not prescribe any further treatment. On the sixth day there was no trace of detachment. The external appearance of the

eye was the same as that of the healthy eye. Vision was one-tenth, with -12 dioptries, and the visual field normal. The patient left the hospital on the fourteenth day. She had been in bed in all four days. No after treatment was employed. Nine months after the operation, vision was still one-tenth and the visual field had remained normal."

The one untoward result had by Dr. Terson was in a case of very old detachment; the operation was followed in a few hours by an irido-choroiditis that brought about the loss of what remained of vision. So that he has concluded never to apply electrolysis where the detachment has existed for more than two or three months. Dr. Terson closes his paper by formulating the following conclusions:

"1. Positive electrolysis should be applied to recent retinal detachment, and it will have the greater chance of success the sooner it is used after the onset of the accident.

"2. This method of intervention interferes in no way with the use of all the medical methods recommended for lesions of diathetic origin, the value of which has been shown by long experience, from the palliative standpoint.

"3. Clinical observation and experiments on animals prove that the application of a current of 5 milliamperes of one minute duration is inoffensive to the eye."

A Symposium of Surgical Writers—The Antiseptic Field—Surgery of the Future.—In a recent issue of the *Independent*, namely that of September 12, appears a series of articles by a dozen or more prominent American surgeons and physicians, among whom are Drs. Arpad G. Gerster, William O. Moore, Samuel E. Milliken, George R. Fowler, Charles A. Powers, Charles Jewett, Frederick Peterson and Samuel Lloyd. The object of the symposium appears to have been to show to the popular mind the progressive attitude of modern surgery; that modern methods are as little like those of the early part of this century—or earlier—"as the railway train is like the old lumbering stage coach." This demonstration is not difficult to be made, but it can be made attractive or unattractive, according to the way in which it is handled. The treatment of the subject, in this instance, has been given into the hands of men of eminent qualification, and will be a welcome summary even and especially to those whose duty it is to teach the art of surgery. Professor Gerster makes a forecast as to the surgery of the coming century. He does not find a promise of so great progress in the near future as has marked the last quarter of a century; but he is nevertheless hopeful of a continuous line of progress, one item of which will be the simplification of antiseptic methods. On this point, and especially that important aspect that concerns military and rural surgery, he writes in the following vein:

"Although the principles governing wound treatment can safely be declared to be firmly established, yet the fact remains unchallenged, that a simplification of the aseptic and antiseptic apparatus is much needed, especially in its application to country practice, and still more so to the needs of the battlefield. With the stupendous increase of the numbers of the modern soldier, whose weapons far exceed in destructiveness anything hitherto seen, the number of the wounded must be enormous even after a short engagement of two large armies. A comparison will best illustrate the facts. Where formerly, with slow fire, limited carrying power of firearms and occasional hand-to-hand encounters, the number of wounded brought to the stations where they received the first surgical aid was comparable to a swollen torrent, yet confined to its bed, now the inrush of the wounded will become an inundation, taxing the energies of an increased, doubled or quadrupled corps of field surgeons to the limits of utmost human endurance, to be followed by pauses where a large proportion of the surgical personnel will be more or less idle. The increase of the carrying capacity of the modern small arm would either necessitate the withdrawal of these field-lazareths (*Verbandplätze*) to a safe distance, say of from two to three thousand yards from the line of action—apparently an impracticable matter—or, where the topographical conditions do not offer any protection, the work of the surgeon will have to be performed under the same risks to all concerned, as that of the combatants. Many of the field surgeons of the future century

will shed their blood on the battlefield, and simple fairness and justice will compel all governments to accord to the military surgeon the insignia and prerogatives of a combatant.

"To be able to forecast even in a very general way the trend of surgical progress in the near future, is very difficult; in fact, impossible. Yet it is safe to say that the nature of human genius will have the tendency to attack by preference problems as yet unsolved or imperfectly understood."

Craig Colony for Epileptics.—Dr. Frederick Peterson has prepared the following answer to correspondents in regard to the Craig colony:

The object of a colony for epileptics is to provide for the four great needs of these unfortunates: 1, to give them schools where they may be educated as other children and young people are; 2, to afford them industrial training in any sort of occupation they may desire to follow; 3, to provide those epileptics a home to whom all other doors are closed; 4, to treat every case of epilepsy according to the best known scientific methods.

Epilepsy is a peculiar disease, characterized by loss of consciousness and a convulsion. The fit or epileptic seizure occurs from time to time, and may last from a few seconds to a few minutes, sometimes longer. Some patients have fits every day or oftener, some once a week, some once a month, some only once or twice a year. It is only during the fits that they are incapacitated. At other times they are well and strong and healthy looking, and quite as able to work and study as are other people. But the fact that they have these fits, no matter how rarely, debars them from many of the privileges enjoyed by their more fortunate brethren. They will not on that account be received into the public schools, and can receive no education. They can not attend church or social gatherings. They are shunned by their playmates, and they become burdensome to their families. When they grow to adult life no one wishes to employ them, so, although they are able to learn a trade or profession, the shops and colleges are closed against them. No general hospital receives them as patients, and, in fact, there is no place at all which is open to them except an almshouse or an insane asylum, and as the insane asylum is better than the almshouse, many patients are sent there in preference to a poorhouse. There are 120,000 epileptics in the United States. There are some twelve thousand in the State of New York, of whom more than one thousand are in almshouses and asylums on public charge.

Craig Colony, named for the late Oscar Craig, of Rochester, formerly President of the State Board of Charities, consists of nearly one thousand nine hundred acres of land in the Genesee Valley. It is reached by two trunk lines of railways (the Erie and the Delaware & Lackawanna) and from roads centering at Rochester by the Western New York & Pennsylvania Railroad. The colony has its own postoffice and railway station known as Sonyea, an Indian word signifying sunny place. The land is extremely fertile and beautifully diversified with fields, woodlands, meadows and glens. The farms, gardens and orchards are already in a high state of cultivation, and will yield this year an income of \$12,000 to \$15,000.

The law establishing the colony required that it should be arranged on the village plan. To this end the services of Frederick Law Olmsted, the landscape architect, were secured by the Board of Managers, and he has prepared the scheme of an industrial and agricultural village upon the best principles. There are already many buildings upon the grounds (some thirty or forty) which are to be immediately utilized. Craig Colony will not resemble an institution in any particular, but will look more like a country town than anything else. As the patients are received, they will be set to work or at study in various ways. They will take care of the farms, gardens and orchards; and they will plan and build new houses. There will be among them tailors, shoemakers, printers, bookbinders, masons, ironworkers, carpenters, painters and so on. In fact, every sort of employment, every sort of recreation, everything in short that goes to make up the life of a country village, will be found in this colony, the only difference being that the citizens of this community will be epileptics.

The resources of the land are such that almost everything in the way of food for the inhabitants of this unique village can be raised by themselves, and their surplus agricultural and manufacturing products judiciously managed can make the colony practically self-supporting. Thus the 1,000 patients already upon public support in this State are to be no longer a burden to the taxpayers.

Work has been progressing very rapidly during the year to prepare existing buildings for the reception of patients. The first quota of patients, numbering sixty, will be taken from the almshouses early in November. We propose to receive 200 during the winter and perhaps more. Estimating the capacity of the present buildings at 300, we shall need additional buildings during the coming year to accommodate 300 more patients, before the 600 now in the almshouses can be cared for.

The patients taken from the almshouses and asylums will be known as State patients, and they will be provided for before any private patients can be received. They will be sent to the colony by the poor authorities of each county according to a form required by law, the blanks for which will be furnished on application to the State Board of Charities or the superintendent of the colony.

As soon as all epileptics now upon public charge, eligible for admission to the colony are provided for, private patients will be received at prices to be regulated by the board of managers, according to the kind and extent of care and attention required. Such patients may, if it be desired, erect cottages for their own use upon the grounds, upon application to the board of managers.

There will be no restriction as to the age of patients admitted, and the only restriction practically applies to the mental condition. Insane epileptics, or epileptics subject to insane outbreaks, can not be taken into the colony.

The law permits the board of managers to take and hold in trust for the State any grant of land, gift or bequest of money, or any donation to be applied, principal or income, or both, to the maintenance and education of epileptics and the general uses of the colony. Charitably disposed people have here an opportunity for the beneficent use of money, and it is hoped that memorial buildings in the way of chapel, library, museum, gymnasium, school, shop, or cottage houses, bearing the donors' name, may in time be erected.

The State Board of Charities has jurisdiction over this colony. The board of managers consists of Dr. Frederick Peterson, President, 60 West Fiftieth Street, New York; Mrs. Charles F. Wadsworth, Geneseo, N. Y.; H. E. Brown, Mount Morris, N. Y.; Secretary; W. H. Cuddeback, Buffalo, N. Y.; Dr. Charles E. Jones, Albany, N. Y.; L. L. Oatman, Buffalo, N. Y.; Judge O. P. Hurd, Watkins, N. Y.; Jeanette B. Hawkins, Malone, N. Y., and H. A. Phillips, Lowville, N. Y. The Medical Superintendent is Dr. William P. Spratling, Craig Colony, Sonyea, N. Y.

Society Notes.

AMERICAN ACADEMY OF RAILWAY SURGEONS.—At their annual meeting, the Academy of Railway Surgeons elected the following officers: President, Dr. John E. Owens, Chicago; First Vice-President, Dr. L. E. Lemen, Denver, Colo.; Second Vice-President, Dr. F. H. Peck, Clinton, N. Y.; Secretary, Dr. Webb J. Kelly, Galion, Ohio; Treasurer, C. B. Kibler, Corry, Pa.; Editor, Dr. R. Harvey Reed, Columbus, Ohio. Place of meeting, Chicago, September, 1896. The papers read at the meeting will appear in full in this JOURNAL.

Philadelphia Notes.

THE FREDERICK DOUGLASS MEMORIAL HOSPITAL AND TRAINING SCHOOL FOR NURSES, designed exclusively for colored patients, has just been opened on Lombard Street above Fifteenth, in a neighborhood most populated by colored residents. It is a new three-story brick structure, with a capacity of from forty to fifty beds. An out-patient department and dispensary is located on the lowest floor. Dr. N. F. Mossell, the chief of the medical staff, was graduated in 1879 by Lincoln University, and in 1882 by the University of Pennsylvania, and is said to be the first colored alumnus of the Medical Department. The following is the staff of the hospital: Consultants: Physicians, James Tyson, Roland G. Curtin; Surgeons, John B. Deaver, Thomas G. Morton; Gynecologists, B. F. Baer, Hannah T. Croasdale. Attending Physicians: E. Clarence Howard, Wm. H. Warriek; Surgeons, Henry B. Wharton, N. F. Mossell; Gynecologists, Caroline V. Anderson, George R. Hilton; Children's Diseases, James T. Potter, D. W. Ogden; Ophthalmologists, H. F. Hansell, A. A. Stevens; Dental Surgeon, William A. Jackson; Pharmacist, Henry M. Minton; Resident Physician, D. W. Postles. The training school for nurses is under the direction of Miss Minnie M. Clemens, who is also matron and head nurse.

She is said to be the only woman of the African race who has graduated from the Training School for Nurses of the Hospital of the University of Pennsylvania.

PHILADELPHIA COUNTY MEDICAL SOCIETY.—At the meeting held September 11, Dr. E. Rosenthal read a paper on "The Treatment of Diphtheria with Diphtheria-Antitoxic Serum." He gave very favorable statistics and stated that although he had lost two cases after Behring's serum, in every case in which he had used the serum made in this country, his patient had recovered. While the necessity for intubation or tracheotomy is not obviated, or reduced, yet the duration of treatment is lessened, which is an important point when the patient lives at a distance and has to be frequently visited. In the discussion, the view was maintained that the antitoxic serum does not do away with the usual measures for disinfecting the throat and treating the general symptoms; but a protest was entered against too frequent local applications, twice a day being considered sufficient, more being useless and often harmful. Dr. Julius Salinger reported a case of diabetic gangrene, in which marked improvement ensued upon the administration of oxygen by inhalation up to one hundred and fifty gallons daily. The case continued for sixteen weeks and was recovering apparently, a line of demarkation having formed and the urine containing much less sugar and albumin, when the patient accidentally injured himself by a fall out of bed and then sank and died of shock and coma. Boulimia was a marked feature of the case after the inhalations had been begun, and was accompanied by distinct improvement in general nutrition.

St. Louis Notes.

HEALTH OF THE CITY.—The weekly mortality report for the week ending September 28 gives 182 deaths, 3 less than the preceding week, and 17 more than for the corresponding week of 1894. The death rate for the week is 17 per 1,000. There were 46 deaths due to zymotic diseases. But 1 death was the result of typhoid, while 21 were ascribed to diphtheria, and 4 to croup. Diphtheria is becoming alarmingly prevalent. From June 1 to September 21, 548 cases of diphtheria have been reported, with 142 deaths. The opening of the public schools brought an immediate increase in the number of cases, so that during September, almost as many cases of diphtheria have been reported as during the entire summer in previous years. The Health Commissioner attributes the spread of the disease to laxity on the part of physicians in reporting cases. For this there is now no valid excuse, nor for delay on account of uncertainty in diagnosis. The Health Department offers every facility for making the diagnosis certain, by the free bacteriologic examination of every suspected case. The efforts of the Health Commissioner to check the spread of the disease are most commendable, and he should have the zealous support of every practitioner in the city.

DIPHTHERIA ANTITOXIN.—The Health Department is making progress in its efforts to produce this remedy.

ST. LOUIS MEDICAL SOCIETY.—The first winter meeting of this Society occurred on September 28, with a rather meager attendance.

THE STATE BOARD OF HEALTH AND MEDICAL EDUCATION.—This year the board has insisted upon the following rules governing the matriculation of medical students: (a), creditable certificates of good moral character; (b), diplomas of graduation from a good literary and scientific college or high school, or a first-grade teacher's certificate.

In addition, the following resolutions of the board are operative:

Resolved, That a college in good standing with this board shall be one in which the course of instruction is a graded one.

Resolved, That the Secretary of this board be and is hereby instructed to request of the medical colleges of this State proof that they are complying with this resolution. The proofs shall consist of a sworn statement of the dean or

president and the secretary of each school, which shall embrace certain questions specifically set forth.

The rules of the board are specifically directed against any medical school that holds preliminary examinations for its incoming students, and its strict application of them will exclude the graduates of nearly all medical schools from practice in Missouri, save after an examination approved by the board. Granting that the board is actuated by a praiseworthy desire to elevate the standard of medical education and practice, it would seem that these efforts to obtain that end were at least ill-considered. In the first place, there is no uniformity in the attainments of those who may possess high school diplomas; in the second place, no difference is made between the high school diploma and the diploma from a college. In all reason, a certificate of entrance to a college should be equivalent to a high school diploma. In the third place, the exaction of a teacher's first-grade certificate is evidently the result of ignorance of the common requirements for such a certificate. For in many States the applicant for such a certificate must give evidence of having been a teacher for three years. The better colleges of the city are in full sympathy with the board in their effort to raise the standard of medical education, but the faculties will doubtless oppose the continuance of rules which will ultimately give them only local students. This year the regulations of the board have injured only the weaker colleges of the city and State.

THE MARION-SIMS COLLEGE OF MEDICINE opened on the 24th ult. with a class of 325.

HOSPITAL ABUSES.—During the week, investigation has shown that there have been gross abuses at the Female Hospital during the past year. The exhuming of several coffins shows that an unlawful traffic in bodies was carried on at the hospital.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended September 21, is as follows: number of deaths white, 52; colored, 61; total, 113. Death rate per 1,000 per annum, white, 14.41; colored, 36.08; total, 21.32. Death rate per 1,000 per annum for corresponding week last year, 20.76. There was a decrease in the death rate last week. The deaths reported to the Health Department numbered 113 as against 122 in the week before. The annual rate fell from 23.02 to 21.32. As compared with the last report the mortality from diarrheal diseases declined from twenty-one to twelve, that of infants under 5 years old from forty-nine to thirty-eight, and that from typhoid fever from twenty-one to thirteen. The investigation into the cause or causes of the prevalence of this latter malady in the District, as referred to in last week's report, is still in progress, with a view to the adoption of such remedial measures as possible. Aside from this disease the city is comparatively healthy, being quite free from contagious affections and malarial troubles, with a continuously decreasing mortality from summer complaints.

MEDICAL DEPARTMENT OF GEORGETOWN UNIVERSITY.—The opening exercises of the Georgetown Medical School took place on September 30. Surgeon-General George M. Sternberg, U. S. A., delivered the inaugural address.

MEDICAL DEPARTMENT OF THE COLUMBIAN UNIVERSITY.—The opening exercises of the Columbian Medical School took place on October 1. The address was delivered by Dr. W. W. Johnston.

MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA.—The regular meeting of the Association was held on October 1. The election of new members was the principal business.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.—The regular weekly meeting of the society was held October 2. Dr. Wm. P. Carr delivered an essay on "The Nature and Treatment of Tumors of the Breasts."

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The annual meeting of the society took place October 4. The President, Dr. H. D. Fry, delivered the Presidential Address. The annual banquet will take place on October 18.

DR. S. C. BUSEY has almost entirely recovered from his late accident.

THE EASTERN DISPENSARY.—A committee representing the dispensary called upon the Commissioners during the week,

for the purpose of getting the latter to include in their estimates to Congress an item of \$10,000 for the purchase of the building and ground occupied by the dispensary on Delaware Avenue.

GARBAGE DISPOSAL.—The crematories for the disposal of garbage will, in all probability, be completed on or about January 1. The contractors for the work have agreed to build the plant and submit it to test for three months without cost to the District. If they are satisfactory they will be accepted; if not, they are to be removed at the expense of the contractors.

THE COLUMBIAN UNIVERSITY'S NEW PRESIDENT.—The new President of the Columbian University, Dr. B. L. Whitman, has arrived and formally entered upon his new duties. The President is particularly interested in the Medical Department, and his connection with the school will in itself greatly increase the number of students.

THE PUBLIC SERVICES.

The Retirement of Medical Director Gihon.

MEDICAL DIRECTOR ALBERT LEARY GIHON, U. S. Navy, was retired September 28. He was born in Pennsylvania in 1833, and the naval record of this officer is unsurpassed by any member of his corps. His phenomenal public services entitle him to public recognition, and his long and faithful service in our Association has endeared him to its members. The members will be pleased to know that DOCTOR GIHON will be even more active as a medical writer, now that he is free from official care, and the readers of the JOURNAL are promised occasional articles from his forceful pen. Few write with more elegance and none from broader sources of information.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 21, 1895, to September 27, 1895.

Major Joseph B. Girard, Surgeon (Presidio of San Francisco, Cal.), is granted leave of absence for one month, to take effect about the 5th proxima.

Major James C. Worthington, Surgeon, is granted leave of absence for three months, on surgeon's certificate of disability.

A board of medical officers, to consist of: Col. Charles H. Alden, Asst. Surgeon-General; Lieut.-Col. William H. Forwood, Deputy Surgeon-General; Lieut.-Col. David L. Huntington, Deputy Surgeon-General; Major Charles Smart, Surgeon; Major Walter Reed, Surgeon, is constituted to meet at the Army Medical Museum Building in Washington, D. C., on Tuesday, Oct. 1, 1895, at 10 o'clock A.M., for the examination of candidates for admission to the Medical Corps of the Army. Major Henry Lippincott, Surgeon, is relieved from duty at Ft. Adams, R. I., and ordered to Ft. Sheridan, Ill., for duty, relieving Major Alfred C. Girard, Surgeon. Major Girard, on being thus relieved, is ordered to Ft. Douglas, Utah, for duty, relieving Major Charles L. Heilmann, Surgeon. Major Heilmann, on being thus relieved, is ordered to Ft. Adams, R. I., for duty.

Capt. Richard W. Johnson, Asst. Surgeon, will be relieved from duty at Ft. Huachuca, Ariz., upon the arrival there of Capt. William J. Wakeman, Asst. Surgeon, and ordered to Ft. Logan, Colo., for duty.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 28, 1895.

Surgeon D. Dickinson, detached from the "Minneapolis," and ordered to examination for promotion.

Surgeon D. N. Bertolette, detached from the "Atlanta," to duty on the "Minneapolis."

LETTERS RECEIVED.

Anderson, Willis S., Detroit, Mich.; Allport, Frank, Minneapolis, Minn.; Ashmead, A. S., New York, N. Y.; Adams, D. S., Manchester, N. H.; Anikamnia Chemical Co., St. Louis, Mo.

Babcock, Sadie, Osage, Iowa; Battle & Co., St. Louis, Mo.; Bishop, D. D., Chicago, Ill.

Cochran, Jerome, Montgomery, Ala.; Castle, Wilmot & Co., Rochester, N. Y.; Clift, Frederic, St. George, Utah; Clarke, A. P., Boston, Mass.; Cantrell, G. M. D., Little Rock, Ark.; Colburn, I. M., Richland Center, Wis.

Dewey, W. F., Petersburg, Va. Freudenthal, W., New York, N. Y.; Feld, A. G., Des Moines, Iowa.

Gallagher, T. J., Denver, Colo.; Graham, A. J. & Co., New York, N. Y.; Gillette, W. J., Toledo, Ohio.

Hummel, A. L. (2), New York, N. Y.; Henry Pharmacal Co., Louisville, Ky.

Ingals, E. T., Chicago, Ill. Johnson, H. L. E., Washington, D. C.

Kempker, J. F., Keokuk, Iowa; Keiper, G. F., Lafayette, Ind.; Kellogg, J. H., Battle Creek, Mich.; Koplik, Henry, New York, N. Y.; Klingensmith, J. P., Blairsville, Pa.

Mayo, W. J., Rochester, Minn.; Marchand, Chas., New York, N. Y.; Martin, J., Davis, So. Dak.; Mann, E. C., New York, N. Y.; McDill, J. R., Milwaukee, Wis.; Madden, Jno., Milwaukee, Wis.

Newman, H. P., Chicago, Ill.; Norbury, F. P., St. Louis, Mo.; New York Post-Graduate Medical School, New York, N. Y.; Newman, H. P., Philadelphia, Pa.; Noyes, W. B. (2), New York, N. Y.

Pettyjohn, E. S., Alma, Mich.; Pollock, R. M., Princeton, Ill. Ruggles-Gale Co., Columbus, Ohio; Reynolds, F. R., Eau Claire, Wis.

Reyburn, J. A., Elk Horn, Va. Sanderson, A. J., St. Helena, Cal.; Shepard, C. H., Brooklyn, N. Y.

Stearns, F. & Co., Detroit, Mich.; Small, E. H., Pittsburg, Pa.; Senn, N., Chicago, Ill.

Ulrich, C. F., Wheeling, W. Va. Ward, M. R., Pittsburg, Pa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, OCTOBER 12, 1895.

No. 15.

ORIGINAL ARTICLES.

ANTIPHTHISIN IN TUBERCULAR AFFECTIONS OF CHILDREN.

Read in the Section on Diseases of Children at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY PROF. EDWIN KLEBS, M.D.

DIRECTOR OF THE LABORATORY FOR THE STUDY OF TUBERCULOSIS; CONSULTING PHYSICIAN IN THE WINYAH SANITARIUM. ASHEVILLE, N. C.

The therapeutic application of antiphthisin has thus far been limited to comparatively few practitioners, partly on account of limited production, and partly because the remedy was only furnished to such as gave us assurance that they would restrict its application to cases which were not too far advanced in the disease, and in which we could still hope for its beneficial effects.

The reason for restriction is apparent by the well-known fact that specific medication can only be fully effective, when it is applied to pure uncomplicated cases, to the exclusion of those in which other pathologic processes are also present.

It would certainly be unreasonable to demand that this remedy which has a specific germicidal effect upon the tubercle bacillus only, shall also remove and cause the cure of pathologic changes, which result remotely from the primary cause and, more unreasonable still, that the remedy shall also favorably influence and cure complications, which like infection with other pathogenic germs have no relation to tuberculosis at all, more, than that they may be associated in the same patient.

In all such cases it is necessary to remove the complications by other treatment, either before or in conjunction with the application of the specific remedy; but the final results are determined by the importance and curability of such attending pathologic processes.

We see thus, that the use of a specific germicidal remedy can only be fully effective when the disease is still uncomplicated by secondary degenerations, and is free from complications which, unfortunately are present in most cases of tubercular disease as they come under our notice; there are, however, not a few cases of purely tubercular affections in an early stage in which the results of specific medication are highly satisfactory. In such cases I have every reason to believe, that under proper use of the germicidal products obtainable from the bacillus of tuberculosis, a cure will result almost without exception. For these as in all other therapeutic efforts the only unavoidable condition is that the organism itself shall still have the power to use and appropriate the introduced curative substance; for under no circumstances can we otherwise conceive the cure of disease, than that the living organism must, itself, take an active part in its removal.

Since the living organism can not by any means be compared with dead substances or matter which we can disinfect, regardless of the changes which occur within it, we have little to hope from chemic or physical means in the form of high temperatures, acids, alkalies, etc., and all hopes in this direction have thus far been changed to disappointment; their action having invariably been found a distinctly local one; beyond their direct application, they lose their intended effectiveness in the living organism by their undergoing insoluble or inert chemic combinations, by saturation or by diffusion.

With specific germicidal agents we have become acquainted only within more recent years, and, so far, they all are products of specific germs and not subject to changes such as we have learned do occur in the chemic and physical agents referred to; on the contrary, we observe them to reach the diseased structures directly and uninjured, and to become effective there.

This fact is not explained by assuming with Robert Koch, a peculiar affinity or attraction, the same as was taught by older schools of medicine to be the action of drug remedies, but by the imbibing and transportation of these curative substances through the agency of leucocytes.

For this, speak the penetration of leucocytes into the tubercular tissues and the production there of a substance which behaves peculiarly to certain anilin dyes, and the presence of which can only then be demonstrated when the specific curative substance has been introduced and has inaugurated the cure.¹ With this occurrence we see the tubercle bacilli diminish and disappear, while within the coagulated protoplasm of tubercular cells, the nuclei appear again in their normal coloring properties.

Upon the basis of such experimental observations, we can explain and understand why we are able to favorably influence specific pathologic changes within the living organisms with relatively small quantities of the specific remedy, and this I have shown to be the action of antiphthisin, while the crude tuberculin at the same time produces injurious effects, containing as it does, all the toxic substances produced by the tubercle bacilli in their cultures.

It was necessary to preface this paper by the foregoing remarks in order to show the importance of proper selection of cases, and to also indicate the limitations of the remedy.

Among the favorable uncomplicated tubercular processes are, in the first place,

THE TUBERCULAR AFFECTIONS OF CHILDHOOD.

That the heretofore available therapeutic agents are insufficient for the treatment of scrofulosis is easily demonstrated, and I need only to point to the unsatisfactory results in the tubercular affections of bones and joints of children.

¹ Klebs' Tuberculose, page 211.

The frequently observed cheesy myelitis of the long bones, although subjected to resection, is often followed by renewals of the process, which may finally compel ablation of the entire limb, and even with such radical operation, the life is not infrequently lost through extension of the disease to the pelvis, the spine or to internal organs.

These cases are peculiar in the often observed long duration of the tubercular disease, although extensive destructive processes and extensive involvement of the glandular structures are present, without seriously damaging the general condition of the patient, a fact which makes them especially adapted for the treatment with antiphthisin.

The danger of depending for the ultimate success upon the heretofore customary treatment is, however, shown, by the unexpected occurrence of inflammation and suppuration, by the advent of which the favorable time for specific medication has been lost, while the insufficiency of internal medication is also demonstrated; and we can not emphasize too much the fact, that scrofulous affections are primarily of a tubercular character, which so long as they remain purely tubercular, run their course without inflammatory complication.

It is entirely the same with all other scrofulous and tubercular affections which, so long as inflammation and suppuration have not occurred, are all amenable to the antiphthisin treatment.

What clinical results may be obtained will appear from a short resumé of cases treated by me, the number of which I regret is not as large as I could wish.

In giving my experience, I divide my cases into several natural groups, the first of which I may call

THE LATENT TUBERCULOSIS OF CHILDHOOD.

Of this group we find numerous examples in tubercular families. The, at birth, apparently healthy children, show sooner or later a retardation in growth and that pale appearance, with thick upper lips, which may remind us of myxedema, and which on the whole we call the scrofulous diathesis. In other cases the organism is simply retarded in its development, sometimes altogether, often only in length, the children remaining then short only; in other instances they grow rapidly in length, at the expense of corresponding breadth and fullness. In any case, the absence of glandular swelling may simulate nutritive disturbances due to other causes which the physician hopes to overcome by dietetic and roborant treatment, and although at times successful, failure to correct the evil is by no means an exception, and the truly present latent tuberculosis is attested by the common saying that "such children sooner or later become tuberculous."

Just upon this point I desire to distinguish between the more modern views based upon bacteriologic research and the older theories based upon empirical observations only.

We fortunately know now quite well, that tubercular infection does not necessarily cause stormy or violent symptoms, but that, on the contrary, it may remain latent for many years, and only show its presence by more or less nutritive disturbances which, instead of being predisposing conditions, are in fact the expression of the already present tubercular disease.

If any experienced observer would still doubt this, he can certainly recall cases from his practice, in

which the history shows such nutritive disturbances having been present in childhood, and in which during youth or early manhood a more rapidly developing tuberculosis occurred. Neither will he have missed cases in which such latent tubercular affections have been approximately recovered from during childhood, and who, nevertheless subsequently, perhaps after considerable lapse of time, died of the disease. Such cures when obtained through dietetic and climatic influences are, as a rule, not lasting; they do not assure against a later development; indeed, they may carry with them even a certain degree of danger, and I have repeatedly seen cases of young strong subjects in which suddenly, in connection with unusual or violent exertion, the acutest forms of pulmonary tuberculosis occurred. In such cases we can then show anatomically a small, not previously diagnosed cavity from which dissemination of the tubercle bacilli took place as a consequence of such over-exertion.

The practical physician may reply, that we certainly can not look upon all badly developed or poorly nourished children as tubercular, and this is not the case, neither is it necessary to here consider the other causes for nutritive deficiency in childhood. But I consider it quite certain that by far the greatest number of such cases are subjects of latent tuberculosis, especially when no other good and sufficient cause is apparent. The question is, How are they to be diagnosed, when the physical examination of organs is negative?

The answer is very simple; and it is a matter of surprise that the method of which we avail ourselves for recognition of latent animal tuberculosis has not been taken advantage of for diagnostic purposes in the human subject also.

The greatest credit is due to certain American health authorities and statesmen to have first made practical use of a scientific fact in the systematic application of tuberculin for the recognition of latent tuberculosis in cattle, and history will recognize it equal in importance to the introduction of vaccination for smallpox.

One might well ask why this simple and sure procedure has not found recognition and practice for the diagnosis of latent tubercular affections in the human subject? Whatever the answer may be, whether due to the objection of patients and parents, or to want on the part of the physician of proper insistence for such test, or whether the neglect lies in the newness of the procedure, as contrary to existing modes and habits; the members of the medical profession can not ignore and escape this issue, for the truth of its value is beyond doubt, and the test must be insisted upon in all cases where the diagnosis can not otherwise be sufficiently established.

Among my cases of latent tuberculosis, I will call your attention to but few.

Case 1.—G. B., a delicate girl aged 6 years, has been the subject of cough without any physical evidence on the part of the lungs; she was highly anemic, with deficient development of the osseous and muscular system; there was also slight swelling and tenderness of the cervical glands; râles could be shown in both apices; after the use of 20 cubic centimeters of antiphthisin, the child not only lost her cough entirely with disappearance of the râles, but she improved remarkably in general health and appearance, and has since remained entirely well.

Case 2.—N. B., child 10 years old, tall and slender; the father died of tuberculosis. There were only slight differences in the percussion note. Very careful percussion

showed, however, slight dullness in left apex posterior, on the right side posterior a little more marked relative dullness extended to the spine of the scapula. In this locality inspiratory ronchi were also present and extended further downward; in several places, there was also blowing expiration, especially over right apex.

After the use of 50 cubic centimeters of antiphthisin in thirty-two days, when she was discharged, the child gained two and one-half pounds; coughed only occasionally; no more dullness could be demonstrated, and since then has been entirely well.

Case 3.—O. St., boy 13 years old,² suffered from asthmatic attacks for the last year; is imperfectly developed for his age; lips and nose thickened; has been mentally retarded also. Hydrotherapy, climatic influence and local treatment of the nose have been of no benefit. Weight 107 pounds, low temperatures, between 36.5 and 36.7 C.; frequent coughing paroxysms, especially nights, and with considerable dyspnea. Physical examination showed moderate dullness over left lung, posterior to middle of scapula, and supraclavicular in front; also a small area of dullness at lower angle of right scapula; auscultation over left apex front and back gave blowing expiration and harsh inspiration, with here and there accompanying ronchi, also roughened respiration over the dull area at lower angle of right scapula. At times expectoration, but none obtainable for examination, the expectoration disappearing entirely in the early part of the treatment. After six weeks his weight had increased seven pounds, there was no cough, no asthma, and his general health was so completely restored, and his appearance so improved, that his mother upon her arrival could hardly recognize him to be the same child. Physical examination showed nothing abnormal in his respiration; slight difference on percussion was still present.

Under the influence of specific medication the tubercular intoxication apparently ceased, and the deficient nutrition gave place rapidly to normal conditions. This case is the more interesting since long-continued climatic and hydro-pathic influences, as also the local treatment of the nose, were entirely without benefit.

Since percussion differences were still existing, I did not consider this case as radically cured, but it is fair to presume, from the result obtained, that by timely repetition of the treatment further tubercular development can be prevented.

In a second group of cases, I include:

PURE NON-COMPLICATED SCROFULOUS AFFECTIONS.

Since the term, scrofulosis, is established, I think best to retain it, but I understand it to mean the specific pathologic processes occurring in childhood, produced by the bacillus of tuberculosus. The form and composition of the cheesy deposits in scrofulosis is equally characteristic with those which we find in the so-called "pearl disease" of cattle, and which are at times more or less calcareous, pediculated, or rich in granulation tissue resembling sarcoma.

The scarcity of tubercle bacilli is usually common to both, which made the recognition of their etiologic identity exceedingly difficult. Both are auspicious examples of the variation of pathologic processes produced by the same cause but upon a different soil.

The scrofulous deposits, which I consider as the essentials of the process, are the product of the reaction, to the tubercle bacilli, on the part of the youthful organism, and may therefore be looked upon as a defense against the dissemination of the infecting germs. If the defense is broken through, we see tubercular dissemination occur from the bronchial glands into the lungs or into the blood, from the cheesy nodules or deposits of nerve centers into the meninges, etc., showing that the tubercle bacilli must have been present from the beginning in these deposits. How should they have found their way later into these non-vascular masses? for, indeed, we can no longer accept the theory of spontaneous generation.

If further proof is, however, needed, we can also furnish it therapeutically, for if by any manner of procedure we succeed in destroying the tubercle bacilli, the cheesy deposits disappear. According to the sentence: "*Sublata causa, tollitur effectus*," must we conclude with mathematical certainty, that the tubercle bacilli are the cause of scrofulous new formations.

Not infrequently we witness such a result through the inherent forces of the organism, when they are furthered upon Hippocratical principles, but in many cases such a natural recovery is impossible or only obtainable after irremovable and serious injury has occurred, of which the following case is a striking example:

Case 4.—S. B., girl aged 16,³ was referred to me in Karlsruhe on account of a scrofulous eye affection. Her development was retarded, corresponding to the age of 10 or 12 years; the insufficient development was the more striking on account of a coexisting hunchback, but her mental and sexual development was also retarded. Menstruation had not yet occurred. The eye affection which had long been unsuccessfully cared for by Dr. Mayer, an experienced ophthalmologist, and in a good hospital, consisted in cloudiness of the left cornea. The limbus was covered by a gelatinous swelling; the upper and lower portions of the cornea were infiltrated with dry, yellow masses; and in the center, fibroid degeneration in the form of a leucoma had occurred. The entire conjunctiva was much swollen and reddened, traversed by dilated vessels; three large arteries approached the cornea; near the middle vessel upon the sclerotic was a yellow, round, flat nodule 3 to 4 mm. in diameter, immovable and covered by the movable conjunctiva; a smaller arterial branch terminated at its edge. Beyond the hunchback there was nothing indicative of scrofulosis, elsewhere; especially no enlarged glands. She weighed only fifty-eight and three-fourth pounds and despite the good diet of the hospital, she was thirty pounds short of her normal weight, according to Quetelet's tables.

Specific treatment was applied from October 15 to November 22, beginning with 5 milligrams, and increasing to 1 cubic centimeter; in all 13.7 cubic centimeters. Its effect upon the eye was early observable. The gelatinous swelling disappeared first under contraction of the vessels, then the yellow infiltration upon the upper segment of the cornea began to clear, became smaller and was gone on the twenty-fourth day. The lower yellow spot also had by this time become much smaller, the dilatation of the vessels had disappeared. There was no more lachrymation or pain. On the thirty-first day the episcleral spot had also entirely disappeared.

Her general condition, in the meanwhile, gave place to a striking change for the better; menstruation had occurred; her appearance was much better; she had gained four pounds in weight.

A slight relapse occurred upon the eye the following month, but was quickly controlled by a few more injections. The central fibroid degeneration was so far improved that the patient could count fingers at 5 meters, which she could not do before, at half the distance. The patient was then discharged, but suffered subsequently from two more tuberculous deposits. On March 20, she returned with a diffuse swelling on the lower border of the left lower maxilla, which was incised, but discharged only a small quantity of thin pus; after eighteen injections, some of which were finally made into the swelling, the latter disappeared entirely. A similar swelling occurred at the head of the left fibula, disappearing after three local injections. Finally, on May following, a bush-like dilation of a conjunctival vessel near the lower border, with a small gelatinous infiltration of the edge of the cornea developed, which disappeared after one injection which was made into the subconjunctival tissue. Since that time the girl has remained well.

I have related this case more in detail, because it is rarely that we can observe upon the human subject in so satisfactory a manner, that which I had repeatedly observed to be the action of tuberculin and of antiphthisin in the animal experiment, namely, the entire disappearance of tubercular tissue or deposits without reaction.

² Klebs' Tuberculose, page 332.

³ Klebs' Tuberculose, page 328.

In this case it could not be shown, as I have done in the animal experiment, that the conversion and re-absorption of tubercular tissue is preceded by the degeneration and disappearance of the tubercle bacilli, but there is no good reason to doubt that in both instances the same course obtains, and that, under the use of the remedy the tubercle bacilli are directly injured and their virulence destroyed entirely so, as one can demonstrate it to occur in the test tube.

The following experiments made by me and published in my work on "Tuberculosis,"⁴ may be of interest in this connection. Of five guinea pigs born on the same day, two were infected on July 1, 1892, with tubercle bacilli which had been kept five days in a solution of the remedy, while the other three were infected with bacilli from the same culture, but without exposing them to the effect of the remedy; on the eighth day, the three last animals showed a marked difference in their growth, having only gained 11, 50, and 59 grams respectively, whereas those which were infected with bacilli treated with the remedy, had gained 105, and 110 grams. The three sick animals were killed, two on July 30 and one on August 24, and were far advanced in tuberculosis; whereas, in one of the other two, killed August 4, no tubercular lesion was found. The second animal was killed a year later. It had reached its full growth, weighing 681 grams, and showed only the local changes in the abdominal cavity which Prudden and Hodenpyl have shown to be characteristic after the injection of dead tubercle bacilli.

Case 5.—H. B., age 9 years, (the sister of Case 4) was referred to me by Dr. Ruppert, of the Vicentius Hospital. The pale, poorly nourished child had been treated for some time without result for an affection of the knee joint. Could walk only with crutches; the left knee presented a spindle-form swelling (tumor albus) involving the external soft parts, while the interior of the joint was filled with soft fungoid masses.

The injections were made in part, peri- and in part intra-articular; altogether in the first month 6.72 cubic centimeters were used in twenty-two injections. No increase occurred in the inflammatory processes; on the contrary after the fourth injection, the pain was materially diminished; during the second half of the month the child could walk without crutches, and on the twenty-fourth day the swelling had entirely disappeared, nothing of the fungoid masses could be longer detected, and after the faulty position of the limb had been corrected by the application of an isinglass bandage, the child was discharged. Three months later the child presented herself to me, having the appearance of perfect health. Inasmuch, however, as no other evidence of tuberculosis was present, it might be urged that the affection may not have been of a tubercular character, but I believe that the history of the sister's case, and the result of the treatment would refute such an objection.

The third class of cases are those in which both, the

INVOLVEMENT OF THE LYMPHATIC GLANDS AND OF THE BONES,

bear unmistakable evidence of scrofulosis, cases which, however, differ from the others only quantitatively, as to the extent of the disease. These are cases which at the present time are exclusively referred to the surgeon, inasmuch as every other method of treatment is unavailing. But even for the surgeon, such patients are not the most desirable, because of the extensive tubercular processes and the obstinate relapses which are observed.

I am of opinion that when in such cases multiple deposits exist in the osseous structures, even the operative treatment becomes of doubtful utility because

beside the observable and removable deposits, smaller and not observable ones are frequently present, which, although still latent at operation, are apt to develop rapidly thereafter, and in any operative interference the danger of dissemination is ever present.

The following three cases were treated in the Diakonissen Hospital and referred by its surgeon, Dr. Baer. In only one case was the result entirely satisfactory; of the other two, one indeed improved, but a permanent result was not obtained, for reasons which will become apparent.

Case 6.—S. D., aged 3½ years, a well nourished girl. Resection had been made of right elbow joint, on account of fungoid caries. The child presented numerous scrofulous ulcers communicating partly with the bone, partly with lymphatic glands, many of them fistulous, especially upon the right arm and neck. Patient received forty injections between November 1 and Dec. 17, 1892, in all 7 cubic centimeters. A small abscess was incised on the right wrist joint, and was treated locally with the remedy. Discharged December 17, when all wounds, ulcers and fistulae were entirely closed, and all glandular swellings had disappeared. A year thereafter the child had remained free from relapse and was entirely well.

Case 7.—Isabella T., 5½ years of age, fairly well nourished, but pale; suffered from an enormous number of scrofulous ulcers upon the face, neck and extremities which communicated mostly with glands, but also with bony parts. The right metatarsal bones upon which several operative procedures had failed, presented a cheesy mass, while the leg of the same side presented long cicatrices, but also ulcerations and swellings in connection with the bones and glands. Under the specific injections most of the ulcerations healed, but new swellings occurred constantly, and the condition of the metatarsal bones in spite of again repeated partial resection could not be brought to a cure. In the course of the treatment the child had the measles, which certainly was not favorable to her recovery. In spite of large doses increased to 1 gram per day, and of long-continued treatment, the result was only partial. Since, with a slight exception, no septic complications were present at any time, the failure can not be attributed to sepsis, but must be looked for in the extensive distribution of tuberculosis and in the deficient blood conditions. I therefore advised the employment of salt water baths, and climatic influences for her general improvement. I have not been able to learn the further result. Another hindrance in the treatment was the great number of subcutaneous injections, altogether 130 in number, which became very painful. Unfortunately, I had at that time not yet learned that the rectal injection of the remedy is equally efficacious, which method of administration I now recommend, especially in practice with children.

The last, *Case 8*, of the scrofulous diseases in childhood which came under my care was a boy aged 10, with suppurating tubercular coxitis. In this case a short course of injections was without any benefit, and the failure emphasizes the fact that under complicating suppuration and sepsis, the latter must be removed before resorting to specific treatment.

While the material which I submit to you is not very large, I nevertheless believe it sufficient to show that particularly in the tubercular affections of childhood, antiphthisin offers most favorable prospects; the selection of cases is of the greatest importance, and we can only then expect its fullest benefit when we select cases which present neither septic complications nor conditions of exhaustion and marasmus; and you will doubtless also appreciate that there are cases, which on account of the great extent of the purely tubercular disease may fail to make a recovery.

These limitations, however, suggest that we should employ the remedy in the early periods of the disease, and that we should not lose valuable time in the employment of symptomatic treatment only.

Finally, I wish to point out that, in all tubercular affections, the same as in many other severe and

⁴ Klebs' Tuberculosis.

serious diseases, their treatment in hospitals or special institutions offers great advantages over that of private practice.

In Europe numerous institutions for the treatment of children have been established, and should the profession in this country desire it, the Winyah Sanitarium, at Asheville, N. C., will be glad to establish a special institution for tubercular children upon the most approved and advanced principles, and with every essential for their care.

The excellent climatic conditions of its location would permit their treatment in the open air at all times of the year.

DISCUSSION.

DR. LARRABEE—No one is warranted in making a diagnosis of tubercular meningitis who has not sat at least an hour at the bedside of the child. No practitioner who has sat at the bedside of a child an hour will fail to make a proper diagnosis of tubercular meningitis. If the three symptoms are there together, it is tubercular meningitis; therefore the importance of emphasizing all these symptoms. In the first place there must be some evident deterioration, some disturbance of the mental and physical condition. There must be at the same time the knitting of the eyebrow, or the convulsed lid. There must be the contracted abdomen, and there must be constipation. These three symptoms, and the valuable symptom of projectile vomiting, make a case of tubercular meningitis. The projectile vomiting is valuable in showing the disturbance from the center to the periphery. But that alone must not diagnose the case. There must be the peculiar knitting of the eyebrows, and the constipated bowel and the dilated bowel. If the four run together, you are absolutely certain, although the three symptoms are sufficient for the diagnosis ordinarily. Whoever takes the history of the family, and relies on the statement of the friends in this examination, will often find himself mistaken. Large hospital experience from day to day teaches the truth of the words of the lamented great surgeon, who was crowned both in Europe and America with laurels. When closing his life he said: "Two-thirds of the civilized world have syphilis, either hereditary or acquired."

Whenever I give iodid of potash to a child and cure his bronchitis, I consider it a very fortunate result. I might say I have touched in the dark the diathesis. I say also that when I give these cases of brain trouble iodid of potash, and they get well, I put it down in my category that I have struck a trail, and that I have stumbled upon a recovery in a case where I could not by any questioning or examination find a specific cause. The well-known fatality of these cases, the necessarily fatal results of tubercular meningitis, forbid that we should record cases of recovery, and the Doctor is evidently very correct in that.

As to the difficulty in the diagnosis of pneumonia, I suppose it is unnecessary to repeat all the difficulties of that diagnosis. There is only one way to get out of it, and that is in every case to make an examination of the chest. Make it a routine every time.

We have before us to-day one of the most distinguished gentlemen in either Europe or America, Professor Klebs. (Applause). It is a great misfortune that the investigations and researches of Professor Koch were published when they were. It was premature, and he objected to it, and he was made to say that which he never thought of saying. I was in Berlin at the time and was conversant with the ideas then prevailing, but the London papers got hold of the thing and published it as a cure of consumption which nobody had thought of. That publication produced a feeling that has thrown discredit upon all efforts in the direction of Professor Koch's researches.

The study of tuberculosis in childhood is an especially interesting one, for the reason that it is only in childhood that we have so many diverse manifestations and the only reason of that is because we have so many growing centers. Tuberculosis, like everything else of a morbid character, attacks that part at which the greatest activity is manifested. In the adult we expect to find tuberculosis in the lung, while in a child we may not find it in the lung, but find it everywhere. Where there is the greatest activity and growth, that part in-

vites the tubercular bacillus. My friend Dr. Von Ruck, has admitted the term tuberculosis, but I am sorry he has tied a string to it. It is said that scrofulosis is associated with or is part of the tuberculosis in infant childhood. We do not believe in the transmission of the tubercular bacillus. If a babe be born with tubercular bacillus, it is not going to live long enough to trouble anybody. I recognize in scrofula a disease depending upon a debility, born of debility and born of hygienic surroundings, and attended by increase in fibrous tissue. We have in the scrofulous subject a tendency to the increase of fatty tissue, the thickening of the lips and nose. When the child arrives at the age of 20 or 21, we never hear of scrofula, unless it is engrafted upon the system.

DR. LYON, of Connecticut—I would like to ask Professor Klebs, through Dr. Von Ruck, what distinction he makes in his use of tuberculin and antitoxin—what difference he makes in the use of the two? In the second place, if he would use them both as diagnostic or both as curative, and whether he so instructs the medical profession. I ask these questions to call out answers from him.

DR. UPSON—I ask Professor Klebs whether antiphthisin is effective when given by the mouth?

DR. PARSONS—In my paper, I did not mean to depreciate in any sense the importance which attaches itself to this tubercular bacillus. My point was illustrated better than I could do it by the remarks of Professor Larrabee, regarding scrofulosis.

DR. GRIFFITH—I want to say one thing in support of the idea that this may have been a case of tubercular meningitis which recovered. I think we find it more manifest daily that there is a vast amount of dogmatism in medicine. I think it possible that perhaps tubercular meningitis may recover. There was a case reported not long ago of a child who did recover, and it was proved before recovery that it was tubercular meningitis, by obtaining fluid from the spinal column in which the bacilli were discovered, and yet the child recovered. What is proved to have happened once, may happen many times, and we are not in a position to say that every case is tubercular meningitis that dies, and every case that gets well is not tubercular meningitis. We can not state that.

In regard to the diagnosis of pneumonia, I think Dr. Larrabee misunderstood me, if he understood me to say that we must not examine the lungs very carefully. I say not only that, but that in spite of the examination of the lungs we fail many times in making a true diagnosis. The pain in the abdomen is not a symptom in itself of anything important, but when combined with other things is a very important matter.

PROFESSOR KLEBS spoke in German.—At the conclusion of his remarks, several gentlemen in the Section requested the Chairman to ask Dr. Von Ruck if he would translate into English the substance of Professor Klebs' statements, that those not understanding German might have the benefit of his discourse.

DR. VON RUCK made the following statement: there is practically no difference between tuberculosis and scrofulosis. Scrofulosis represents a tubercular infection in a state of latency at times, but becomes more manifest when glandular, and other manifestations, such as retarded growth and development show themselves. The clinician only sees the manifestation in the form of nutritive disturbance, and the tubercular tissue is hidden from his observation. This nutritive disturbance, as for instance the thickened upper lip and nose, and the otherwise arrested development of the child, are produced by intoxications with substances representing the products of the tubercular bacilli at the point of their localization. If any proof is necessary that these scrofulosis manifestations are of a tubercular character, it is apparent from the distinctly tubercular manifestations which result when the cheesy glands break down and when their products are absorbed into the circulation, either through the lymphatics, or when the tubercular process has perforated a vein, in which case milary tuberculosis or localization of new tubercular eruptions in distant organs become manifest.

If scrofulosis were not primarily tuberculosis, how could we explain the appearance of such distinctly tubercular manifestations following immediately upon the softening and breaking down of the specific scrofulosis new formations? These scrofulous deposits must contain the tubercular bacillus, for it is only through their absorption that the more acutely tubercular infection becomes manifest, and it could not be conceived that in these non-bacillar deposits the tubercular bacillus should have found entrance after their generation, unless we would again return to the theory of

spontaneous generation. These are all facts that have been demonstrated anatomically and pathologically over and over again, and stronger proof than has been adduced in that direction, it would be impossible to furnish. But whatever the practitioner wishes to maintain, I can only recommend to you that he subject those cases of latent or more manifest scrofulosis affections to the test of specific medication, which I can assure you is perfectly safe and harmless, and under which, if the process is a truly tubercular one, these manifestations will quickly disappear, furnishing such results of still further evidence of the truly tubercular character of scrofulosis.

As to the diagnostic value of tuberculin, the same has never failed us in the experiments with the lower animals, and will be found equally satisfactory in its application to the human being. I must, however, warn against the employment of tuberculin as a diagnosticant in cases where extensive tuberculosis is already present, and in which from the clinical history and course of the disease there should be no reasonable doubt as to the nature of the malady. On the contrary, I would advise the use of such a test only when a disease is entirely latent and only manifest by the nutritive disturbance heretofore mentioned, in which case the test is made rather for exclusion of the tuberculosis than for the confirmation of its presence. If any of the gentlemen who desire to do so, use tuberculin in the adult, I would advise the hypodermic injection of 5 milligrams, say about 9 o'clock in the morning, after having previously made a complete record of temperature preceding the test for one or two days. If, now, a distinct rise of temperature occurs, say within about twenty-four hours, then the evidence is conclusive that the tubercular process is present in the individual. The test failing, the experiment should be repeated in the course of three or four days. This time, however, with a larger dose of 10 milligrams, with the same observation of temperature before and after its application. No temperature reaction occurring to those doses, we can safely conclude that in the individual experimented upon, no active tubercular tissue is present.

In children, the first dose for trial could be much less, and the temperature reaction would probably take place from the administration of from .5 to 1 milligram. A second dose can be made with 2.5 or 3 milligrams, and a final one with 5 milligrams, with the same precautions as spoken of for the adult.

For some time past, however, I have not applied tuberculin for diagnostic purposes in the human subject, but have used the toxalbumins precipitate in the manufacture of antiphthisin. A definite amount of the organic substance being present, we can apply this substance with much greater precision, inasmuch as tuberculin varies considerably in the amount of organic substance contained in different specimens.

The process of manufacture of antitoxin is as follows: we take the ripe culture of the tubercular bacillus and reduce it to one-tenth of the original amount by evaporation in a vacuum. This really is the tuberculin as prepared by Professor Koch. With this substance we now apply an acid solution of soda iodid of bismuth, and obtain a precipitate which is filtered out. This precipitate represents the toxic properties of tuberculin as proved by me both in the animal experiment and in its application to the human being for diagnostic purposes. It produces the characteristic general reactions manifest in chill, malaise, aching, depression with rise of temperature and subsequent defervescence, just as we see in the beginning of all infectious diseases. It also exerts slight curative properties in the lower animals, but larger doses prove fatal, and entirely so, as does tuberculin. Taking now the filtrate. After the toxic albumins are filtered out, we can precipitate further by the addition of absolute alcohol and an organic substance resembling in its chemic reaction a peptone, and this organic substance redissolved in distilled water, so that the organic substance present is antitoxin.

In the animal experiment we find that this alcoholic precipitate does not produce fever or toxic symptoms of any kind. This is so in the human subject as well, but the animal infected with tuberculosis can be cured therewith just the same as we can do with tuberculin, and that in the human subject the tubercular tissue is re-absorbed without the production of any concomitant symptoms of an undesirable character.

DR. LARRABEE—How about tubercular meningitis after a supposed diagnosis of the case?

DR. VON RUCK—I have not treated any cases myself of tubercular meningitis.

SCORBUS IN INFANCY.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY I. N. LOVE, M.D.

VICE-PRESIDENT, AMERICAN MEDICAL ASSOCIATION, 1894.
ST. LOUIS, MO.

Prior to 1891, when the report of eleven cases of scorbutus in infancy was made by Dr. Northrup to the American Pediatric Society, I had never observed a case; at least I had never recognized it. Going back over an experience of sixteen years, the first five of which were spent in the eleemosynary institutions of St. Louis, including one year's service at the General Dispensary under the control of the Health Department, which was the receiving station for the distribution of all patients to the various hospitals of the city and where a very large number of outdoor patients were constantly treated, ranging from one hundred to one hundred and fifty cases a day (the medical colleges of St. Louis not having at that time established their private clinics), a number of cases come to mind with their various symptoms suggesting scorbutus, but such cases were invariably found in family practice rather than in public institutions. There can be no question as to the importance of the disease.

Since the appearance of Northrup's paper in 1891, five cases have come under observation, and they uniformly occurred in the families of the well-to-do. One case had been fed for ten months with sterilized milk too largely diluted with barley-water, and investigation elicited the fact that equal parts of sterilized milk and a strong solution of barley-water had been the food given.

Another case, one of a pair of twins, eight months old, who had been fed with boiled cow's milk largely diluted with plain water and lime-water. Both were almost typical specimens of marasmus. There had been a very evident failure of assimilation from the beginning, and marked gastro-intestinal irritation. The parents and the attendants had been deceived by the fact that the children being very small at birth and delicate were disposed to sleep almost constantly, and this, they thought, gave evidence of their being satisfied and getting a sufficient amount of food. Insufficient food and the consequent hunger usually results in a considerable amount of fretting and crying. My being summoned was dependent upon the fact that a few days before, one of the children who had been so uniformly amiable and sleepy, had suddenly developed marked disposition to fret and gave evidence of the presence of pain when handled. I observed, upon examination, a swelling around the right femur in its lower third, with great tenderness, the child crying lustily when the part was handled. Examination of the mouth revealed the fact that the gums were spongy and bled readily. No teeth had as yet appeared. The swelling of the thigh increased and by the second day purpuric spots appeared at various points upon the surface of the child. It died of exhaustion within three days from the time of my first visit. An interesting feature in this case was, that of two children surrounded by exactly the same conditions, one should develop scurvy and the other should not, both, of course, preceded by a history of marasmus. The surviving child was given liberally of beef juice, orange juice, and fresh cow's milk, given, when possible, directly from the cow. It was surprising to see how rapidly the child

began to thrive, and it soon became well nourished.

A case came under observation, nine months old, which had been treated from birth; it had been poorly nourished and it was found to have a few spots of pemphigus blebs about the nates shortly after birth. A diagnosis of congenital syphilis was made and the child treated accordingly. The mother was delicate and very evidently her milk had been poor in quality and quantity. The child did not thrive and though further local expressions of syphilis did not appear, it was supposed to be a case of syphilitic marasmus. Acute symptoms of great distress and swelling of both thighs developed; on being called into the case, after careful examination, finding puffy bleeding gums and pronounced extravasation of blood in tissues about both femurs, I made a diagnosis of scorbutus. This child had been nursed by its mother, who had been kept constantly under mercury almost to the point of salivation. The child had also been given mercurials most of the time during its life, and this together with evident insufficiency of food as regards quantity and quality, evidenced that the condition of the child was due to mercury more than syphilis; indeed, I was of opinion that it did not have syphilis at all. I stopped all mercurials and administered raw beef juice to the child and occasionally a teaspoonful of orange juice with water. Analysis having demonstrated that the mother's milk was in every way deficient and the general condition of the mother being very unfavorable, I at once ordered the child to be weaned and carefully substituted good fresh cow's milk, diluted with a small quantity of water, and added thereto a teaspoonful of Mellin's Food.

By careful, systematic feeding, watching the secretions, the child began to improve within a few days and ere many months had passed was finely developed.

It is well to emphasize the thought that this disease is most frequently mistaken for rheumatism, stomatitis, rickets, sarcoma arthritis and infantile paralysis. As in the majority of diseases which confront us, the important thing is the making of the diagnosis promptly and the removal of the cause, the latter being uniformly dietetic. We can not too thoroughly emphasize the thought that scurvy in infants, as well as in adults, is uniformly produced by the lack of certain nutritive elements, certain organic acids, such as citric, tartaric acid, and in combination with potash. These special elements are known to be contained abundantly in fresh vegetables and fruit juices, in raw meat and raw milk, and the evidence is certainly accumulating from many directions and my own experience corroborates it, that the modern craze for the sterilization, the complete desiccation of milk tends toward scurvy. Of course, it goes without saying, that unsanitary conditions, the lack of sunshine and fresh air increase the tendency to this disease.

The reading of the existing literature upon the subject and the careful weighing of the evidence furnished by my own experience and observation, justify the following conclusions:

1. That we must impress upon the mothers of the children under our care that, in artificial feeding, something additional is needed beside a food that will stay with the child or apparently agree with it; in other words, that an absence of marked evidence of indigestion does not necessarily mean assimilation.

2. More stress on the part of the family physician should be laid upon the tissue-building powers of the food presented. The primitive mothers who permitted their children early to have some of the food from the table in small quantities were not far wrong, for there can be no doubt that the general nutrition of the child was more completely subserved.

In artificial feeding we have a divided duty; regard for the stomach and a general disturbed alimentary canal will often necessitate the temporary use of a food which should not long be continued. Many of the commercial foods often meet a temporary emergency and are valuable to that extent. Certain it is that the modifying material which can be combined with fresh cow's milk in such a manner as to facilitate digestion by the breaking up of the curd, which is the disturbing element in cow's milk, and at the same time furnish additional elements of nutrition and not interfere with or destroy the elements presented in the milk, which are anti-scorbutic, is a desideratum, and such we have in Mellin's Food.

My experience agrees with that of Dr. Davis at the Philadelphia Hospital reported in the *American Journal of Medical Sciences*, June, 1891, to the effect that, although sterilized milk often cured and prevented gastro-enteric disturbance, the nourishment of the child is insufficient and unless guarded they will pass into a condition of marasmus. For the meeting of emergencies, the correction of a gastro-intestinal disturbance, for temporary use in such cases, they are very valuable.

Certainly the evidence is overwhelming that children brought up on dried foods without any modification of conditions, soon become pale, flabby and deficient in vitality and even present symptoms of rickets. There can be no doubt that the fresh secretion from the mammary glands of the cow, ass or goat, the same as with the human mother, furnish the fresh animal element necessary to proper nutrition.

The earliest records of infantile scorbutus appeared in Germany from 1859 to 1873, made by Moller, Bohn, Hirschsprung, Senator and Ingilve, the first appearing in England being made by Mr. T. Smith in 1876, but not recognized as scorbutic. Borrough and Cheadle, of England, were the first liberal contributors to the subject. Up to a recent date there was no record of infantile scurvy having been met with in America. Since the first able presentment of the subject by Northrup in 1891 there have been a number of contributions upon the subject, notably those of Crandall, Fruitnight, Winters, Booker, Jacobi, Holt, Carr, Louis Starr, Rotch, Henry Ling Taylor, and more recently Egan, Blackader, and Hollopeter, so that the evidence is accumulating that infantile scurvy is a definite entity and general practitioners should be on the alert for it. Indeed, we may safely say that the literature regarding this subject is one of the most important and valuable contributions to the fund of general medicine made by pediatric workers.

DISCUSSION.

DR. ATKINSON, of Baltimore—I am very far from denying the occurrence of scurvy in infants. It is, however, a condition that must be extremely rare. Upon the subject of artificial food for children, there are many conditions lacking in artificially prepared food. Nobody doubts that. The lack of proper nutrition is more accountable for ill effects than the insufficiency of the properties in the food. Condensed

milk, properly condensed, is just as perfect food as cow's milk not condensed. Not so good as mother's milk, but condensed milk with 75 per cent. of its water drawn off by evaporation is just as good as simple cow's milk. It keeps longer. Condensed milk is simply preserved milk. Condensed milk is as much of a preserve as a can of preserved strawberries. Each pound of condensed milk contains a quarter of a pound of cane sugar. But this is a question, however, that has led me away from the one at issue, which is scurvy in infants. We have hemorrhagica occurring in active children as in adults; it might be mistaken for scurvy, and if it lasts long enough will run into conditions that make it hard to distinguish from scurvy—conditions that assimilate scurvy very closely. I do not think the cause of which the Doctor speaks was the saving condition, but I think it was the correction of the error in the nourishment of the child that brought about the improvement. As I said before, I do not state that there is no such thing as scurvy in children, but do say that if there is scurvy as a condition in nursing children, it is a thing of rare occurrence. That it may occur, I do not deny, but in nearly every case where there are conditions that assimilate scurvy, it is simply assimilating scurvy and nothing more. It is marasmus, or purpura hemorrhagica and allied conditions that bring the vitality of the child to a low ebb.

DR. BISHOP, of Maryland—There is a percentage of children who die who can undoubtedly have their lives spared by the proper treatment of the mother. The proper condition of the mother will result in a live child, and a child whose health may be prolonged for a greater or less length of time. It seems to me that one question hinges on the other in these various papers. The question of heredity is one of the things involved. A child who has a hereditary fault in its physical condition requires different care from that of a perfectly healthy child. I think there is a mistake made by some of you gentlemen who have the care of infants in large cities. I listened with a great deal of interest to the care of children as described by Dr. Cotton. But I think instead of their taking such care of these weak children, it would be a much more humane thing to let them die. There are quite a large number of children who go to hospitals, as well as in private practice, who ought to be allowed to die. It is not a humane thing to let a child that is a victim of the disease of its parent, live as a child and die as an adult. Such a child ought to be eliminated from society, because of the evil effect it produces in after life. People who have such constitutions are more apt to reproduce in a hurry than those who have perfect physical systems. Persons who are predisposed to consumption are much more likely to marry, and, being married, much more likely to have children, than persons of perfect physical formation and conditions. I have noticed it as well in the vegetable kingdom. The diseased peach tree will produce twice the fruit—certain classes of diseased trees—that a healthy tree will produce. It seems to me there ought to be a certain amount of care taken not to permit these diseased children to grow up. Let their parents nurse them. There is another thing that we are in fault in, so far as regards feeding the child on artificial food. Instead of taking good care of the cow that it may produce good artificial food for the child, it would be better to take good care of the mother that she may produce good natural food for the child. These artificially prepared foods are good as a rule, but occasionally children are killed by them.

DR. LOVE—The prenatal feeding of the child is an important thing. Indeed, I think the physician should keep in mind the wellbeing of the child prior to its conception even. The proper and healthful condition of the mother, and all that concerns the child should be considered. That opens up a broad field. The question of matrimony, the question of who should marry and who should not, enter into it. No one knows better than a doctor that the main questions in the matter of matrimony are recklessly disregarded. I see my friend Dr. Hutchinson, of Des Moines, Iowa. He has been a very able writer on this subject of whether marriage is a failure, and all that goes with that particular problem, and I should be glad if the subject could be opened up along those lines.

The statement of the last speaker, suggesting that there are some children that ought to be permitted to die, is certainly one that we can not entertain at all. Where is there a mother on earth who would consent that her particular infant should be permitted to die? Where is the father, worthy of the name of father, who would consent that his child should be permitted to die? and another thing the physician has no right to entertain, is the matter of life and death. The desire to save, has developed new means of salvation. Not a baby that can be conceived is so insignificant as not to be worthy of our most profound consideration. We may have there the germ of a Garfield or Lincoln or Marion Sims, or Shakespeare, and so on. The proposition laid down by our friend can not be entertained at all.

The point thrown out by Dr. Atkinson, suggesting that he feels that most of these cases come under the head of bad nutrition, etc., is important; but when there is presented to us a baby with such profound symptoms, a baby who has been poorly nourished, and there should suddenly appear great distress, a suggestion of rheumatism of the leg, and marked evidence of extravasation of blood, and there is no question about the pathologic condition, and examination reveals the gums bleeding, almost suggestive of a fungous condition, you then have the same conditions exactly that you find in scurvy in the adult. There can be no doubt of scurvy in infants. The evidence presented in our meetings by its workers is worthy of profound consideration. These workers come from a country whose practice covers a thousand hills, and their testimony is valuable. Then we have the testimony of Dr. Cotton, our Chairman, who is located in a large city, having to do with all kinds and conditions of children. He sees more sick children, I have no doubt, one hundred to one, with special conditions, than he saw twenty years ago when he practiced up in the interior of Illinois, although he was a busy country practitioner. The evidence of Dr. Cotton along these lines is important. In reading the evidence presented to us by Dr. Booker and others, we should weigh it thoroughly. When a man located in a large city gives his observations, and in addition those as a specialist, in observing the children in the world to-day, and places before us his views as an expert, such evidence is very important. The words and views of Dr. Atkinson on this subject of scurvy in infants are important.

The earliest records of infantile scurvy appeared in Germany from 1859 to 1873, made by Müller and others. The first records that appeared in the English language were by Dr. Smith in 1876, but then it was not recognized as scurvy. Burrow and Schiedel of England, were the first contributors to the subject. Since the presentation by Northrup in 1891, there have been a number of contributions on the subject, and I have enumerated the same in my paper. I do not mean to say that scurvy in infants is frequently found. My cases of scurvy have been found in the houses of the well-to-do, and not among the poor. I believe the general practitioner should be on the alert for scurvy in infants, and I think the literature on the subject is most valuable.

DR. VALENTINE, of New York—The remarks of my friend Dr. Love, suggest a point that I have wished for an opportunity to bring before this meeting. He says that a healthy mother is required to bring forth a healthy child. This is manifestly a self-evident proposition. Is it not a fact that it is within the experience of every one of us, although not engaged in the special work to which this Section is devoted, that a healthy vigorous young girl will marry a man in apparently exceedingly good health, and that shortly thereafter she will complain of pains, rather vague in character, and the girl shows all manner of symptoms which give her friends cause for congratulation. The error is soon manifest. The girl sinks. Perhaps a tumor is found in the abdomen. The tumor grows on that one side, and the other symptoms of abdominal irritation suggest the presence of a foreign body in the pelvis, which entails the necessity of an operation to save this woman's life. A microscopic examination of the majority of tumors, be they of the ovaries or the tubes, shows the presence of gonococci. I am not engaged in children's diseases, but mainly with the fathers of these children, and principally before they are married. I have frequently had occasion to observe manifestations of latent gonorrhea, so-called by courtesy. It is because of defective examination that we do not discover the gonococci. Why not? Because of the difficulties entailed by the examination. Those who favored me by listening to my paper on modern urethroscopy will agree with me that it is criminal for a man to marry who has had gonorrhea, unless it be proved that he is free from the power of infection. Only by destroying the ostii where the gonococci are assembled, where

they are latent, can we extirpate the germ. It is only by destroying these that we can utterly destroy this disease. A week after destroying them it is my habit to make an injection with nitrate of silver. I think I can then with a clear conscience consent to that man's marriage.

Why should this be in the hands of a specialist? Are not the lives of women and children of sufficient importance to the general practitioner? I hold that the time has come when we should have the temerity to put ourselves on record as advocating the enactment of a law requiring, as a condition necessary to marriage, the certificate of a physician that this man who proposes to get married can not infect his wife with gonorrhea.

DR. HUTCHINSON, of Iowa—I think Dr. Valentine's remarks ought to be emphasized by this Section. The number of deaths caused by the gonococci is something to which the profession is just waking up. I happened to have a most painful case of some trouble of this nature brought to my notice a short time ago. We ought to insist upon sounding a danger signal with reference to this infection that is impairing the fruitfulness of the finest women in our country. We should advocate some sentiment on the subject. It would be a difficult law to enforce, and I do not think we can get at the evil through legislation. I should regret the taking of any action that would prohibit marriage on the part of any portion of humanity, because I believe that it might result in something worse. I think, however, it would be well to call the attention of the public to the danger to which women and children are exposed by this disease.

THE ETIOLOGY OF INFANTILE DIARRHEA.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association
Baltimore, Md., May 7-10, 1895.

BY ROSA ENGELMAN, M.D.

CHICAGO.

In order to arrive at any just conception of the subject, attention must be directed to the entire alimentary canal, as well as to milk, the staple food of infancy and childhood. A straight almost indifferentiated tube swarms from mouth to arms, with facultative, obligate, saprophytic and pathogenic germs. Milk, particularly during the heated term, is fertile soil for various fermentations. microbic contamination, and the exogenous as well as endogenous development of toxins. An unclean mouth, a slight error in diet, constitutional taint, immature sensitive cellular metabolism invite these germs to unusual lodgment and activity.

Their great number and variety exclude a specific relation to the particular disease manifestations under consideration. The question resolves itself into a discussion of the toxemic, septicemic or pyemic genesis of the several morbid gastro-intestinal disturbances, in which not one or a few, but many and various microorganisms play a part.

Escherich long since proved that there is a great simplicity and uniformity of bacterial vegetation, and that increase and variety was due to changes in diet.

He demonstrated the constant harmless presence of the bacterium *lactis aerogenes* and bacterium *coli commune* in the upper and lower bowel, respectively, and their relationship to normal digestion. The assumption of pathogenic attributes by these germs was likewise disclosed.

The rise and evolution of the biologic field revealed the shortcomings of a purely pathologico-anatomic classification of infantile diarrhea. This disorder was in turn ascribed to: 1, disordered structure and function inherent to an undeveloped organism; 2, atmospheric and telluric influences; 3, the chemic constituents, metamorphoses and amount of food ingested; 4, the omnipresent germ. The far-sighted Hueppe foresaw the dangers of biased opinions. He says:

"For a time, under the influence of Darwinism, bacteriology ran into absolute generalizations, and differentiating signs were not sufficiently valued. Then the opposite mistake was made, in that differences were overrated and a one-sided conception of microbial species, specific effects and special products was adduced. Toxemia of intestinal origin is foreshadowed by him in his statement that the specific microorganism is not alone the cause of the disease. The significance and evolutionary phase of the above cited factors were for a time swamped in the omnipotent germ theory. The effort to discover specific microorganisms as the causative agents of the different degrees and forms of diarrhea proved futile, but led to the revelations of Escherich, Baginsky, Stadlhaugen, Hueppe, Huebner, Booker, Jeffries, Abelons, Sevestre, Vaughan, Czerny, Moser, and many others. They established the non-specificity of the various gastro-intestinal diseases, and gave to us a wide knowledge of the untold microbial hordes, regular, accidental or pathogenic occupants of the alimentary tract.

These scientists likewise confirmed the interdependence of bio-chemic operations and the relations of these germs to the several diarrheal disorders and give to us a reasonable basis for the following postulate: indigestion, slight to severe gastro-intestinal catarrh, and even a foudroyant attack of cholera infantum may be primarily ascribed to an intoxication; this intoxication being caused by an absorption (little or much, slow or rapid) of toxic, tissue and bacterial products, elaborated without or within the body. Intestinal lesions ensuing, the microbic horde, led by such germs as the bacterium *coli commune*, bacterium *lactis aerogenes*, staphylococcus *pyogenes*, streptococcus *pyogenes*, pneumococcus and others, invade the blood and give rise to general systemic or localized infection, a fulminate or insidious septicemia. Thus also can we secondarily account for pneumonia, meningitis, encephalitis, nephritis, etc., of intestinal genesis.

An accumulation in the food, and concentration in the gut of saprophytes and their toxins explain the inception of a gastro-enteritis, the continuance of which maintains the irritation of an exceedingly susceptible mucous membrane and its nervous director, the colic plexus.

The unstable abdominal brain that presides over an enormous circulatory territory succumbs to the saprogenic poison. Consequently neither specific nor pathogenic intermediary need be concerned in an attack of cholera infantum. From the fact, however, that the latter includes a number of morbid entities, it might at another time be the result of an overwhelming septicemia instead of toxemia. On the other hand, chronic enterocolitis and pedatrophs might arise from sluggishly acting germs associated with slow, prolonged, poisonous absorption. It has recently been shown that acute enterocolitis results from the invasion of the blood by numerous germs that have been hitherto considered specific only to certain other processes.

A. Rodet and G. Roux in 1892, differentiated between the infectious and poisonous properties of the bacterium *coli commune*. It and the bacterium *lactis aerogenes* had been acknowledged harmless intestinal tenants. The former's pathogenic and pyogenic attributes were now recognized as well as its areas of invasion, viz., serous surfaces, skin, glands, respira-

tory and urinary organs. It is thus the admitted disease inciter of such sundry conditions as enterocolitis, pneumonia, meningitis, encephalitis, phlegmon, peritonitis, etc. Its clinical, pathologic and biologic resemblance to the typhoid bacillus is being carefully considered.

Fraenkel tells us that, "pathogenesis is the most inconstant thing in the character of many species of bacteria." Fraenkel's pneumococcus, often a most virulent inflammatory exciter, is likewise a regular tenant of health salivary and nasal secretions as are the pus germs and Löffler's bacillus.

A. P. Ohlmacher in the *New York Medical Journal* April 27, reports finding the diphtheria bacillus in a pneumonic lung in which the diplococcus of pneumonia was absent. The diplococcus was obtained, however, in cultures made from the pus in the meninges of the same patient. Future research will probably throw light upon the curious analogies and associations of these microorganisms and their more definite relations to such diverse disease manifestations. Much work in this direction has, however, been accomplished in the study of infantile diarrhea. The non-specificity of this affection has been proved, as has also its general toxic and septicemic origin.

Sévestre as early as 1887 said: "A general infection, especially a condition of pulmonary congestion and broncho-pneumonia, may develop, secondary to fetid diarrhea and infectious enteritis." Under his supervision, Gaston and Renard, by capillary puncture of pneumonic lungs during the life of children suffering from enterocolitis, secured therefrom and from the stools of the same patients, pure cultures of the staphylococcus, pneumococcus and bacterium coli commune and other microbes. Their control experiments upon animals demonstrated that these germs entered the general circulation through the intestinal lymphatics and lodged in the first filter, the lungs.

Rossi Doria publishes an epidemic of diarrhea due to the bacterium coli commune, that remaining *in loco* caused acute enterocolitis, that entering the circulation caused a systemic typhoid-like infection as proven by the pathologico-anatomic findings.

Czerny and Moser recognizing the general infectious character of infantile diarrhea, and traced its source through the lymphatics into the general circulation. They discovered the staphylococcus pyogenes, streptococcus pyogenes, bacterium coli commune, bacterium lactis aerogenes, and other well-known disease progenitors in the stools and circulating blood, of twelve out of fifteen babes suffering from uncomplicated enterocolitis. Their work was carefully controlled by experiments upon dyspeptics, healthy children and animals. Their pathologic findings in the lungs and kidneys corroborated their bacteriologic and microscopic work. All these careful observations but emphasize the dictum as to a general non-specific systemic infection in acute gastro-enteritis. The slighter and earlier intestinal disturbances are of toxicemic origin and due to milk fermentation and contamination. Chronic enterocolitis is the result of a slower, more insidious poison or sepsis. Cholera infantum is either or both an overwhelming toxemia or septicemia. Associated conditions, or the so-called secondary complications are of clearly septicemic or pyemic character, in which not one but several different germs play an important rôle. Dyspepsia, acute and chronic enterocolitis, cholera infantum,

may be but different and various degrees of toxemia and septicemia dependent upon numberless and manifold saprophytic, pathogenic microorganisms.

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COLITIS IN INFANCY AND CHILDHOOD.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY EDWARD ANDERSON, M.D.

ROCKVILLE, MD.

Colitis, in the adult, often occurs as a primary disease, but this is rarely the case in infancy. At an early age it usually begins as an enteritis and is most always caused by indigestible substances irritating and obstructing the small intestine. Bottle-fed infants are particularly prone to this disease and I believe that most of those who die, waste away from its effects.

Intussusception is spoken of, as of frequent occurrence in connection with it. I have never seen it, though obstruction more or less complete, I believe, is always present. Heat is an important factor in its causation, as is proved by its being confined almost exclusively to the hot months of the year. A heated atmosphere not only renders the infant's bowels incapable of digestion, but also its food unfit for use, even when we can not perceive it by the taste. An enteritis sometimes runs into a colitis, but the former is generally converted into the latter by treatment with opiates and astringents. A child that is deriving its sustenance from a healthy mother, when attacked by inflammatory diarrhea from being overheated or from any other cause, can generally be relieved at once by the administration of tincture of

opium, bismuth and chalk mixture, but not so the bottle-fed infant. It usually goes on from bad to worse under this same treatment, as does also the child beyond the nursing period.

I will not detain you with a lengthy discourse on the origin, symptoms and progress of this disease, with which you are familiar, but will cite three cases which I hope will prove of interest:

July 3, last, I was called to see a little three-months-old female child, in a family I had always attended. The parents had three other children, all of whom had been nurtured at the mother's breast, and when attacked by diarrhea were almost immediately restored to health by the administration of opium, bismuth and chalk mixture, but not so this youngest, who was being raised artificially. The parents had become familiar with my prescription, as persons too often do, and had treated their older children successfully with it, but this youngest child they had treated into a case of ulcerative colitis with the same remedies. I prefer mechanical means in the treatment of disease, wherever they can be employed, so I attempted to use the syringe in this case but failed. It required some force to introduce the nozzle of the syringe and the water was thrown back as rapidly as injected. Had I persisted, the only question would have been which was the stronger, the bowel or the syringe. Having failed with everything else, I took a pill containing 2 grains of blue mass and half a grain of opium, that I always carry for adult cases, and divided it into twenty pills, ordering one such pill to be given every four hours. I continued this treatment for two weeks, by which time improvement was so great that the amount was reduced to three pills a day and enemas could be satisfactorily employed. When first called to see the child it was being fed on condensed milk which was changed for a more laxative diet, cow's milk with dextrine. At the end of a month this child was perfectly well and is now one of the most robust children I know.

From former experience I feel convinced that had this little patient been treated in any other way it would have wasted and died.

On Aug. 10, 1894, I was called to see a male child five months old, suffering from ulcerative colitis. This child had been treated by another physician for two months and was gradually getting worse all the time. A sister at the same age had died a year before affected in the same way. I was put in charge of the case and treated it in the same way as I did the last, except that instead of directing the blue mass and opium pill to be divided into twenty parts, I divided them into ten, giving a fifth of a grain of blue mass and a twentieth of opium every four hours. After two weeks, fecal matter began to descend freely, when I ordered a syringe to be used after every action that was not perfectly satisfactory. At the end of a month this child was well and has remained so since.

About June 20, 1894, a little 5-year-old son of a Rockville druggist was attacked by inflammation of the bowels; the nature of which I could not clearly determine as he was attended by another physician of this place who had been their family physician before I settled in Rockville. He treated the case until July 18, when I was called in consultation. I not only met the attending physician but a prominent physician from Washington also. Another physician of at least thirty years' experience had been in consultation, but I did not meet him until later on. I found the child a mere shell, lying on his back and unable to move. He could not have turned on his side if a red-hot iron had been thrust in his face. When I entered the front door the house had the odor of a dissecting room, although the sick boy was upstairs. The mother said he had had but one action that day, which I requested them to let me see, and found it nothing but necrosed tissue. The father, who is one of the most intelligent and best informed men I ever knew, said not a particle of fecal matter had been passed for ten days. The attending physician never expressed an opinion in regard to the case, at least in my presence, but the consultants were of opinion that intussusception was present and rather favored the treatment then being employed, that by opium, bismuth and tannic acid, although the child was dying under its use. They did not speak decidedly as to what should be done with the little patient, but were opposed to my plan of treatment, which was to give a grain of blue mass and one-fourth of a grain opium every four hours, until the child improved sufficiently to have the number of doses reduced,

and then employ enemas. The consultant whom I met July 18 said he would be afraid to try an enema at that time, for fear the bowel would burst, as he believed that in many places there was nothing left of the colon but its peritoneal coat. I saw no more of this case until July 23, when I received a note from the child's father, asking me to take entire charge of the case, as he believed I was the only one who could save his boy. He notified the attending physician to that effect.

I had been giving my patient a grain of blue mass with one-fourth of a grain of opium every four hours for three days when the second consultant came up. He considered my treatment heroic, but said as the child would die anyhow, I was justified in trying it, but he would advise me not to keep it up for more than three days. I continued it for two weeks with improvement from the very first. I then stopped it for three days, when I was obliged to resume it on account of retrogression. I kept it up until September 13, when the boy was able to walk and eat solid food. This patient was fed with milk and dextrine mixed together, and with extract of malt, and I allowed him to chew as much beef, mutton and chicken as he wanted and swallow the juice. There was so much weakness present that two teaspoonfuls of whisky and a drop of fluid extract of digitalis had to be given every four hours, also one-sixtieth of a grain of strychnia three times daily to prevent sinking.

When I first saw the child he could take no nourishment; even a tablespoonful of milk had to be forced down his throat. Blue mass, on account of its sweet taste, is very easily administered to children, and can be dissolved in a few drops of water. In using this treatment in cases such as I have described, we should not restrict ourselves to a day, week or month, but give it until the patient is well, for it never produces constitutional effects in dysentery except in tuberculous individuals, and with them it should never be employed. It used to be thought and is now generally supposed that no one is as sound after a severe attack of dysentery as he was before, but I have never treated a case by the prolonged use of mercury where the health was not improved thereby except in tuberculous subjects. Why the mercury produces no constitutional effect I am unable to say, for it certainly enters the circulation, or it would not act on the kidneys as it does. In no other disease can it be given with such impunity. To sum up all I have to say, in regard to the treatment of this disease from which so many infants, and especially bottle-fed infants, slowly pass away and from which few, if any, should die: the child should be put on a nourishing liquid diet, which should be laxative in character; the colon should be irrigated with warm water from a fountain syringe as soon as the inflammation of that viscus has sufficiently subsided to retain it; blue mass and opium should be administered in doses suitable to the age of the patient, until all irritating and obstructing substances are removed from the intestines and their natural function is restored. In this way, mercury, the best of antiseptics, will be kept continually pouring over the diseased coat or coats of the bowel during the process of repair.

Diuretic Action of Calomel.—Dr. Finkelstein at Charkoff, Russia, summarizes his experience as follows: 1, calomel is an excellent diuretic and especially useful in cardiac dropsy; 2 the prognosis is less favorable in aortic disease; 3, the action is greater in the absence of renal complications (except suggestion); 4, the dosage must be guarded (maximum .12 gm. every two hours); the first symptoms of mercurial poisoning must be closely heeded; 5, in case of a weak heart, a combination of calomel and digitalis is recommended (R calomel .12-.13 gm., pulv. fol. digitalis .02-.30 gm. S. Dose, four times a day.); 6, the effects of calomel are continued longer than in the case of other similar remedies.—*Therapeutische Wochenschrift*, July 25, 1895.

PSEUDO-MEMBRANOUS ENTERITIS ASSOCIATED WITH ASCARES LUMBRICOIDES.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY IRVING M. SNOW, M.D.

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BUFFALO, N. Y.

(SYNOPSIS.)

This case of pseudo-membranous enteritis occurred in a girl of $2\frac{1}{2}$ years. During the summer of 1894 she suffered from a severe attack of whooping cough, followed by ileo-colitis lasting six weeks. In the most acute stage of the diarrhea she began to pass pieces of membrane and tubular casts of the bowels; six weeks later, the membranes being daily present in the feces, several round worms were evacuated, after which no more membrane appeared in the stools for four and one-half months, when, coincident with an attack of grippe-bronchitis, bits of membrane and two ascarides were passed for two days. No recurrence of the membrane casts since.

On Sept. 27, 1894, a little German girl aged $2\frac{1}{2}$ years was brought to me with the following history: father dead of sarcoma of the rectum, mother and one sister living. The patient was born after a normal labor and reared on condensed milk. During dentition she frequently suffered from bronchitis, five or six attacks in all. In June, 1894, she was quite ill from vaccination. After the vaccine fever she was attacked by pertussis and was harassed by a frequent paroxysmal cough in July and August. In August the whooping cough was further complicated by an inflammatory diarrhea. The acute stage of the ileo-colitis lasted three weeks, there being ten or eleven stools of blood and mucus daily. The mother watched the discharges with anxiety, having recently nursed her husband, who died of malignant disease of the bowels. On August 25, the diarrhea being at its height, she observed, mixed with the passage, bits of membrane and a long ribbon-like whitish substance. This she separated from the blood and feces by pouring water over it. The mass filled one-half of a 6 oz. vial; it was twelve inches long; the surface was honeycombed with small apertures. Its shape was like a narrow piece of cloth. It formed a tube in which a finger could be introduced and around which it fitted like a glove.

From this time the diarrhea gradually subsided and the child slowly gained in health, yet from August 25 to September 27, thirty-four days, each day the feces were mixed with tubular casts and bits of membrane. Some days there were membranous tubes, at other times only pieces of membrane. Blood was occasionally present in the evacuations until September 20. The passage of the stools and membrane was accompanied by no pain or colic either before, during, or after defecation.

Such was the history of the case up to the time of my examination.

September 27 my patient was a strong, ruddy, well-grown little girl of placid temperament. The tongue was clean, appetite good, sleep natural. The child was on adult diet. There was no abnormal tenderness, nor was anything abnormal found in chest, abdomen or urinary organs. The stools numbered two a day, were of the consistency and color of mustard and contained no undigested food. The membranous cast passed that morning was shown to me. It was tubular in form, fitted closely about my little finger, whitish in color, thin, glistening, transparent in texture, three inches long, one-third inch in diameter. It had kept its shape in alcohol for two hours, and did not tear easily. I made no chemic or microscopic examination, expecting to have another specimen to examine, which was not the case.

I prescribed cod-liver oil, an out-of-door life, generous diet, and directed the patient to be brought to me in a few days. On October 1 the mother related to me that the quantity of membrane passed was much smaller, being only seen the first two days after my prescription. On October 9, the mother reported that the day before the girl had passed a piece of membrane, and that just before she came to my office she had passed a round worm, the first the child had ever had. One or two passages a day; patient's weight twenty-seven pounds.

As all descriptions of membranous enteritis state that shreds of membrane may be mistaken for worms, I advised the mother to continue the cod-liver oil, and to closely examine each stool. The girl continued in good health, albeit somewhat feverish on October 17. A week later, to decide

as to the presence of worms, I administered calomel and santonin. As a result of this medication two ascarides ten and six and three-fourths inches long were evacuated, but no membrane. Two days later, after more santonin and calomel, two more round worms, eleven and six inches, were discharged. No membrane. The medication proved quite severe, for after it the child was weak, exhausted and feverish.

From the last of October until February 15 the child was in superb health, but in the middle of February she was attacked with grippe and bronchitis, being ill three weeks. On March 3 a laxative produced loose stools which for two days contained bits of membrane, but no mucous cylinders. March 6 to 7, two large lumbricoid worms were passed after doses of calomel and santonin. The repetition of the anthelmintic brought away no more.

From the last date, until now, the child has continued in good condition; neither mucous cylinders nor ascarides have been observed in the feces.

It is to be noted that the discharge of casts and membrane practically ceased in October; the depression of health in February caused the exudation of only minute pieces of membrane. You will note that no elaborate chemic or microscopic examination is presented. There was no opportunity to do so, as the membrane in the feces stopped abruptly, possibly from the tonic effect of the cod-liver oil. Nevertheless the composition of such tubular casts of the intestine is well known. They are generally formed by mucin exuded from the muciparous glands of the intestine, the glands of Lieberkuhn. Although many learned authorities deny the fact, it is certain that the casts may contain fibrin as well as mucin. Their place of origin is generally the colon, rarely the small intestine.

The interesting features of the case are:

1. Membranous enteritis is rare in children, nearly all cases being recorded as occurring in women of hysterical neurotic temperament. Of 111 cases recorded up to 1894, only 6 were reported in children under 10 years.

2. The clinical history of the case is unusual. In the descriptions of membranous enteritis, the passage of the tubular exudation casts is said to be painful, being preceded by malaise, abdominal colic and tenderness, accompanied by pain and tenesmus and followed by constitutional disturbance. In my case the condition was the sequel of an acute ulcerative ileo-colitis; the exudation casts appeared in the stools, mixed with blood and mucus, at the height of the acute infectious process. They were continually present during the subsidence and after the termination of the malady. Thus they were daily evacuated while the child was rapidly gaining strength. Four months later during a grippe-bronchitis a few bits of membrane were passed. Nor did their discharge cause the child any more discomfort than the passage of a normal stool. Neither colic, tenesmus, nor abdominal tenderness could be traced to their presence.

3. The relationship of the ascarides to the casts is obscure. Undoubtedly the parasite found lodging in the child during the depression of health from the colitis. It is possible that the mechanical irritation of the worm may have caused the exudation of mucus. Yet the habitat of the ascares lumbricoides is in the small intestine, while the exudation casts judging from their caliber originated in the colon; nevertheless round intestinal worms are commonly seen in young children, while membranous enteritis is excessively rare in early life. As round worms were undoubtedly present in the intestines two or three months after the tubular casts had disappeared, it is the opinion of the author that the association was accidental. Whether the condition is a phase of mucous disease the author will leave for discussion.

Loos describes a similar case in an article in the *Prag. Med. Wochenschrift*, 1889:

"A 2-year-old boy, previously in perfect health, was taken suddenly ill. He cried the whole night with abdominal pain, and finally voided a single stool, which contained a peculiar substance. An examination showed it to be a tube 18 centimeters long and 4 centimeters wide. It was composed of fibers; some running parallel with the length, others branching in various directions. These fibers were connected by a glistening homogenous membrane. The whole was enveloped by cloudy membrane. The tissue was concentrically built and held in its substance pigment, eggs of oxyuris, intestinal epithelium and debris of food; chemically, mucin and fibrin were present. The membrane continued to be present in the stools ten days, the general condition remaining good. Fourteen days later, there was discharge of a large number of ascarides. Rudolph von Jaksch finds the process to be a periodical exudation of mucus which causes the colic. The condition is analogous to chronic bronchial catarrh."

SULPHATE OF MAGNESIUM IN THE SUMMER DIARRHEA OF CHILDREN.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY STUART PATTERSON, M.D.
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The use of magnesium sulphate in the treatment of cholera æstiva is not new, particularly in the rural districts.

It is unnecessary to go into detail as to the history, symptomatology, etc., therefore I shall merely review the conditions present and the indications for treatment. As yet, no specific cause has been found, but we can almost certainly conclude that there "are fermentative and septic processes in the contents of the stomach and intestines, and these followed by production of large quantities of lactic and fatty acids."

According to Escherich, Baginsky, Booker, Vaughan, Lesage and others, these changes are most probably brought about by microorganisms gaining entrance into the alimentary canal with the food.

The following are the reasons for the belief in the specific origin of the disease:

1. It is one occurring for the most part in epidemic form during the summer months, a time when fermentative processes are most common. Or, if it does occur in winter, it is almost invariably found in close, ill-ventilated, and crowded quarters. (Epstein.)

2. The majority of those attacked are the offspring of the poorer classes, who have both insufficient and unwholesome food, and this brings about an ill-nourished and consequently a weakened condition of the organism, which furnishes a proper nidus for the growth and development of fermentative fungi.

In many of the cases of this report, the mothers were women who could only nurse their children morning and evening, while for the rest of the day the little ones were left to the tender mercies of careless and ignorant brothers and sisters.

3. In the great majority of these cases, except those seen during the first twelve to twenty-four hours of the disease, the discharges from the bowels were acid. It has been found that fermentative fungi are present in vast numbers in all the stools, but are especially numerous in those having an acid reaction. (Nothnagel.)

Henoch, vol. II, p. 42, in the absence of a recognized specific cause, explains the primary process as "an abnormal chemic action in the contents of the stomach and intestines, set up by unknown influences, and not merely a catarrhal process, although

on microscopic examination, proliferation of round cells has been found under the mucous membrane." This can be and is produced, if the process goes on for several days, by the irritating contents of the intestines.

The cause, whatever it may be, finds its way into the stomach and intestines, in all likelihood, through the ingested food and water. The indications for the treatment are to remove the cause if known, and prophylaxis. To meet the first, magnesium sulphate seems to me to be, theoretically at least, the ideal remedy. As to its practical utility, this report will speak for itself. To meet the second indication, sterilize the food.

The administration of sulphate of magnesium calls forth a profuse secretion from the intestinal glands. The remedy is a powerful alkali. It stimulates peristalsis, either directly or indirectly, through the quantity of secretion poured out or by producing a free flow of bile—one of the natural stimulants to peristalsis.

Thus we have a remedy which, 1, corrects the irritating properties of the contents of the stomach and intestines by rendering them alkaline; 2, stimulates the glands to a more profuse secretion, thereby unloading a congested mucous membrane and possibly washing out the products of fermentation; 3, flushing the entire bowel, thereby removing the fermenting mass.

In the first series of twenty-five selected cases treated during August, 1892, at the Pittsburg Free Dispensary, which I report, the symptoms were those usually found in the disease under discussion, namely, vomiting, diarrhea—ranging from the "chopped spinach" stools, mixed with mucus and streaked with blood, to the rice-water discharges—coated tongue, restlessness and general prostration, etc.

The ages ranged from 1 to 6 years. The dose and mode of administration of the remedy were as follows: the mother was directed to give to a child 1 year old an even teaspoonful (about 1 drachm) of sulphate of magnesium, sufficiently moistened to swallow, as soon as she arrived home; the process to be repeated in the morning and the child brought back to me at 3 o'clock P. M. on that day, that being the hour of my service at the dispensary.

This procedure was repeated daily at the same hours until the discharges become yellow. For the older children, the dose ranged from a heaping teaspoonful (about 2 drachms) to a tablespoonful (about 4 drachms).

As the result of the exhibition of these doses, the mothers reported the children relieved of pain and restlessness, with the induction of quiet sleep. No difficulty, except in a few cases, was experienced in the administration of the remedy on account of its objectionable taste. The after-treatment consisted of general tonics.

Report of the duration of the disease, first series: one case, nineteen days; one case, five days; two cases, four days; seventeen cases, three days; four cases, two days.

In the second series of fifty-five cases, treated during 1893 and 1894, the results were slightly different. Ages 6 months to 9 years: two cases died; four cases, fourteen days; six cases, seven days; twenty-three cases, five days; thirteen cases, three days; seven did not report after the first day.

In the cases lasting over one week, the children

suffered relapses and several were sent to the Children's Hospital. The other cases all did well, and I saw them thriving under a properly regulated diet and tonics. I should add that in the latter series I gave guaiacol for several days after the stools became normal. The tonics were selected according to the necessities of each case. Those most frequently used were syrup of iodid of iron, cod-liver oil, compound syrup hypophosphites, strychnin, quinin, pyrophosphate of iron, etc.

This list includes all the cases that were selected for trial by this remedy, and the practically uniformly beneficial results obtained in the treatment of this so often intractable disease have led me to give you the benefit of my experience.

DISCUSSION ON PAPERS OF DRs. ENGELMAN, ANDERSON, SNOW AND PATTERSON.

DR. KOPLIK—Taking up the paper of Dr. Engelman, of Chicago, I might say that most of us have met those cases in which there is the presence of toxemic and septicemic symptoms. The prognoses given in those cases are generally faulty, but lately I have seen some of them cured, even though the pneumonia lasts a fortnight. This is due directly, as we suppose, to microbic influences from the gut.

Now as to the treatment of some of these cases of diarrhea in children. One of the gentlemen here to-day spoke of calomel, and the other spoke of magnesium sulphate. Both of the ideas are the same, but I think in acute intestinal catarrh, and especially in that form called cholera infantum, we should be careful in the use of mercury in any form. In acute gastro-enteritis in infancy, and in young childhood, we have to deal with the sensitiveness of the kidneys, for instance. We have to contend with cases where it is likely the use of mercury in any form will cause death. As to magnesium sulphate, it answers the same purpose, and it is better than castor oil, or any like remedies which we are accustomed to use in the beginning of the treatment of those diseases. It is scientific and proper to try to clean out of the bowels that which is injurious, as well as that which is toxemic and septicemic. We should first recollect that most of these cases are due to some error in the diet, either bad food or good food improperly prepared. So that the first thing in all these cases after you have begun the medicinal treatment is to stop all diet, diet which requires any amount of effort on the part of the intestines, such as milk. In my practice, that is the first thing to think of. It has been said in rebuttal, whenever I have mentioned this fact, that the child would starve. You would be surprised how long a child can live upon a simple mixture of the white of an egg and water. I think the only safety of the child lies in starving it at the outset, and in the beginning of the treatment we should direct our attention to the diet and stop it, and afterward gradually return to it.

The medicinal treatment in acute gastro-enteritis has been very unsatisfactory. I use little medicine in the treatment of acute and chronic gastro-enteritis, and I can assure the Section that I see about as many such cases as are seen in any hospital. I use very few drugs, probably a little resorcin, and probably a good deal of bismuth. I might say that I consider bismuth a sort of standby. It is a mild intestinal tonic.

DR. W. D. BOOKER, of Baltimore—In considering the etiology of infantile summer diarrhea, it is important to think of something beside bacteria as the cause. We have the bacteria operative in the winter time, and the same bacteria may be found in the intestines of infants in winter as well as summer. There must be a predisposing cause operating therefore by which the microorganisms are brought forth. What that secondary cause may be, we are not so well informed. It is possible that the direct effect is the prostrating of the digestive powers of the infant, and probably the weakening of the cells of the intestines themselves. There must be then, beside the bacteria entering into the etiology of summer diarrhea, many conditions that we do not understand. Now, the question is, in what way must we consider first the action of the bacteria before they enter the body, second, the action of the bacteria after they have entered the body. In summer time the bacteria multiply much more rapidly than in the cold of winter, and they cause much more serious effects in summer than in winter. Milk especially, which is the food of the child, is very favorable to the growth and activity of bacteria. But a short

time in summer is sufficient to permit very serious changes in the milk, and poisonous qualities to be introduced by the microorganisms, unless something happens to the intestines before the bacteria get in. As soon as these cells are injured in any way the bacteria have an opportunity of getting in their work. Beside the heat itself, we have to contend with the improper food. I do not mean the food that is made improper by the bacteria, but rather the imprudent feeding of the child with food that is entirely unsuited for its digestion, such as green potatoes, strawberries and the early vegetables. In nearly every case we are called upon to treat, we first inquire as to the origin of the disease and get the answer that there has been some imprudence in the matter of diet. If we keep off this meddling in the diet the resistance of the cells is preserved, or their entirety preserved, and their resisting qualities are sufficient to beat off the bacteria. After this lesion is once established, it is easy for the bacteria to do their work, and this they do as has been outlined in the paper read here in two ways; one by the production of poisonous properties in the intestines, which are absorbed and taken up in the various parts of the body, and the lesions made by these poisons are similar to what we get in diseases like diphtheria. Again, this poison, which is produced by the bacteria in the intestines, may also act directly on the tissues, and we get lesions which show the various stages of the bacteria in their direct effect. As the bacteria spread we have produced superficial ulceration. The bacteria become more and more numerous and the process extends to a deeper ulceration, which may pass down as far as the external muscular coat. There is no difficulty, in some cases, in tracing bacteria along this line, first through the superficial layer that has been broken, and so on. Where we trace this bacteria, we find the separative processes going on.

Now, what are the forms of the bacteria that we find in summer diarrhea? Investigations which I have made for the past few years on this subject have led me to the belief that we find the same bacteria that we find every day. There is nothing specific in the nature of these organisms, and the nature of the disease is so variable that there is no classification found in one text-book that will correspond with that found in another. In classifying the cases from the contents of the rectum, I have made classifications in about eighty cases, according to the various forms of the bacteria, and not with regard to the clinical condition of the patient. It is interesting to see how this classification runs. The first classification consists of the cases which show decided toxism. They have not developed any serious inflammatory changes in the intestines to be traced by any condition in the stools, but the child shows drowsiness and much nervousness. These cases are generally more or less serious.

The next class is twenty or thirty cases in which the streptococci prevail. Nearly all these cases show inflammatory changes in the cells in the mucus and feces. These cases are generally more serious because of complications by other lesions. Not only the complication from the absorption of the toxin particles, but also the invasion of these organs by the bacteria themselves. This secondary infection is more apt to follow in cases in which the streptococci is found. There are few cases in which the micrococci alone is seen.

In regard to the treatment of summer diarrhea, I think the most important consideration is dietary and not medicinal. There are very few medicines that we can rely upon, and I was very sorry to hear Dr. Koplik speak against one that I have always thought wise to use. The first thing to do, as Dr. Koplik said, is to stop everything at the time the sickness occurs. If it be milk or any other food that was being taken, at the time the child became sick, stop it at once. I think this is better done by substituting rice water or oatmeal water for the milk, and to give some purgative. I have for years used calomel, and have not seen any bad results from it. Of all the drugs in the Pharmacopœia, in cases like this, calomel is the one I use. It acts not only by relieving the stomach of its contents, but there is an action of the calomel upon the mucous membranes generally that we do not understand. It is my belief that this is a valuable remedy.

THE CHAIRMAN—What dose of calomel do you give?

DR. BOOKER—It should be given in very small doses. To a child six months old, a sixth of a grain should be given every hour until a grain or more is taken. Calomel acts somewhat as an antiseptic. If we get rid of the fermentation, and give the child food that it will digest with the least amount of effort, and which produces the least amount of poisonous product from the bacteria, the disease can be checked very early. I think in the majority of cases of summer diarrhea, if taken in the beginning and treated as to

diet, and if we administer purgatives in the beginning, and gradually go back to the milk, and not be in too big a hurry about it, we can carry a child on cereal water for several days without serious results. If restlessness on the part of the parent should occur on account of taking the milk from the child and substituting cereal waters, then egg water is very good. The white of the egg should be beaten up and allowed to stand for a few hours in a cold place. Then pour the clear part off from the bottom, and a teaspoonful of this clear white of the egg can be dissolved in three or four teaspoonfuls of clear water, and be given as a substitute for the cereal waters. After the disease has gone on for a week or couple of weeks, medicine does not have much effect, and diet must be the main reliance.

The most important point in all the treatment is not to give too much food. Do not be afraid of starvation, but give the smallest quantity that the child can digest. Later on, the opiates may be necessary. In certain cases nothing will relieve the restlessness and pain and frequency of stools like the opiates, but care should be used in giving them. The smallest quantity should be given and no rashness exercised in this respect. Bismuth is more or less disappointing. We all give it because we are puzzled in these difficult cases to know what to do, but in a few cases, perhaps bismuth does give marked relief. In cases that become discouraging, it is hard to find anything that is good. Irrigation sometimes gives relief, but we should select the cases in which irrigation is resorted to. Where there is an inflamed condition of the intestines, it is a question whether irrigation should be carried on; but if irrigation is carried on under those conditions, it is well to raise the buttocks of the child, holding the shoulders and letting the water run in by gravitation.

In those cases where there is drowsiness and stupor and frequent stools, with more or less fever, irrigation will often relieve all the symptoms in a few hours, but to do this irrigation thoroughly the catheter should be inserted as far as it will go—its full length—and from one to two gallons of water can be used. The water is running in and out, all the time. There is no danger of rupture of the gut, and a free irrigation in these cases, as a rule, relieves the symptoms. I have seen the fever disappear after such an irrigation of the child, and it becomes bright and lively where previously it had been stupid.

DR. RIGG, of Pennsylvania—It is my belief that there are other influences than bacteria. The clearing out of the bowel and stopping of food are certainly two of the first things to be sought. After that the course is not so clear. I want to speak more especially of one particular type of diarrhea. I believe we do not discriminate closely enough between the different types. In that form of gastro-colitis where we have watery stools and vomiting, with great prostration, I know of nothing equal to nitrate of silver. In my own hands, that has been the most satisfactory drug I have ever used. After the food is stopped and the alimentary canal cleared out, then give a water solution, small doses of nitrate of silver often repeated. I do not know why this acts as it does, other than it is astringent. I think it is sometimes in that case like other cases of irritation of the mucous membrane, we get in a short time the effect of an irritation. It may take quite a while to get rid of the effects. If you get an irritating substance in the eye, it will produce an inflammation that will make you treat the condition at once, and not pay any attention to the cause. So it is in these other cases. The nitrate of silver, I do not believe, has anything to do with the removal of the cause, but it has to do with the healing of the bowels and the stopping of the watery diarrhea.

DR. GRIFFITH, of Philadelphia—I think the heat in our cities is a great factor, not by increasing the germs inside or outside of the body, but in the general condition of the child. I can not account in any other way for the benefit that invariably follows the sending of a child into the country as soon as possible. It is our custom in Philadelphia to send the mother with the child for a trip on the river, where we have a steamboat for the purpose. The babes who go on these trips apparently dying, come back in a very much improved condition. No change has been made in the diet, and nothing has been done except to remove the child from the excessive heat of the city. So we have every reason to believe that the heat has as much to do with many of these cases as anything else.

With regard to treatment, I, too, want to add my voice to those who favor starvation. I think the starvation of the child, after all, is the most important thing you can do. Most mothers in the dispensary class, and it is in that class we see most of these cases, are not willing to see the chil-

dren starve, and on that account I advise them to give barley water, and where nourishment is required I prefer the egg water. We have to remember always what we are dealing with, what the child is suffering from at the time, and what the stage of the malady probably is. The large intestines of children dying from diarrhea are found to contain comparatively few germs. The germs have been washed out of the small intestines, and therefore it is not right to give the child a purgative with a view of washing out the small intestines when the diarrhea has gone on long enough to wash them out. As to the purgatives, whether castor oil, or magnesium, or what not, depends somewhat on the stage of the case. If we think that the small bowel is comparatively empty, and the large bowel is not, that calls for certain treatment. What drug we shall use, depends on the condition of the case. If we feel that a large number of bacteria is present, and are doing the damage, then we might use an antiseptic, but I have little faith in intestinal antiseptics. I want to add my voice to those already heard here in favor of the use of opium in these cases. A few years ago the man who would advocate opium would have been called a know-nothing. I think now that many believe opium must be the standby in the future. If we are sure, from giving no food, that the bacteria will have no longer anything to live on, and that we have emptied the intestinal canal, we see very clearly that we have to do with something that is acting from the inside, and our remedies then must be directed to the treatment on the inside, and in those cases where a child is suffering evidently from frequent and profuse passages, opium will do work that no other drug will do.

I do not want it to be understood that I advocate a routine treatment with opium. A few years ago I made experiments in the Children's Hospital with different drugs in the treatment of summer diarrhea, putting some children on starvation, and some on bismuth, and nothing else, and giving some opium and nothing else. I found that those that had the starvation treatment did as well as any of those that had no drug but opium.

DR. WEAVER—It seems to me that in private practice it is impossible to give magnesium on account of the disagreeable taste. I do not see how in ordinary practice it is possible to administer magnesium. I know it is impossible for me to use this medicine with any degree of utility. We have remedies that are more palatable, and except where you want to experiment for the sake of seeing the effect of the medicine, it seems to me it is unnecessary to use a remedy like magnesium.

I approve entirely of the treatment which has been so well outlined by the gentleman from Baltimore, and the gentleman from Philadelphia, and in the end I think it will prove better than anything else. I agree with them that the best method is the elimination of every offensive particle from the bowel, and the taking away of food. I am in the habit, in those severe cases, of putting the child on a diet of hot water slightly sweetened. I find that the child likes it very well. After feeding a child last summer on hot water sweetened, I found when I wanted to return to the milk, that the child refused to take it. It had learned to like the sweetened water. I am very sure that the hot water had a great deal to do with the effectiveness of the treatment. Calomel I have great faith in, and I think we are on the right path when we use it to clear the alimentary canal. I think opiates necessary. I use morphia with 1-150 of atropia.

DR. FISCHER—Dr. Neumann, after making an extensive study of this subject in Germany last summer, said that the routine method of treating was first to sterilize the intestinal tract and then sterilize the food. Beside washing the stomach, the bowel was irrigated by raising the child and allowing the warm water to flow by gravity as high up as possible. At any rate his plan was to wash the stomach and rectum with a saline solution, and he said that if the child's pulse was very weak and the diarrhea severe, in addition to washing they use this hypodermic clysis in whatever quantity necessary to flow under the skin. I have used this hypodermic clysis several times, but only in these true forms of cholera infantum as we see them in New York, and have found them beneficial.

I should like to come back to what Dr. Griffith has said in regard to taking children away from the heat of the city, putting them on boats and sending them on the water. I should like to emphasize that more strongly than Dr. Griffith has. We all know that salt water is binding. Passengers on the ocean complain of the constipating influences of the sea trip, and therefore the child not only has the benefit of the fresh air, on one of these boat-trips, but also has the benefit of the constipating influence of the salt air.

There is one drug that I have seen used abroad with good success. After the intestinal tract has been sterilized, and after the administration of the castor oil or magnesium, and whatever it may be, the drug that is giving the most satisfactory effect abroad is beta-naphthole bismuth. It is an ordinary bismuth combined with naphthole. It is not poisonous, is very well taken by the child, and I have found that it produced good results in those cases where I have used it.

DR. S. S. ADAMS, of Washington—My experience has taught me that a great deal can be done simply by removing the child from the heat of the city. This was impressed upon me more forcibly last summer than ever before. From June 8, until the middle of September, we had in Washington almost continuously a temperature above 80, with its usual ill effects upon infantile life. During this period I was attending the little ones in the Foundling Hospital. We removed the children from the commodious quarters of the city to a suburban place in what is called the National Park. Although this tract has been bought by the Government, it has not been improved yet, and a large house, occupying quite an elevation, with a stream of water running through the place was the new home for the little ones. It was a most favorable locality and the best that could be selected for the purpose. Unfortunately, however, the children were so closely packed together in this farm house, that there was hardly 300 cubic feet for each child. I had ample opportunity for making examinations, and was surprised at certain things which these examinations developed. Fifty per cent. of the children removed to this place died, and of that number the largest number of stools passed by any in twenty-four hours, was ten. This was a very small number in cases ending with such fatal consequences. The average number of stools in the children who died was six. There were no intestinal lesions in those who died. The conclusion that must be arrived at in such cases is that these ill effects were due to heat. In spite of the elevation of the place, the temperature, night and day, ranged from 85 to 90, when there was a free circulation of air. It is just possible that at some time during this period there was contamination from a sewer that emptied above. The city water, however, was in use there all the time. I believe a great number of deaths were due to the excessive heat. I visited the institution in the morning and got the history of each child's night. The next day I would probably be told that the child had during the night a couple of stools, and they would be exhibited to me. They would show some caseine, and there were evidences of some intestinal disturbance. It was not unusual for the messenger to come to my office later in the day, and inform me that the child was dead. Of course these things were not easily reconciled to my mind. I had heard from gentlemen who are connected with institutions having from 900 to 1,000 foundlings, and young children, that such cases were not rare, but personally I had no such experience. These cases were treated upon the principles laid down by Drs. Booker and Griffith. I must agree with those gentlemen that a great mistake is made in not drawing the line between irrigation and injection. Some inject instead of irrigate. If you do not provide for the return current, you will not get the beneficial effects that you expect. In this connection, I will relate an incident. On June 22, last, I saw a child with gastrocolitis. It was an aggravated case, and had convulsions. I think he was 27 months old. He lay in a state of coma for several days, and finally, I came to the conclusion that he would die if not taken away. The child was kept alive from Thursday to the following Monday with brandy and water. Nothing else passed his lips. The treatment of the rectum was tried without success. He was kept alive in this condition until July 12. On that day I went to the signal office, and ascertained that another hot wave was coming, and would reach its greatest intensity on the Sunday following. I at once informed the mother that there was no chance for the child to recover in the city, and that it must go away. The child had had during this period from twelve to twenty bloody stools a day. At 12 o'clock at night, in company with the nurse and mother, we started with the child for New York. We reached the Hudson pier the next morning, and took the steamer north on our way to the Catskill Mountains. The mother got it into her mind that this was the only place to go. That night the child had had twelve stools. He was in a very low condition. At this time he was being fed on chicken jelly and lamb broth. Going from the elevator the temperature in the car was 110. The child was fanned and I thought he would die every minute. I have heard those who said that they could count a pulse beating at 160 or 180. I can not do that. When I felt this child's pulse, I could not,

however, notice anything more than a flutter. The child had not spoken for two weeks. By the time we had reached the top of the grade and had got the benefit of the changed temperature, the child asked me if I would take him out riding. When we got to the hotel he had one stool in the morning and another at 11 o'clock at night, and did not have another for forty-eight hours. He had no medicine whatever during all that time but whisky, and I attribute the recovery solely to the change of climate. I believe that if the child had remained in Washington, he would not have survived, as the temperature the following Sunday reached 105 in the shade. The child returned home in a healthy condition.

I was once called up to the mountains of Maryland around Frederick, and found a child in about the same condition as the one I have referred to. It had had twelve stools during the day. At 10:30 at night on the top of the mountain, the thermometer registered 86 outside on the porch. I expressed the opinion that the child could not survive in such a temperature. He was taken to Narragansett Pier, and to my surprise he never had any more bloody stools after he reached there, and he became well without any medication whatever. Such cases illustrate the beneficial influence of change of climate.

Dr. Anderson, I think, is very fortunate in his expression. I do not think that we can place much reliance upon dispensary statistics. I do not believe that in the majority of dispensary cases, the treatment is carried out, as far as the diet is concerned. The appeal of the child has great weight with the family, and even in our institution, I have caught people smuggling things to the children in the hospital. For instance, in the case of typhoid fever, where they are warned to the contrary, we have had nurses take a can of cabbage and bacon from under the skirt and give it to a patient. I agree with Dr. Weaver that it is difficult to get anybody to take sulphate of magnesium. I tried it once myself, but I do not want to try it again.

DR. ANDERSON—There is no question about heat being almost exclusively the cause of these cases. In the country we can not take our children to the Adirondacks, or to the Catskill Mountains, or to the springs, but we can take them from the upper story to the cellar, and often save them that way. I lost a valuable member of a family I knew well, by administering a dose of chenopodium. My rule is to give either calomel or blue mass. Blue mass can be dissolved in a little water. Mercury in certain of these severe cases is the only thing you can give. You can not use irrigation in the beginning. There is a spasmodic contraction of the bowels often, and in the case I mentioned the bowel had sloughed.

DR. SNOW—In a certain number of cases that I had charge of in a hospital, it was the reduction of temperature that seemed to be most difficult. The vomiting would break after a day or two, and the number of discharges were diminished from seven or eight a day to two or three, but I still would have a high temperature to contend with—a temperature of 104 or 105. I think there is nothing better to relieve that than cold irrigation. I have tried sponging the skin and other things, but in a high temperature in a diarrheal disease that is continuous, I strongly recommend cold irrigation of 80 or 85 degrees, and reducing it to 70. If the child seems to collapse under the changed temperature, it might be wrapped in blankets and stimulated hypodermically.

DR. PATTERSON—I do not want to be understood as advocating sulphate magnesium as a cure for summer diarrhea in children. The only way, in my mind, to treat these cases is to remove the cause. Remove whatever is there and sterilize the food afterward. Sulphate magnesium certainly does remove the contents of and empty the bowels. As to removing the bacteria, or whatever is in the intestines, we often find children who have a large number of stools every day, and yet this does not remove the hard mass that we find in them and until you remove that mass the stools will continue. Therefore, I think anything that will remove the irritating mass will relieve the condition. You do not always get rid of the bacteria by the large number of stools.

Now, in regard to the bad taste of the drug. I do not know, excepting in two or three cases, that I have had any difficulty whatever in giving sulphate magnesium, and I am very sure that I never lost a case even among the most fastidious by reason of the bad taste of the drug. It has not any taste in particular. It is very sweet. I have given it to children who were very much opposed to taking ordinary drugs—drugs of any kind in fact—with mint water, or something of that sort, and they would take it very readily.

A word as to the reliability of dispensary statistics. As a rule, you can educate mothers up to the advantage of carefully

dieting the child. The woman that Dr. Adams came across in the dispensary must have been very heartless indeed. I have had no trouble in the cases that came under my observation to get the mother to boil the milk, by furnishing the means for sterilizing the milk, and have had good results that way. I repeat that I do not want to be understood as advocating sulphate magnesium as a cure for summer diarrhea, but advocate it as a means of putting a child in the position to get well.

HAS TUBERCULOUS COW'S MILK CAUSATIVE INFLUENCE IN TUBERCULOSIS OF INFANCY?

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY FRANK S. PARSONS, M.D.

EDITOR OF THE TIMES AND REGISTER.
PHILADELPHIA, PA.

In the discussion of this subject, two questions enter into it, upon which the etiology of tuberculosis, and the degree of danger arising from the ingestion of tuberculous cow's milk, largely depend.

1. Is tuberculosis *solely* dependent on the tubercle bacillus for its development?

2. Is the tubercle bacillus found in the milk of *all* tuberculous cows?

As to the first question, I believe, at the present day, it should be generally admitted that we must look beyond the simple introduction of the so-called germ to the system for the production of this disease and recognize a condition that is not inherent in the healthy human organism upon which the development of tuberculosis depends.

The absence of this condition precludes the possibility of infection from the germ, because of the absence of a cultivation field.

The presence of this condition establishes a reason for great apprehension in regard to the ultimate outcome of the case in which it resides.

What is this pre-tubercular condition which forms the cultivation field of the tubercle bacillus?

We must recognize that the ingestion of tubercle bacilli does not necessarily result in tuberculosis in the human organism. This fact has been proved beyond a doubt by various observers and is one which must be self-evident, inasmuch as all persons must be frequently exposed to the reception of this germ in some manner or other. Hardly an autopsy is made without the proving that some time during the life of the subject, tubercles had developed, as evidenced by the cicatricial repair of the parts. Cicatricial repair, we know, follows suppurative process and the latter is due to interference with circulation in the part involved. In other words, there has been a loss of normal correlation in the afferent and efferent blood supply.

For a more minute discussion of the influence of this loss of correlation on the production of tuberculosis, I shall be obliged, in order to prevent a great length to this paper, to refer to an article published by myself in the *Philadelphia Medical Times and Register* which runs through the first five issues of the present year, entitled a "Practical Theory and Treatment of Pulmonary Tuberculosis."

Briefly, however, I endeavored to show, in the article alluded to, that tuberculosis must be dependent on a lymphatic stasis; that said stasis arises from a backing up of waste elements in the blood at the point affected, and, that the production of excessive waste may occur from a deoxidation of blood cells,

or a faulty condition of one or more of the emunctory organs, which condition may be congenital or acquired.

A stasis, if present, forms a fertile field for the cultivation of the tubercle bacillus and the breaking down of the tissue involved.

The curability of the lesion, and secondarily the disease, depends on the facility with which the normal correlation of the afferent and efferent blood supply can be restored in the parts affected, with a removal of the waste, and re-oxidation of blood cells.

If tubercle bacilli can find no lodging place in the human organism, upon which they can rest to germinate,—a state which implies perfect elimination—no deleterious effect is observed from their introduction into the system.

The fact that certain animals develop tuberculosis from the injection of bacilli, artificially, simply proves that such animals are susceptible to the irritating action of foreign bodies by a constitutional construction calculated to develop lymphatic stasis under the slightest provocation.

Thus it may be confidently assumed that the tubercle bacillus is a secondary rather than a primary causative agent of tuberculosis.

The conclusion to be reached in respect to our first question in its relation to the subject under discussion, it seems to me, must be based on the probability of the existence, or non-existence, of lymphatic stasis in the child who is fed on tuberculous milk; for instance, a child with lymphatic obstruction would undoubtedly develop tuberculosis, or the symptoms of tuberculosis so far as the tubercle bacillus determines it, if he was fed with milk in which tubercle bacilli existed; otherwise he would show no signs of such infection.

The second question in our subject depends on the existence of the tubercle bacilli in the milk of tuberculous cows, and relates to the first only as the possibility arises of susceptible children being fed on milk which contains these germs.

M. Alexandre, in a report on the subject of tuberculosis in the stables of the Department of the Seine, France, holds that the terrible mortality from tuberculosis is not the result of the consumption of milk and flesh of our domestic animals, and that this belief should be thoroughly rooted out of the minds of the profession and laity.

The danger of infecting the milk of diseased animals seems to lie in the existence of local tubercular lesion of the udder alone. If this be absent, tubercle bacilli are found wanting in the milk of cows, even though they may be suffering from tuberculosis of other parts. If no tubercle bacilli are found in the milk, there seems to be no evidence that there is any danger from the use of milk as food so far as the causation of tuberculosis is concerned.

In conclusion, it may be stated that, from the evidence obtained up to the present time, there is nothing to show that milk from tuberculous cows is infectious, except in those cases exhibiting a pre-tubercular condition corresponding to that previously indicated, presenting a favorable cultivation ground for the tubercle bacillus, and then only from the milk of such animals as have local lesions of the udder.

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SOME OF THE CAUSES OF THE GREAT MORTALITY IN INFANCY AND CHILDHOOD.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. A. WORK, M.D.

ELKHART, IND.

In discussing this important subject we will premise with the unquestionable proposition, viz., that in the main, physical human nature is the same the world over. Thus, conclusions derived from data from any nation, country or clime, with common environments peculiar to the subject under consideration are applicable to all. For instance, the causes that effect so great an infantile mortality in London or Paris, New York or Chicago, also exist to a greater or less degree in all large cities. The denser the massing together of human beings, the greater the multiplicity of causes of disease, and the inevitable calamitous results.

The great variety of habits and customs of a conglomerate of races and nationalities, such as in this age of rapid and cheap transit, makes it almost impossible to prevent any large city from being a fertile field for every conceivable form of disease, and the helpless infant is the easier claimed victim.

By conclusions drawn from data, necessarily incomplete, on account of the very inaccurate records, we learn that about one-half of all the deaths reported in our country, as well as elsewhere, are children under 5 years of age. If the infant comes into this physical existence a perfect being and has the proper environments, there should not be such a fearful mortality. But, alas, perfection is found in neither the infant nor its surroundings. Why is not the infant perfect physically? Answer: very few, if any parents can boast of perfect health. Thus the hereditary taint of disease, or a weakness which predisposes the infant to the numerous dangers which beset its brief life; we say brief, for the facts adduced show that one-tenth of all infants born die in the first month, one-fourth die before the first year is completed, and one-half die before the fifth year is reached. This is an alarming revelation, worthy the due consideration of Christian patriots and philanthropists. Were we to enumerate the principal causes of this dire condition, the low ebb of human vitality, we would thus record them: 1, heredity; 2, inexperience; 3, ignorance on the part of all concerned in the production and care of the infant; 4, zymotic diseases; 5, want of natural affection on the part of parents.

This list, we believe, comprises the principal causes, but probably not all; and some of these may to some individuals seem far-fetched or remote from the subject. But let us first consider heredity. The stubborn facts gleaned from observation and research will not allow us to conclude other than that myriads of infants die of hereditary taint, to say nothing of the myriads that would be born and live, were it not for this blight. Diseases transmissible are not conducive to longevity, but, on the contrary, they so violate the constitution that, if gestation is completed at all, the child by virtue of the hereditary blight can but eke out a miserable existence. This is true of all constitutional diseases, more or less. This is true to a greater degree where successive generations have been affected with any hereditary taint.

Truly, "the iniquities of the fathers are visited

upon the children, unto the third and fourth generations," and in a less degree where a parent with former vigorous constitution acquires the disease just prior to conception, or the hereditary effect upon the offspring may be a lack of physical development of one or more vital organs, or a weakness of the whole system without any special diseased part. Infants hereditarily affected do not all die, consequently the mortality in the succeeding generations from this too large class of diseased but often physically active beings. Sixty per cent. of the mortality of children of healthy parentage could be prevented, were it not for the inexperience so prevalent with the class who do not oppose reproduction.

Many parents do not even have the instinct as to feeding their young that the lower order of animals have. They do not seem to know that the infant, as a rule, brings its natural life and health-sustaining food with it, but are ready to feed it all manner of food which manufacturers have been actuated to invent from whatever motive. They know the child's stomach only as a receptacle, and are slow to learn that any food will harm the digestive apparatus, because they (the parents, or perchance the grandmother) are fond of such food. I have known well-meaning mothers to feed their babies mince pie, fried potatoes, all kinds of fruits, meats, nuts and *all* before the child had a sign of a tooth. And when the almost universal rational artificial food (cow's milk) has to be given, such kindness is bestowed that the child gets all that it wants and whenever it wants it, regardless of the impaired condition of the digestive organs. Often food is given where drink, only, is necessarily required by the fretting child. In many instances if not death, irreparable injury is produced by urging children to fill or gorge their stomachs with fresh food, while a large portion of the former meal in a decomposed condition remains. The result of a continuation of this very common habit is obvious to the pathologist.

Too little attention is given to proper clothing during infancy and childhood. Whether asleep or awake, there are always at least two indications to be observed, viz., the clothing should be of a texture to produce uniform warmth, and should be made to produce uniform pressure on all parts of the clothed surface. I have known mothers or nurses to take the babe from a warm bed of blankets and hold it in a cool atmosphere without wraps as warm as the bedding was. Many infants sleep with their parents or nurse, and are compelled to breathe the noxious exhalations of their bodies. Not a few are smothered by this unhealthful habit, and take their place in the vital statistician's list of "accidental."

I once knew a fashionable young mother to begin with the first swaddling band to lace her infant daughter, stating that she desired the child to have a "good form." Alas, before the first anniversary of birth was reached, she had gone to swell the list of deaths by "developmental diseases."

There is a factor which increases the mortality list of children to an alarming degree, which we have reasonable hope ere long, by the aid of the microscope and other inventions in the hands of the scientific investigator, to reduce to the minimum, and take its place as the least to be dreaded of all the causes of death. I refer to the zymotic diseases that play such havoc at times among our promising rising generation, blighting fond expectations.

Sanitation has done more, is doing more, and it is likely will do more to eradicate or at least modify, this dreadful class of causes of death, than can be reasonably expected in relation to other causes mentioned.

Early effective elimination as advocated before this Section two years ago, in all the diseases belonging to this class, will rob it of many of its victims and thus materially reduce the mortality list. (Please pardon this digression from *cause* to *cure*.)

The last cause we will mention is the lack of "natural affection." The divinely inspired apostle to the Gentiles, in writing to his son in the faith (Timothy) thus declaims that in the last days perilous times shall come; and "without natural affection" is one of the morally degenerating symptoms, and we believe it also to have, as well, a physical degenerating effect. How many, not *would-be* but *could-be* mothers, manifest more affection for a pug or poodle than for their own offspring? We ask a question that the observing practitioner may answer according to his own experience as a family physician. What proportion of all children born are welcome or were wanted prior to conception? If I am left to answer, I will venture the assertion that not more than one-third. This may be too low a guess. Then think of a mother in constant rebellion during the whole time of gestation, and the effect physically, as well as morally, on the begotten, and if an effect on this, what of the next and successive generations? How many of the unwanted babies are neglected, even unto death, by the thus vicious who give their children the endearing appellation of "kids?" How many mothers in fashionable circles say that they do not want their liberties infringed upon, will not nurse their babes, and thus give them only a chance for their lives? How many carelessly prepare the food for, and as carelessly feed the little helpless creatures? How many desert their progeny? The foundling homes so mercifully provided in many of our large cities do witness of this shame, of the lack of natural affection. Infant insurance will find a hearty support in this class of misanthropists.

Much more could be said by way of pointing to the causes of the alarming mortality of infants, but we will content ourselves if enough has been said to elicit a proper sense of the responsibility we should feel in our chosen profession. May we prove ourselves not only worthy the name Physician, but Philanthropist as well.

300 Division Street.

HEREDITY AND ITS ENVIRONMENTS.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. E. RIGG, M.D.

WILKINSBURG, PA.

When a child is born we may well ask what heritage it brings, from whence did it come, and what influences in the history of its ancestors would modify its condition to resist the evil influences which will surround it through life?

The late Dr. Holmes said, "that if we would properly educate a child we must begin 300 years before its birth." If this be true with reference to education, is it not much more true with reference to a healthy and perfect organism being given to the child,

that it may be the better able to resist diseased influences and unhealthy surroundings.

The most important predisposing causes of disease are those connected with the structure of the body, having individual peculiarities, which may be inherited or may be congenital. In most of the so-called hereditary diseases, that which is transmitted from parent to child is not the disease itself, nor its direct specific cause, but some peculiarity of structure of tissue or organs which, in the course of development either make the person peculiarly susceptible to diseased action from without, or produce disorders itself by defect of structure or function of some particular part.

A person is said to possess immunity as regards a certain disease when he is but slowly, or not at all, affected by the causes of that disease when brought into contact with it. Immunity may be natural or artificial, partial or complete. Natural immunity may be hereditary, as for example, the insusceptibility of the negro to malaria and yellow fever. Artificial or acquired immunity may be produced by the action of the disease itself, as in smallpox, scarlet fever, measles, whooping cough, etc., and also from smallpox by the proper vaccination with the kinex lymph. Precisely how this immunity is produced we do not know, but it is probably due to the presence of certain albuminoid substances which have the power of killing or weakening the pathogenic microorganisms or neutralizing their toxic products. Immunity is rarely absolute and complete.

It has been asserted that children born of syphilitic parents are protected against syphilis.

Experiments on animals and observations on human beings have shown conclusively that infectious agents may pass from the mother to the fetus through the placenta, as has been observed in smallpox, measles, scarlatina, relapsing fever and syphilis.

It is asserted by Baumgarten that the tubercle bacilli may be transmitted in this manner. This view is not, however, generally held. The generally accepted views are that the condition or predisposition to the subsequent development of tuberculosis is inherited. This condition, Formad asserted to have been particularly marked in children with narrow lymph spaces.

It has been claimed that heredity plays an important part in the etiology of aneurysm, chlorosis, diabetes, emphysema, goitre, gout, rheumatism and rickets.

There can be no question but what the condition of the parents has something to do with the health and strength of the child, which receives its start in life from their union. Lead poisoning on the part of the father is thought to lessen the vital force of the offspring.

Dr. Hirst has stated that out of thirty-nine pregnancies in women whose husbands were sufferers from chronic lead poisoning, eleven ended in abortion, one ended in stillbirth and only nine survived early infancy.

The influence of syphilis in the parent on the fetus, and subsequently on the child, is too well known by this body of scientific men to require any argument.

Drunkenness also plays an important part in the health of the future generation. A man may claim that he has drunk whisky all his life and is yet in a good state of preservation. Such may be the case, but to see the full effect of his habit, look at his chil-

dren, and we find that they will not compare favorably with those whose parents have not been given to strong drink.

In the hospital for children at Berne, Switzerland, it was found that only 45 per cent. of children born of intemperate parents enjoyed good constitutions, while 82 per cent. of those born of temperate parents enjoyed that blessing.

The union of two persons of the same temperament often results in children with unbalanced constitutions. That is, that particular temperament leads so strongly, that the child is overdeveloped in that particular line and does not reach the standard in others. The result is a diseased constitution. Also the union between certain nationalities seem to have in some instances an unhealthy effect. Same facts bearing on this were found by the writer while collecting statistics in Westmoreland County, Pennsylvania, in 1884. It was found in one part of that county that the early settlers had been Swedes, who were a healthy thrifty class. Near by was a community settled shortly after by the Irish, who also had a good family record. Tuberculosis was not known in either settlement. Later, perhaps in the third generation, they mingled together and a number of marriages occurred. In each case tuberculosis was found in some of its forms. A close inquiry failed to trace it back on either side. Those who married among descendants of other nations were not so afflicted.

The manner of living may have much to do with the proper nutrition of the growing cells. One instance will serve to illustrate this point. A father and mother of very good family history lived in a stone house built on a hillside, the first floor being partly under ground, and this was the part mainly used by the family. In this house they raised their family consisting of seven children. Four died before the age of 25 of tuberculosis, one at about 35 and one at 45 of the same trouble, one only living to die of cancer at the age of 50 years.

For at least three generations back the family history was good. On the one side they were of Irish descent; on the other side, I could not learn of what nation they had come.

The mental condition of the maternal parent must produce some impression on the child. How, we do not know, as so far there is no direct connection between the nervous system of the mother and the fetus, but the facts stand well established that there is some unknown force, the influence of which must be recognized. The case of Jesse Pomeroy stands not alone in support of this theory. The sieges of Lucknow and of Landau furnish additional proof of this.

As a chain is strong only at its weakest point, so we are only strong at our weakest cell.

Anything that will cause cell life to be at a low standard will, in some way or other, so weaken our forces that we will be less able to resist the influence of disease, as well as retard our growth and give us a body which will be beneath that of our neighbor who was brought into the world under less unfavorable circumstances. We must not stop when the child is born, for there are many influences which will change for better or worse the power of resistance and vital force of the physical organism of the infant with which it will have to contend in its march through life. These are most usually found in the diet which it receives and the care with which it is guarded from colds and exposure and the care that is

exercised in giving it good air and plenty of sunshine.

As to heredity, it is important that each parent should exercise great care to see that they are free from any taint of disease, either inherited or acquired, and that they are not overworked physically or mentally. As to the liability of overwork physically, that is not so likely, but from a mental standpoint the reverse is true. In this age of rush and push among our American people, there is great danger of the nervous system being so exhausted by the strain of business and the desire for place that there is no power left to give vital force to the germs that are to develop into the future being.

It is the writer's belief that were it not for the introduction into our race of the slower and less nervous class that we would degenerate more rapidly than we do. This may be putting it strongly, to imply that we are in a state of degeneration, but it is surely true that we are living at too fast a pace and the laws of self-exhaustion will in time weaken and impair us to such an extent that we will no longer be able to hold our place as a nation and people.

Is it not time, then, to give the alarm? And from where is this warning to come if not from the physician? Let us give timely advice to those who intrust their health and lives in our hands. Let us not fail to look to their future good as well as their present protection. Take, for instance, a child that is born of parents who have exhausted their vital powers in their pursuit after wealth and society. Their child is given, as a heritage, a highly developed nervous system. It is raised on the bottle and its care is given to a nurse who has neither knowledge or judgment to guide her. She seeks her own comfort and not the health of the child; she allows it to be in drafts, to remain in damp clothes, to have its food whether fresh or stale. The child will suffer first from cold, then from excessive heat. What is the result? Bronchial troubles develop and carry off many, the stomach and bowels become diseased and the child lingers between life and death for a season and then slowly recovers. What is the effect of this prolonged perversion of cell nutrition? It must be to weaken the cell life of each and every cell of which the body is composed. Suppose this child be a girl. She is placed in school at an early age and is expected to accomplish by the time she is 18 as much as ought to be expected at 24; but she must be through school and enter society at 18 or, at most, 20, and what is her condition? Alas, too often so broken in health that she can only attend to her social duty and then under the stimulating lash of social rivalry. Yet she is expected to marry in a short time and give strength, force and character to her offspring, none of which she herself possesses.

How, then, are we to protect our children from the evil influences from which they suffer and for which they are in no way responsible? By prohibiting improper marriages, by teaching the proper care of the body on the part of both parents, and by limiting the amount of nerve force expended by them during the period in which their children are conceived and brought forth; by the proper care of the infant in regard to its food, clothing, rest, fresh air and clear sunshine; by guarding it from extremes of temperature, protecting it from drafts and in every way keeping it in a regular line of life, and when it comes to the proper age to go to school, to see to it that the building is well ventilated without pushing up the

windows at the back of the child that air may rush in and chill the little frame already weakened by bad air and too close application to its books. Then, as it grows older, especially if it be a girl, say 13 years of age, let the next two years be spent in the development of the body rather than forcing the mental training, as at this age the system needs all the nervous force and vital energy to establish the normal functions of the body. We should also place our public schools under the care of intelligent and careful men and women who are competent to care for the body and mind.

BROMOFORM IN PERTUSSIS.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY P. J. EATON, A.M., M.D. (HARV.)

PITTSBURG, PA.

I wish to bring to your attention the results of some studies I have recently made upon bromoform; its chemistry, pharmacology, and therapeutic action in certain diseases.

Bromoform is a colorless liquid of sp. gr. 2.83 at 0 degrees C., and is represented by the symbol CHBr_3 . It is produced by the action of bromin upon alcohol in the presence of an alkali. In practice, milk of lime is saturated with bromin, alcohol is added, and the mixture distilled. The resulting liquid is colorless, sweet to the taste, and gives the sensation of burning. Its physiology may be summed up in saying that it is an agreeable anesthetic, without danger, merely lowering blood pressure; a narcotic when used hypodermically; and, finally, is an antipyretic. The excitability of the psychomotor centers and the general reflexes are entirely abolished when anesthesia is complete. The urine contains bromin some hours later.

In leading up to the discussion of the value of bromoform in pertussis and certain other forms of spasmodic cough, and in referring to the methods of administration, and manner of its exhibition, I shall report briefly some cases in which the drug was used, and from these cases hope to deduce some points of interest:

Cases 1 and 2.—Father and son. Middle-aged, and 6 years old respectively. Came to me Nov. 12, 1893, with the history of having had whooping cough since spring. They had tried many doctors and much medicine with no benefit. Both pale, and pretty well worn out. Gave bromoform in appropriate doses, and in ten days patients both reported themselves well.

Case 3.—Boy fifteen months of age. Began to whoop July 25, 1894. Had not been very well for some time, having had some intestinal indigestion. Began bromoform at once, drops 2 to 3, four times a day. On the third day he was stupid, temperature 101.3 degrees, anorexia-malaise. Reduced the dose of bromoform for a day or two to 1 drop, occasionally omitting a dose. Then increased it, as cough was rapidly growing worse. He then took 6 drops without any bad symptoms. By the middle of August he had stopped whooping, and on August 29, I have record of very rapid improvement. He has had one bad cold since, during which he whooped a few times. He is now, Nov. 26, 1894, in robust health.

Case 4.—Spring of 1894; boy 3 years of age. Mild case. Bromoform given early. In seven or eight days ceased whooping. Coughed some time longer. During the summer he had one or two colds, and would give a mild whoop occasionally. General health suffered very little.

Cases 5 and 6.—Brother and sister, 8 and 10 years of age; summer of 1894; both took bromoform well, the boy recovering in ten days; the girl in two weeks. The boy had a light attack; the girl a pretty severe one. Both had whooped a week before having any treatment.

Case 7.—Middle-aged gentleman; summer of 1894. He had had pertussis when a child. He is father of Cases 8 and 9. Took rapidly increasing doses up to 30 drops with relief, but not complete cure. He was very much racked by the paroxysms. A sea trip from Boston to Baltimore, and continuance of the drug cured him within a week. Coughed in all, three weeks.

Cases 8 and 9.—Four-year-old girl and 1-year-old baby. Bad cases. The older child would not take the medicine well and was only relieved. The baby was taken to sea, and greatly benefited. Bromoform was not pushed to physiologic limits in either case.

Case 10.—Summer of 1893; girl 4 years of age. Mother would not give medicine regularly, and child did not improve. She coughed all summer.

Case 11.—1892; boy 3 years old. He whooped for a week or two before beginning treatment. Was seen twice at intervals of three days. Marked improvement. One day at about 1 p.m., his mother discovered the bottle of bromoform which had contained 1 drachm, about half empty. The boy denied having taken any. He was brought to my office about 2:15 p.m. I could smell no bromoform in his breath, and he was as bright as usual. About 6 p.m. I was summoned by telephone and found on my arrival, that the boy in running to meet his father about 5:50 p.m., had suddenly grown very sleepy and stupid, and soon had become comatose. Hypodermics of ether and whisky and hot enemata were given for flagging pulse. Friction to cold extremities was used, and pricking and slapping to keep patient awake. In an hour he was out of danger. Slept heavily during the night, and the following day was as well as usual. No more bromoform was given, but the attack passed away very soon.

Case 12.—Summer of 1893; boy 8 years old. Had been whooping hard for three weeks and was pretty well used up. Made out a schedule for a week's treatment. I did not see the boy again, but met his mother on the street ten days afterward. She said she had not brought the boy to the office as requested, because he had ceased whooping at the end of five days, and was perfectly well at the time of our interview.

Case 13.—1893; girl about 5 years of age. Gave bromoform in increasing doses up to 17 drops with relief, but no very marked or prompt cure. I did not dare to give any larger doses. The attack lasted about four weeks. A sister two years older was greatly benefited by the drug, and was well long before Case 13. Her maximum was 11 drops. Both children were singularly quiet and deliberate in their actions and very phlegmatic.

Case 14.—June 3, 1894; male, eighteen months of age. Coughed for several days. Dose, 2 up to 4 drops. A mild attack. Well in a few days.

Case 15.—June 3, 1894; female 3 years of age. Coughed for several days. Dose, 3 up to 6 drops. Moderate attack. Began to diminish dose June 17, 1894. Was well in two weeks.

Case 16.—June 12, 1894; female 25 years of age. Was sick several weeks. Dose, 6 up to 18 drops. Stopped whooping on June 22. Slowly diminished the medicine.

Case 17.—June 12, 1894; female 2 years of age. Was sick several weeks. Dose, 2 up to 4 drops. Moderate attack. On 23d was well of cough.

Case 18.—Dec. 11, 1893; female sixteen months old. Was sick two weeks. Dose, 2 up to 4 drops. Mild attack. On December 23 was well.

Case 19.—Sept. 6, 1893; female 26 years of age. Coughed for a week or two. Dose, 6 up to 20 drops. Very severe attack. By 16th much better; on 19th only one whoop. Then diminished bromoform.

Case 20.—Sept. 6, 1893; male 3 years of age. Coughed for a week or two. Dose, 3 up to 6 drops. A moderate attack. Was well in ten days, except little loose cough.

Case 21.—Spring of 1894; male 8 years of age. Had cough and cold for a few days. Dose, 4 up to 9 drops. Had rather severe attack. Was well in three weeks.

Case 22.—Spring of 1894; female 5 years of age. Had cough and cold for a few days. Dose, 3 up to 7 drops. Mild attack. Was well in two weeks.

Case 23.—Spring of 1894; female 6 years old. Onset rather abrupt. Dose, 4 up to 7 drops. Mild attack. Was well in ten days.

Case 24.—Spring of 1894; female 3 years of age. Had catarrhal cold for a week. Dose, 3 up to 5 drops. Mild attack. Was well in twelve days.

Case 25.—November, 1894; female 6 years of age. Whooped three weeks before treatment. Dose, 4 up to 9 drops. Severe attack. Well in two weeks.

Case 26.—November, 1894; female 4 years of age. Had

whooped three weeks. Dose, 3 up to 12 drops. Very severe attack. Was well in three weeks, and grew rapidly very fat.

Case 27.—November, 1894; female 2 years old. Whooped for ten days. Dose, 3 up to 5 drops. Severe attack. Well in three weeks.

Case 28.—November, 1894; male 2½ years of age. Dose, 2 up to 4 drops. Mild attack. On the fifth day caught cold. Temperature 104 degrees. Dull, stupid, languid. I stopped bromoform and gave aconite and belladonna. In two days resumed bromoform. Now, whooping about once in two days and sleeping and eating well, and coughing much less.

Case 29.—Exposed Oct. 22, 1894; boy eight months old. Coughed from the 26th to the 28th quite violently, and on the evening of the 28th whooped from twenty to thirty times—typically. I gave 2 drops of bromoform at 8 P.M., and at 1 A.M. Temperature normal, pulse 120. Did not whoop after 11 P.M. until the next day at 7 A.M., two whoops; 7:30, 2 drops of bromoform. Temperature and pulse normal. At noon, 3 drops bromoform; at 4 P.M. 2 drops. One whoop at 1 P.M.; 6 P.M., temperature 99.4 degrees, pulse 120, good. Much swallowed mucus in stool to-day. Dull and sick—that night whooped once. Slept well.

October 30. No whooping to-day. Cough loose and very moderate. Gave 5 drops of bromoform during the day. Evening temperature 99.2 degrees, pulse 120.

October 31, slept well. Bright as usual. Coughed several times—no whoop—ate well. Temperature and pulse normal.

November 1. Gave 1 drop of bromoform four times to-day. No whoops.

November 15, an occasional cough. No more whoops.

Shortly after last record, baby caught cold and coughed several times a day. No whoops. Has gained steadily since.

My plan of administration is based on the following idea: begin with a dose which can be well borne, increase as rapidly as is compatible with safety up to the maximum dose, *i. e.*, that dose which distinctly diminishes the number and violence of the whoops. As the number of paroxysms decidedly lessens, and when the patient sleeps all night, I begin to diminish the dose by drops. I give it four times a day as a rule, but in severe cases add an extra dose in the middle of the night. I see the patients frequently, and keep close watch on the *condition of lungs, bronchi and heart*. I have always exhibited bromoform in its pure state, writing for a given quantity of the drug and ordering it to be put up in a dropping bottle, and to be given in a little water; this I do because it can not be easily dropped in any other way. If you bear in mind the high sp. gr., you will understand why it is difficult to drop, and you will not be surprised to know that there are in the neighborhood of 360 drops in one drachm.

Mr. Geo. W. Hackney, Ph. G., of Pittsburg, has made, at my instance, many experiments looking toward some other and more agreeable method of giving this drug. His work seems to show that emulsions are not palatable; that mixtures are not safe; and that the best way, outside of my own way of giving it in water, is in a mixture of alcohol, glycerin and water.

The first requisite seems unattainable, each mixture or solution seeming to markedly retain the sweet pungent taste of the drug. The second requisite, that of safety, obtains only in absolute solutions—alcohols of various strengths.

I have made it a practice to repeatedly examine the heart and lungs of all cases, and the record has been here omitted only to insure brevity. In no case under observation was there any heart lesion developed, nor was there any moist râles, except in two cases. These cases differed in severity, but Cases 16, 19, 21, 25, 26 were certainly very severe. Case 26, for example, having, previous to treatment, lost her breakfast eight times in one morning.

Since I wrote the body of this paper, Dr. W. W.

Johnston, of Washington, has, in the *Archives of Pediatrics* (April, 1895), called our attention to the great mortality in pertussis. His essay deals with the shadowy side, and we are indebted to him for his exhaustive comparisons and mathematical data. He deals with things as they are and have been, and not as they may be. I do not want to precipitate a discussion on pertussis as a disease, but only to call to your attention the fact that in the use of bromoform we have a method of controlling this disease and avoiding the great mortality which surely does obtain.

There is another class of cases to which I wish briefly to refer, in which bromoform seems to accomplish something unattainable in any other way. I refer to those bronchial subacute colds in adults, in which a very hard, persistent, dry cough obtains, and which seem to resist the drugs ordinarily given for their amelioration. In such cases I have found bromoform to work most effectively; in a very short time reducing the frequency of the cough, causing a moderately free expectoration, and consequently relieving the muscular distress of the patient. To such cases I give the drug in capsule (letting the patient fill the capsule) in doses ranging from 20 to 30 drops every six hours.

The danger signal is usually plainly to be seen; drowsiness following the exhibition of an overdose, usually in course of an hour or two.

In conclusion, let me again lay stress on my method of giving this drug, *viz.*: begin with a known safe dose, then push to the limit of evident relief of symptoms as rapidly as possible. In this way we may expect to avoid many of the complications and save much time in the treatment of this disease—as well as markedly reduce the mortality.

DOUBLE CLUB FEET AND HANDS—TREATMENT.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. MERRILL RICKETTS, M.D.

CINCINNATI.

The object of presenting this subject and report of a case is to place one of the rarest affections on record, and to draw from its history and treatment any deductions that may be of profit.

It is to be regretted that so little has been accomplished, especially in rendering the club hands more useful.

Unfortunately, the causes do not lie within the domain of surgery—they being manifested in utero.

Whatever the cause may be, the results are practically the same; if it is due to a neurosis, but little can be hoped for in increasing the usefulness of the affected extremity.

If, however, the nerves should not be affected, and the deformity due to an over- or under-developed bone, the greatest benefit usually ensues from some surgical procedure.

There is a condition found in the congenital paralysis of the extensors of the forearm which does not exist in the congenital paralysis of the extensors of the lower leg, *viz.*, the ankylosis of the elbow joint. This seems invariably the case.

I have not thus far been able to find any report of ankylosis of the knee joint in paralyzes of this nature.

On the other hand, the joint motion of the knee is nearly always perfect: this may be accounted for by there being but one movement in the knee—the backward and forward one; we have beside this motion in the elbow, a rotary motion which renders the hand capable of abduction and adduction.

These two movements are greatly lessened when the hand is flexed to the extreme, as in case of club hand. This prolonged flexion in utero results in ankylosis, and the arms having less strength than the legs are more likely to remain quiescent.

The arms are drawn forward, giving a narrow appearance to the chest, but the shoulder movement is usually good.

Some if not all of the carpal bones are always changed in their shape as the result of prolonged affliction at a time when they are very soft and easily molded. There may also be one or more absent.

The second finger is usually very much flexed and overlapped by the index and third fingers. The thumb is drawn across the palm and pain is experienced when it is brought into a normal position.



Male, age 10 weeks, well nourished. Has four healthy brothers and sisters; congenital. Extensors do not respond to either faradism or galvanism, interrupted or straight. Multiple neuritis of tibial and radial nerves. Cut both tendo-Achilles and tendon and plantar fasciæ of both feet. Applied plaster-of-Paris massage, etc.; great improvement.

Multiple neuritis of the nerves supplying the affected muscles is usually found, but just what produces multiple neuritis remains a question. In the case I present for your consideration, no cause can be assigned.

The child, a male, white, was ten weeks old at the time that I first saw it, Jan. 10, 1894, when it was placed in my private hospital for observation. A consultation with Dr. Phillip Zenner resulted in finding the subject well nourished, and the youngest of five healthy children. The extensor muscles did not respond to either faradism or galvanism, interrupted or straight current. It was found that there were multiple neurites of the tibial and radial nerves. The bones of the two upper extremities and the left lower, including the tarsal and metatarsal, carpal and metacarpal, seemed to be normal in shape and number; also the bones of the right leg and foot, except the phalanges. All of the toes of the right foot were

imperfectly developed, while the tarsal and metatarsal bones seemed, as far as could be determined, as perfectly developed as those of the left foot. There was, however, a slight curvature of the right tibia, and the talipes was of a higher degree. Massage and light brass splints of my own construction were applied to the foot. These were kept on for fifteen or twenty days at intervals of three or four days each; during these intervals vigorous massage was applied; each tendo-Achilles was divided, after which the normal condition was more nearly reached. During this time, the mother was taught to extend the hands and massage freely. The fingers were extended separately and collectively, and I must say that during the three weeks of treatment the improvement was much more than I had expected.

The mother returned to her home after the third week and continued the treatment under the direction of Dr. E. S. Buffington.

About May 20, 1894, I again divided both the tendons and plantar fasciæ of each foot, which enabled them to be placed in a better condition than on any previous occasion.

The extremities were bandaged with plaster-of-Paris, which was allowed to remain for ten days, at the end of which time it was found that the position of each foot had been greatly improved.

The mother continues massage of the feet and hands, and the patient gradually secures better use of them.

DISCUSSION.

DR. MANLEY, of New York—This is a matter which must command particular attention on the part of those whose specialty is dealing with the diseases and deformities peculiar to very early life, and in connection with the subject which the Doctor has presented, the question arises, and upon which I hope the members here who have had experience in that class of cases will express themselves, as to whether it is the proper thing at an early stage in life, before the child is weaned and before it has begun to walk, to endeavor at once to radically overcome those deformities, or whether it is better to treat them by a gradual process of manipulation with appliances which will overcome the tendency to those spasmodic inclinations, and try to attain the end in view by massage and electricity.

I must say that so far as my own experience goes, particularly in these cases of talipes varus, by a division of the tendo-Achilles, not only the correction, but hyper-correction of the ankle of the foot, to keep the limb in that form until the spasmodic tendency is overcome, is usually done early. I do not gather that in this case there was any history of heredity as to deformities in any of the ancestors of the child. I simply wish to say that the deformity of the hands produced by action of the same or analogous set of muscles as in the legs, is quite unusual, and I think gentlemen here are interested in seeing the extent of correction the Doctor has effected in this very interesting case.

DR. RICKETTS—I am thoroughly convinced that the best means sometimes are the most radical, and that the best results are obtained only by the most radical means. In this case, as in many cases of club feet and bow legs, I believe in a child it is best to put it in a condition whereby it can get upon its feet as soon as possible. That is why we have better results in this condition of the feet than we do in the hands. If we could go back to the period when we were quadrupeds, and put the weight on the hands that we do on the feet, there would be no reason why the hands should not improve in the same degree as the feet. The question comes up in this case as to what is the best way of treatment. The feet are improving rapidly, the hands are improving also, but as I stated in the paper, the improvement in the hands is much less than the improvement in the feet, for the reason, perhaps, that the weight of the body adds materially to the good influences in correcting the deformity of the feet. This is the sixth case, I believe, that has been reported in this country, so far as I can ascertain. Dr. Reginald, about two years ago, reported five cases of this character, and I have since learned that this is about the sixth case reported thus far in American literature.

PELVIC DISEASE IN WOMEN, AND INSANITY.

Read at the Fifty-first Annual Meeting of the American Medical-Psychological Association, at Denver, Colo., June 13, 1895.

BY GEORGE H. ROHÉ, M.D.

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At the meeting of this Association in 1892, I reported, briefly, the results of my experience in operating upon a small number of insane women suffering at the same time from disease of the pelvic organs. This report was afterward supplemented by more extended and specialized papers read before the AMERICAN MEDICAL ASSOCIATION, and the American Association of Obstetricians and Gynecologists. The work has attracted some attention, and has given occasion for favorable comment and unfavorable criticism. In one instance, a laudable endeavor at imitation was rudely suppressed by the official interference of a State Commission in Lunacy whose *obiter dictum*, that operations upon the insane were "brutal and inhuman, and not excusable on any reasonable ground," as well as "illegal and unjustifiable," received the indorsement of some of the most distinguished members of this Association.

Whether the opposition to the work referred to, can be justified upon medical and surgical grounds, I shall examine later on. For the moment, I desire to invite your attention to the legal aspect of the matter, for if the assertion of the Pennsylvania Committee in Lunacy, that a surgical operation upon a lunatic is in all cases "illegal and unjustifiable," is correct, the sooner physicians and surgeons in attendance upon the insane know it, the better for themselves, although it might not be to the advantage of their patients.

I have devoted a good deal of time and attention to the investigation of this point. In the first place, it was desirable to ascertain what, if any, specific legislation bearing upon this matter existed. My own reading, as well as the experience of several eminent lawyers consulted, failed to disclose any statutory enactment governing the authority of a medical attendant to decide upon the necessity of a surgical operation upon a lunatic.

A priori, a surgeon acting in good faith, and for the benefit of his patient, might therefore perform an operation upon a lunatic without committing specifically, an act contrary to law. Of course it is a general principle of law, and this has found expression in specific enactments, that no one can *in invitum* be even touched by another. And this is held to prohibit the performance of a surgical operation upon a person without his consent. Decisions declaring an operation illegal if the consent of the patient has not previously been obtained are upon record. On the other hand, courts have generally held that this principle is not applicable where it could be shown that the operation was performed for the benefit of the patient.

So far as this legal principle has a bearing upon the performance of surgical operations upon insane persons, it is manifestly confined to the question of what constitutes valid consent. It has been held that a lunatic can not give such consent, and that no other person can give consent for the lunatic. On the other hand, the opinion is held that under certain circumstances, the insane individual is competent to consent to a surgical operation, and that the power to do so may likewise be delegated by a court

of equity to the committee of the lunatic. The latter opinion is manifestly the more reasonable one.

The following propositions may be accepted as based upon the principles of law and judicial decisions governing the question of consent by a lunatic to the performance of a surgical operation:

1. The act of a lunatic, during a sane interval, has in law the validity of a sane person; therefore a lunatic, in a sane or lucid interval, is as competent to consent to a surgical operation of any kind as is any person.

2. The State, acting through courts of equity, is the guardian of all insane persons. The equity court appoints a committee as its agent for the discharge of this duty. Such committee is the legal guardian of the person and has the power to consent to such measures as may be for the lunatic's benefit. The committee of a lunatic has, therefore, the power to give consent for the performance of an operation upon the lunatic, if it should be for the latter's benefit.

3. The lunatic may, even if there is no absolutely lucid interval, be competent to give consent to the performance of an operation, if he understands its object and consequences. It is the central principle of the modern law of insanity that the validity of any act of a lunatic depends upon his capacity to perform the particular act in question. Thus it has been decided that a lunatic is capable of being a witness, although not capable of entering into a contract. The law would probably not exact so high a capacity in a lunatic to consent to a surgical operation as it would to enter into a contract. In these cases, however, the physician or surgeon must assume the responsibility of determining whether the lunatic has that degree of capacity requisite to consent. Manifestly, the surgeon is here placed in a delicate position, but one from which, in emergencies, he has no right to shrink. In all cases of doubt, where practicable, the authority of the equity court or of the properly appointed committee should be obtained. The law therefore, so far as it is applicable here, indicates the nature and sources of consent to a surgical operation in an insane person. The further question whether certain methods of treatment are justified—in other words, whether they are necessary or are for the benefit of the insane person remains to be considered.

Every one will agree that any person suffering from a local disease should receive treatment for that disease, irrespective of whether the person is sane or insane. Thus patients with acute infectious or inflammatory disease, disorders of digestion, affections of the heart, lungs, kidneys, surgical diseases, etc., would all receive appropriate treatment for the local morbid condition in all properly conducted insane hospitals. It has become customary in many institutions for the insane, to subject all patients on admission, or soon thereafter, to a physical examination. In this way it has been discovered that a considerable proportion of insane persons suffer from gastro-intestinal disorders, tuberculosis, heart affections, kidney diseases, etc. There seems however, still a widespread prejudice against examining the pelvic organs of insane women to determine the presence or absence of local diseases in the genital organs and pelvic viscera. The failure to make such examination, systematically, is doubtless responsible for the opinion current among asylum physicians,

that pelvic disease is rare among female lunatics. I have been told by asylum physicians in this country and abroad, that pelvic disease must be rare among their female patients, because so few of these complain of symptoms referable to the genital sphere. Might I ask, how many cases of cardiac disease would be discovered if the physician waited for the patients to complain of disordered action of the heart, or of the kidneys? Has it not occurred to some of those here present to find an over-distended bladder in a male patient when no complaint of local pain or discomfort had been made? I venture to say that systematic examination of the pelvic organs by one familiar with modern methods of examination would disclose a large proportion of pelvic disease among female lunatics. My own examinations in the Maryland Hospital have shown that fully 60 per cent. of the women admitted have some lesion of the genital organs or pelvic viscera. Many of these are of so slight a character as to require no treatment, but others can only be relieved by some form of operative interference. Thus, of the affections I have frequently found, are rupture of the perineum, abscesses, cysts of the vulvo-vaginal gland, lacerated cervix uteri, catarrhal and purulent endometritis (usually following puerperal septic conditions) cancer of the uterus, fibroid tumors of the uterus, salpingitis and ovaritis, pyosalpinx and ovarian abscess, cysts of the ovaries and of the broad ligament, and pelvic peritonitis. Defective development of the external genitals has often been found in that class rather vaguely termed "degenerates." In a certain proportion of cases the diagnosis of masturbation can also be made with certainty by the physical examination.

The objection that a vaginal examination directs the attention of the insane patient particularly to the sexual organs, and in this way has a bad moral effect has, according to my observation, no validity. Most patients can readily be examined without an anesthetic, although in some the examination can be more satisfactorily made under anesthesia. Only once in upward of one hundred examinations did the vaginal examination produce an orgasm. This patient was suspected of masturbation, although she had never been detected in the act. The examination disclosed the elongated nymphæ so characteristic of the constant practice of this vice.

If it is true that pelvic disease is prevalent among insane women (an assertion easily confirmed or refuted by further observation) the question arises, Has the pelvic disease any etiologic relation to the mental disturbance? Upon this point, much more extended clinical observation is desirable. I incline to the belief that there is such an etiologic relation. But my experience is as yet too limited to establish this opinion as an axiom. The personal equation which governs every observer's work has not yet been determined. Others, with the same material might arrive at different conclusions. But no one has a right to deny the accuracy of my observations, or the validity of my inferences, unless upon a similar basis of personal experience. I refuse to recognize the authority of any critic "up a tree." He must come down from his perch and meet facts with facts. Arguments based upon prejudices will not answer.

I have expressed my belief in the causative relation of pelvic disease to insanity in women. The mere coëxistence of pelvic disease and insanity in

women does not establish such a relationship. The cure of the mental disturbance by removing the physical disease, would generally be accepted as a sufficient test. Unfortunately, a cure of the mental derangement does not always follow removal of the local disease. A little reflection will show that there are abundant reasons for this. The brain organization may have already been so much deteriorated by the persistent reflex irritation from the local disease, that local *restitutio in integrum* fails to restore the normal functioning power of the cerebrum. The habit of morbid action of the brain may have been so strongly impressed upon that organ that the original cause of the derangement is no longer necessary to keep it up.

As a contribution to the clinical material upon which eventually any satisfactory conclusion must rest, I shall report in brief my experience during the past four years in the Maryland Hospital for the Insane.

One hundred women were examined, in forty of whom the local lesions found were believed to justify operation. In thirty of these, abdominal section with removal of the uterine appendages, was practiced. In two of these, a subsequent abdominal section was done for the relief of distressing local symptoms. In one, peritoneal adhesions were separated, and in the other a small hematoma was found in the stump of one of the tubes; probably some ovarian tissue had escaped removal at the first operation. The symptoms were pain, metrorrhagia and uterine catarrh. In three of the thirty cases, a secondary vaginal hysterectomy was done. Two of these had already been subjected to a second laparotomy. One of these was finally cured, both of the local symptoms and the mental disturbance. Two cases were subjected to primary vaginal total extirpation of uterus and appendages. In two, repair of lacerated cervix was done. In six, the guardians of the patients would not consent to operation. Of the thirty abdominal sections, there were cured physically and mentally, ten; decidedly improved, four; unimproved, thirteen; died, three.

Of the three secondary vaginal hysterectomies, which are included among the thirteen unimproved after removal of the appendages, one was cured and two remain as before. Of the two primary total extirpations, one was cured and the other so much improved as to give strong hope of ultimate mental recovery. The two trachelorrhaphies both recovered, mentally and physically.

The final results of the operations at present are therefore: cured (physically and mentally), fourteen; improved, five; unimproved, twelve; died, three. Total, thirty-four.

I have frequently been asked, In what class of cases is an operation indicated? My answer always has been, Where there is local disease discoverable on examination. The mental symptoms, themselves, are no guide. Mania, melancholia, confusional insanity, hystero-epilepsy have all been cured. The same forms of mental disturbance have sometimes not been benefited. In consecutive dementia and in epilepsy, where brain deterioration has already occurred, no improvement can be looked for in the psychic symptoms. I believe that in some cases of epilepsy, where there is pelvic irritation, an early removal of the source of the irritation would be of benefit to the patient. In all cases, however, where local dis-

ease exists, appropriate treatment is indicated, irrespective of the mental condition. Thus, all three of the cases who died were of dementia, two consecutive to epilepsy. In all of these there was abundant local disease to demand interference. In one, there were large pus tubes and ovarian abscesses matting all the pelvic organs into a mass infiltrated with pus. In another, there was an intra-ligamentous cyst as large as an orange. The third case was an especially interesting one. The patient was a young colored woman suffering from a second attack of insanity, the first outbreak having occurred in 1884. No accurate history of her symptoms could be obtained. When admitted in 1895, she was in a state of dementia. On physical examination she was found to have a large tumor in the abdomen, which simulated an ovarian cyst, although no definite diagnosis was made. On opening the abdomen a large fibroid tumor was discovered, fed by a multitude of large blood vessels from the omentum. Some of these vessels were as large as a finger, and one was so large that in its collapsed state it resembled somewhat a section of small intestine. The tumor was not connected with the uterus or any of the other solid organs of the abdomen or pelvis. It was adherent over a space, as large as the palm of the hand, to the abdominal wall on the left side, and suspended from the omentum through the blood vessels penetrating it from the latter structure. The vessels were so friable that catch forceps would tear out as soon as applied. The hemorrhage from the tumor, (which was so soft that the finger penetrated it with ease), and from the fragile blood vessels was terrific. As the bleeding could not be arrested with the tumor *in situ*, the incision was rapidly enlarged, the adhesions between the growth and the abdominal wall separated with the hand, the tumor turned out of the belly and the vessels stripped off. The latter were then tied in mass ligatures in three sections, including as much omental tissue as possible, to prevent the ligatures cutting through the friable vessel walls. Three smaller fibroids were then enucleated from the uterus, and the appendages removed. The abdomen was thoroughly flushed out with hot water, two gauze drains inserted, the wound closed with silkworm-gut sutures and the patient put to bed.

The shock and loss of blood were, however, so great that in spite of the subcutaneous infusion of saline solution the patient died an hour and a quarter after removal from the table. The tumor weighed nine and a half pounds and had probably been a pediculated uterine fibroid which finally became separated from the uterus. One of the smaller growths removed had also a very small pedicle and would probably in time, had the patient lived, have become separated from its point of attachment.

Twelve of the recovered cases have been discharged and all but one are alive and, so far as I have been able to ascertain, remain in physical and mental health. Two are still under observation in the hospital.

Of those noted as unimproved after operation, two have since died of tuberculosis, that fatal scourge of all institutions for the defective classes. In no case has the operation seemed to make the patient worse.

The clinical variety of mental disturbance in the recovered cases was: puerperal insanity (mania), four; melancholia, six; mania, three; hysterio-epilepsy, one. Total, fourteen.

In the cases in which complete recovery did not follow the operative measures there were of: melan-

cholia, two; mania, five; puerperal insanity (mania) one; dementia (including four epilepsy), seven (three deaths); paranoia, two; hysterical insanity, two; adolescent insanity, one. Total, twenty.

The number of my cases is too small to allow one to draw any conclusions, but if anything of practical value can be deduced from them it is that puerperal insanity, melancholia and simple mania offer the best chances of cure from the proper treatment of local lesions in the pelvis. Of course it may be said that these forms of mental disorder are just those which yield in the majority of cases to the usual methods of management of insanity. In seven of the cases, however, the insanity had lasted over eighteen months before any treatment directed to the local lesion had been instituted. In a case of hysterio-epilepsy, the patient had been in the hospital seven years, and one of the cases of puerperal insanity had been four and a half years insane. I am convinced that earlier operation in appropriate cases would very largely increase the proportion of recoveries.

I do not claim that these results prove that insanity is caused by pelvic disease, but they do show that judicious treatment directed to the physical disease benefits the patient's mental condition. If that is an object to be desired, then I ask for these results, and for the views I have ventured to express, unprejudiced consideration.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, June 10, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

(Concluded from p. 586.)

DR. E. R. LE COUNT, read a paper on

EMBOLIC ABSCESSES IN THE KIDNEY DUE TO THE MICROCOCCUS
LANCEOLATUS OF FRAENKEL.

The following case is submitted on account of the scarcity of similar recorded observations, and as affording positive knowledge concerning the etiology of chronic diffuse nephritis:

Clinical History—(Abstract). S. C., cabinet-maker, age 35, white, entered the Cook County Hospital Jan. 26, 1895. He had been sick one week and complained of pain in the chest. Examination revealed increased fremitus over the right lobe, bronchophony, an abundance of crepitant râles, and dullness on percussion. The heart showed no enlargement, the sounds were obscured by the respiratory murmur, and there were no adventitious sounds. On admission the temperature was 100 degrees F, pulse 118 and respiration 28. On the second day, temperature was lower. On the third day at midnight the temperature rose to 104.2 degrees F. From this time the temperature remained constantly above 101 degrees F, being frequently 103, 102.8, 104.2 degrees, etc. Death occurred February 2, seven days after entrance.

Post-mortem. (Abstract.) The pericardium was smooth and shiny and the cavity empty. Heart, weight, 310 gr.; size, left ventricle, 7.5 c.m. long; wall, 1.5 c.m. thick; right ventricle 8.5 c.m. long; wall, .3 to .4 m.m. thick. On the anterior surface of the anterior mitral cusp was a large atheromatous area. Some similar smaller areas were present on the intima of the aorta in the sinuses of Valsalva. The myocardium was uniform in consistence and color. Aortic, tricuspid, and pulmonary valves appeared normal. Liver, weight, 2,200 gr. It measured 21 x 19 x 18 x 8.5 x 5 c.m. It was rough and granular externally. On section, the lobules appeared elevated and the interlobular regions depressed. Left lung

floated, crepitation was present throughout. In the posterior portions there was an excess of blood and the pleura were adherent at the apex. Right lung was solid, and maintained its shape when laid on a flat surface. When placed in water, the whole lung sank beneath the surface. The visceral pleura was thickened and covered with a fibrinous, quite adherent, yellowish gray exudate. On section the entire lung appeared gray with a granular surface, from which casts of the more minute air passages could easily be scraped. Spleen, weight, 380 gr.; size 14 x 10 x 6.5 c.m. The capsule was wrinkled, there was no excess of connective tissue on section, and the substance of the spleen was soft and almost confluent. Right kidney weight, 180 gr., size 12.5 x 7.5 x 4 c.m. Externally, there were seen a number of depressed areas along the external border, which showed reddish centers. On section the cortical and medullary markings were quite distinct. The depressed areas noted externally were found to be due to isolated areas of cortical atrophy. In the pyramids were found numerous, white, gelatinous-like streaks, extending at right angles to the bases of the pyramid. These streaks had the appearance of pieces of silk thread imbedded in the kidney tissue. They were never found reaching from base to apex of the pyramid, but always a portion of the distance only, and were generally in that part of the pyramid nearest the pelvis of the kidney. In the cortex a few similar areas were found, but in place of being linear they were dot-like. The whitish streaks noted in the pyramids measured 1 to 2 mm. wide. Left kidney was similar to the right in size and weight, and like lesions were found on section. The capsule was more adherent than that of the right kidney. The other viscera showed no gross changes.

Bacteriologic examination (by Dr. G. H. Weaver): cover-slip preparations from the pyramidal emboli stained according to Gram's method showed many lanceolate micrococci, arranged in pairs which were single or in short strings. By treating with glacial acetic acid, and staining with solution of gentian violet, capsules are seen about the pairs. Cultures made on Guarnieri's medium made from the embolic areas gave a growth of cocci which corresponded in every way to the micrococcus lanceolatus.

Histologic examination of sections stained with hematoxylin and eosin revealed in the pyramids many linear abscesses or areas of necrosis. Where the changes were least marked, the blood vessel (a branch of one of the pyramidal arteriole pencils) was found plugged with leucocytes. Around this a small zone of infiltration with polynuclear leucocytes. Many of these showed beginning nuclear fragmentation. The larger areas were simply exaggerations of the more minute. In these (the larger), the connection with the blood vessel was not as easily made out, the zone of leucocytic infiltration was wider, the central necrosis and nuclear fragmentation more marked. Sections stained in picrocarmine for twenty-four hours and then by Gram's method gave a beautiful picture of the tissue changes, and showed the centers of the involved areas to contain large numbers of lance-shaped micrococci, in pairs and occasionally two or three pairs together forming short strings. Capsules about the diplococci were demonstrated in sections.

The micrococcus lanceolatus or pneumococcus of Fraenkel was first found in the blood of animals which had been injected with sputum from patients suffering from pneumonia by Klein.¹ The subject was afterward studied by Sternberg in this country.

Foa and Rattone² injected pure cultures of the micrococcus lanceolatus into the kidneys of animals and found localized areas of inflammation as a result. Dreschfeld³ mentions finding the Fraenkel micrococcus in the vessels of the kidney but says nothing concerning the condition of the kidney tissues. Senger⁴ describes five cases of meningitis occurring with pneumonia, two cases of endocarditis, and two cases of nephritis. But his methods were such, that they can not escape criticism as to proof of direct etiologic connection with the Fraenkel micrococcus, as was later pointed out by Weichselbaum. The last named author⁵ in 1886 found the micrococcus lanceolatus in the connective tissues of the mediastinum, between the esophagus and vertebræ, and about the trachea, in cases of pneumonia. Mircoli⁶ described one case of primary acute nephritis in which he found encapsulated micrococci which stained with Gram's method. These he considered as identical with the pneumo-

coccus of Klebs. Weichselbaum⁷ again in an article on some of the rarer localizations of the micrococcus lanceolatus, described one case of ulcerative endocarditis which followed pneumonia in which this microbe was found by culture methods in the vegetations of the aortic valve, and in an embolus of the Sylvian artery and the surrounding localized meningitis. In this case two infarcts were found in the spleen but nothing was said concerning their bacteriologic nature or the histologic changes in the spleen tissue. In another case of endometritis, peritonitis and pleuritis, the Fraenkel micrococcus was found as an etiologic factor in all places and it was recovered by culture methods from the kidneys. The liver and kidneys presented a cloudy appearance and seemed swollen. In sections from the kidneys a few micrococci were found in the small blood vessels.

A third case of this series was a case of pneumonia complicated with suppurative joint inflammation. At the autopsy a large infarct was found in the spleen, and in the kidneys were smaller infarcts. Cultures from the kidneys were negative. In sections from the kidney and spleen infarcts only few micrococci were found, and these in the small blood vessels. The author believed these processes to be due to the Fraenkel micrococcus and accounted for the paucity of bacteria by the fact that being dead they would not take the stain. As is well known this microbe may cause suppurative inflammation.

Illustrative of this, Zaufal⁸ in an article on otitis media notes its occurrence in an abscess in the region of the mastoid. Weichselbaum⁹ finds it as the direct cause of a case of primary acute peritonitis and Bouloche¹⁰ describes in detail a case of multiple suppurative arthritis and myositis caused by the micrococcus lanceolatus. Ortmann and Samter¹¹ were among the first to describe abscesses of the soft parts due to the micrococcus of Fraenkel. The case was not unlike puerperal pyemia, but occurred in the male. Abscesses formed in the right thigh, right and left popliteal regions, lumbar and coccygeal regions. The observers also made mention of infarcts the size of a pea in the kidneys of a rabbit which was inoculated with a culture of the micrococcus lanceolatus, and in the infarcts the same organism was found.

Nauwerck¹² found in two cases of nephritis which occurred as complications of pneumonia, cocci in the glomerular capillaries which he considered as identical with Friedländer's pneumococcus. His results were incomplete as he made no cultures, nor was Gram's staining method employed.

Pansini¹³ reported four cases of primary acute nephritis due directly to the Fraenkel micrococcus. He suggested that the microbe might emigrate upward, as it has been found often in the normal urethra.

A case of primary importance is that reported by Eisenlohr.¹⁴ The patient had pneumonia in December, 1890, at which time the following symptoms of an acute nephritis developed: anasarca, pleural effusion, urine, 6 per cent. albumin, casts, red and white blood corpuscles, sp. gr. 1020 to 1015, quantity twenty-four hours, 1,000 to 1,400 c.c.m. Recovering from the pneumonia, she suffered from uremic symptoms in January, 1891, at which time the quantity of urine dropped from 1,000 or 1,500 to 300 c.c.m. for every twenty-four hours. During the following summer the urine contained 2 to 3 per cent albumin. Oct. 14, 1891, symptoms of uremia again developed, which resulted in death four days later. At the autopsy the kidneys were found small and granular; right, 9 x 6.4 c.m.; left, 9.5 x 5.3 c.m. The cortex measured 2. to 3. m.m. only. The glomeruli appeared as small pale-red points, and the capsules were adherent. Microscopic examination revealed in the cortex numerous large and small areas of round cell infiltration between the glomeruli and convoluted tubules, numerous hyalin casts in the tubules, desquamation of the tubule lining, and in the pyramids also, round cell areas.

While there was no way of proving in the case just cited, that the condition of the kidneys, and consequent uremia, was due to the localization in the kidneys of the micrococcus lanceolatus, the data here somewhat cursorily brought together seem to warrant the following conclusions:

That an infection of the blood with the micrococcus lanceolatus may occur as a complication of pneumonia.

That the secondary localization of these may cause various lesions, abscesses, septic infarcts, simple areas of necrosis, etc.

That an acute nephritis during or following pneumonia, may be caused by embolic processes due directly to the micrococcus lanceolatus.

That in the event of recovery from the pneumonia and the acute nephritis due to such embolic lesions, the re-

sulting kidney lesions may play an important part in the production of a chronic diffuse nephritis.

- ¹ Centralbl. f. d. Med. Wiss. No. 30, 1884.
- ² Archiv. Italiennes de Biologie T. IV, p. 336, 1884.
- ³ Fortschritt der Med. 12, 1885.
- ⁴ Archiv. f. Exper. Path. Bd. xx, p. 349, 1886.
- ⁵ Wien. Med. Jahrb. 1886.
- ⁶ Centralbl. f. d. Med. Wiss. 1887.
- ⁷ Wien. Klin. Wochenschr. No. XXVIII, XXIX, XXX, XXXI, 1888.
- ⁸ Prag. Med. Wochenschr. No. VI, II, f. 1889.
- ⁹ Centralbl. f. Bak. und Par. No. II, 1889.
- ¹⁰ Archiv. de Med. Exper. et d' Anat. Path. No. II, 1891.
- ¹¹ Archiv. f. Anat. Path. (Virehow) Bd. 120, II, 1, 1890.
- ¹² Beiträge zur Path. Anat. Bd. I.
- ¹³ Rif. Med. Napoli, 1897, IX, pt. I.
- ¹⁴ Deutsche Med. Wochenschr. No. XXII, 1892.

DISCUSSION.

DR. JAMES B. HERRICK.—The more we learn concerning the pneumococcus the more, it seems to me, do we see that we do not thoroughly understand this microorganism and the pathologic changes and clinical manifestations that it produces. Clinically, at least, it seems not improbable that under the head of pneumococcus may be included diplococci that, though morphologically alike, are in reality not identical. The pneumococcus shows itself in the lungs in the manifestation of croupous pneumonia. It may excite inflammations of the various serous membranes, those covering the heart, its lining, membranes of the joints and not infrequently the meninges. We know, too, that in some unknown way it seems to excite epidemic cerebrospinal meningitis, and encephalitis. I have seen an autopsy of a case where the sole finding was a little softened inflammatory area in the encephalon that contained nothing but a pure culture of the pneumococcus. No infection atrium could be found in that patient after a most careful search.

The findings of Dr. Le Count seems to warrant his statement that in some cases of pneumonia the blood itself becomes infected with the pneumococcus.

I have read an abstract of an article by some Italian whose name I can not at present recall, in which he claims to have found the pneumococcus in the blood of twenty-five consecutive patients with pneumonia. In about half the cases the examination was made post-mortem, and in the remaining half the examinations were made during life. Just how reliable his methods are, one can not accurately judge from the abstract. His method of examination was to withdraw blood from the patient's blood vessels and inject a rabbit. The rabbit died of pneumococcal septicemia. He concluded as the result of his examinations that in cases of croupous pneumonia the blood was always infected.

The practical bearing of Dr. Le Count's paper is that the kidney should always be carefully examined, through the urine, as an aid in prognosis, and as an assistance in explaining the protracted course of cases of pneumonia such as the one just described.

DR. FRANK X. WALLS—I have never seen a case of pneumonia with this complication, consequently I have but little to add to what Drs. Le Count and Herrick have said. A question of interest is a possible explanation of why this disease is so infrequent. Suppurative complications in other organs of the body during the process of pneumonia are not infrequent, more particularly of the pleura, the peri- and endocardium, the meninges, etc. Multiple renal abscesses in the course of other diseases, especially of a pyemic character, are frequent, and their frequency is explicable when we consider the histology of the kidney. Yet, despite the frequent occurrence of suppurative processes in pneumonia, this kidney complication is exceedingly rare. It is well known that the diplococcus exhibits great variation in the virulence of its toxic properties, as has been shown by experiments on animals. It is the property of the kidney to eliminate toxins, and thus may render the bacteria inert, and explain why the complication is so infrequent. That the kidney does eliminate these toxins in considerable quantity, abundant clinical and post-mortem evidences of renal damage during the course of pneumonia, would seem to bear witness. The diplococcus has been found in the urine of pneumonia patients.

A case of pneumonia which Dr. Herrick recently saw in consultation, an elderly man, who died on the eighth day, I saw shortly before his death. His urine, when examined showed, in addition to considerable albumin and blood, a considerable number of cocci. But this was a case of nephritis which occurred at about the crisis of pneumonia. Probably the infrequency of these lesions is due to the fact that ordinarily the diplococcus is mild, and the renal epithelium is able to take care of what toxins may be produced, until under unusual conditions of virulence these germs paralyze the integrity of the renal epithelium and abscesses form.

The Doctor has suggested that sometimes the disease is produced by secondary extension from the pelvis. It might have been in this case secondary to a pyelitis, which is a much more frequent accompaniment of pneumonia than are multiple renal abscess.

DR. LE COUNT (in closing).—In answer to Dr. Walls, I wish to state that there was no pyelitis and the kidney changes, both gross and microscopical, were not such as could be explained by an extension into the kidney substance from the pelvis of a pyelitis. In the cases Pansini reported he merely offered that supposition as a possible explanation.

American Public Health Association.

Proceedings of the Twenty-Third Annual Meeting, held in Denver, Colo., Oct. 1-4, 1895.

FIRST DAY—TUESDAY—OCTOBER 1.

The Association was called to order at 10:30 o'clock A.M. by the President DR. WM. BAILEY of Louisville, Ky., in the Brown Palace Hotel, with sixty-five members, delegates and ladies in attendance.

The President in a humorous vein congratulated the Association, because the members had had the opportunity and privilege of meeting in the beautiful city of Denver.

DR. HENRY SEWALL, chairman of the Local Committee of Arrangements, delivered the Address of Welcome to the visitors, and explained the symbolic features of the badge which was to be worn by them for the purpose of identification. The violet ribbon typified the State flower, the columbine, while the yellow or gold colored ribbon to which it was joined was an exhibition of courtesy and intended as a compliment to the Eastern members who were generally regarded as "gold bugs;" others thought the yellow ribbon indicative of the sun flower. The silver brick and pin with which they were fastened, having on one of its three sides the letters Denver, A. P. H. A., and 1895, needed no explanation, and as the suggestion had also come from the East that the bottom had dropped out of silver, the analogy had been carried out by making the brick hollow, another compliment to the Eastern members which they would doubtless appreciate. Your duties are largely regarded as those of a missionary sense, and we expect to profit as a result of the good cause you are engaged in, and we gladly welcome you to the Centennial State. The chairman then made a number of announcements appertaining to the various social entertainments for the visiting delegates and their families.

REPORT OF THE EXECUTIVE COMMITTEE.

This committee, by Secretary Watson, submitted a list of about seventy applications for membership which the committee had considered and recommended that they be elected members of the Association. Upon motion to that effect, the secretary was authorized to cast the unanimous ballot for the names presented. He also read a telegram, dated at Chihuahua, Mexico, from the Mexican delegates, stating that they were delayed on account of a washout along the railroad.

The first paper announced,

THE MISSISSIPPI RIVER AS A SEWER,

and was read by DR. JOSIAH HARTZELL, of Canton, Ohio, member of the Ohio State Board of Health. The author produced statistics to show the tremendous quantities of dead animal matter which yearly floated down the Mississippi, and the consequent damage to public health. He criticised Chicago and the sewer purposes to which it devoted the Chicago River. Comparisons were made of the Valley of the Mississippi, with the Nile, Rhine and Chinese rivers, and gave an estimate of the territory drained and the consequent amount of filth, dead and decaying vegetation, carcasses of animals, etc., that were washed into the river, converting it into a *cloaca maxima* for the whole interior basin of the continent. In Leeds, England, the authorities, on complaint of the residents living below the city, prohibited the municipal government from using the stream for such purposes, and that must be the ultimate result in this country. Strict National legislation to prevent the principal streams of the country from pollution, in order to save the game fish in those streams was suggested. Whether this result will be obtained, he doubted, so long as the average politician is engaged in scrambling for office, as he is not a sanitarian and is not greatly interested in public health matters. Incidentally, the writer gave a brief description of the great drainage canal at Chicago, and the benefits to be derived therefrom. Disposal of sewage in the cities of Berlin, Paris, London and New York were mentioned

and briefly described. The fever plagued cities of western Pennsylvania, West Virginia, Ohio, Illinois, Minnesota and Nebraska were also mentioned. The statutes of Illinois, Ohio and other States were quoted at length, regarding the pollution of streams. The laws on fish culture were also quoted *in extenso*.

The remedy advocated, is the establishment of a government commission, analogous to the English Rivers Pollution Commission, or the German Imperial Board of Health. This commission should supervise the sanitary condition of navigable waters, and should have ample authority. So long as the general government is inert and indifferent in regard to this matter, the State Boards of Health of all the States bordering on the Mississippi system of waters are handicapped. Their efforts to suppress epidemics arising in other States and carried to them through the medium of rivers under government control, are paralyzed. No general plan of sanitation and of stream purification can be successful until the State Boards of Health have the practical coöperation of the Federal authorities, and this can be accomplished by a National Department of Health or a commission appointed by Congress having this matter under its charge.

The succeeding paper was upon an analogous topic,

WATER POLLUTION, AND PURIFICATION OF WATER SUPPLIES, read by DR. PETER H. BRYCE, of Toronto, Secretary of the Provincial Board of Health of Ontario, who considered the subject mainly in its international aspect. He criticised the authorities at Buffalo and the recklessness with which they distributed garbage, so that contractors might be the gainers, commercially, in relieving that city of its unpleasant effects, while the cities across the border would be the sufferers. He cited instances in which he had pursued some garbage boats in a cutter in Lake Ontario, and stated that the government had narrowly escaped an international complication on account of what he had done. It was the duty of health officers on both sides of the line to see that sanitary regulations were rigidly enforced. Especially was this true, regarding the St. Clair or Detroit River, and the Niagara River.

DISCUSSION.

DR. ERNEST WENDE, of Buffalo, N. Y., desired to make a correction regarding the disposal of garbage in his city. Buffalo cremates her garbage, and does not deposit it in the Niagara River or Lake Ontario.

DR. A. W. CANTWELL, of Davenport, Iowa, said regarding the pollution of the waters of the Mississippi River, that he thinks their purification can only be brought about by National legislation, and the same authority will prevent the dumping of garbage into our rivers. The proper method to dispose of the latter is by cremation, and this costs something.

DR. E. A. GUILBERT, of Dubuque, Iowa, said he deeply appreciated any action that may be taken in this matter by this Association, and that this matter was before the last Congress. His State Board of Health commended the bill, as this can not be done by State legislation.

DR. P. H. BAILHACHE, of Staten Island, N. Y., said that if this matter, or any bill having for its object the passage of such measure was before the last Congress, that the subject was dead—as the last Congress had died.

DR. J. J. KINYOUN, of Washington, D. C., thinks the subject of the pollution of water supplies in the United States is unique and stands alone. He advocated the appointment of a special commission to take charge of this matter.

DR. FELIX FORMENTO, of New Orleans, La.—We should not lose sight of local interests from a sanitary point of view. These platonic recommendations are not usually acted upon. We should do something beyond the expression of our opinions. We must have a practical plan. I do not think the lower Mississippi is polluted, as has been stated, from the offal deposited in its waters several hundreds of miles above New Orleans.

DR. J. N. MCCORMACK, of Bowling Green, Ky., moved, duly seconded, that a committee of three, members of this Association, be appointed by the chair, with Dr. Bryce as chairman, having full power to formulate a plan and suggest to Congress that something in the way of National legislation in this matter should be done.

DR. R. H. LEWIS, of Raleigh, N. C., thought that this committee should suggest to Congress just what should be done, and that it should submit the plan to be carried out.

The motion then prevailed.

DR. E. P. COOK, of Mendota, Ill., thought that there is no subject more worthy of our consideration than that of water pollution and pure water supply. Purity of water for do-

mestic purposes and drinking purposes is one of the great problems that we are now discussing in interior Illinois where I live. Filtering and sterilization will do it, but a cheap method is what we are desirous of getting. What disposition is to be made of garbage, rubbish and sewage is another very important subject to deal with. Cremation of the former is costly where a crematory would have to be erected and kept in operation in a small city of 5,000 inhabitants; while the latter, we know, when it finds its way into our wells and small streams contaminates the water in them. This is inevitable. Regarding Chicago and her disposal of sewage, the nearest course to the sea is through its new drainage canal, the Illinois and Mississippi Rivers. He thinks our Canadian neighbors should be under obligations to Chicago for diverting her sewage away from the lakes.

MR. R. HERING of New York, spoke from the standpoint of a civil engineer. He heartily indorsed the sentiments set forth in both papers, in their ideas of the purity of water supplies. He believed in National legislation upon this subject, although some of the questions advanced in the first paper are impracticable. People can not pay for complete purification of drinking water. The question is not nearly as serious as has been made to appear here to-day. An estimate has been made that we can not precipitate the sewage for less than 30 cents for every man, woman and child. Regarding the Chicago drainage canal, 600,000 cubic feet of water per minute from Lake Michigan, passing through it, will purify the stream along down the canal and river to the Mississippi, then the Chicago River will not be nearly so bad as it is now. All waters for drinking purposes should be filtered by those residing in large cities. As for garbage, this should never be permitted to be put into streams. Civil engineers are often confronted with these questions, and almost as frequently perhaps, it is a question of not what we ought to do, but what we are obliged to do, as the next best thing on account of lack of money.

DR. C. O. PROBST, of Columbus, Ohio, said that the farmers in Ohio have combined together, and given bonds, and in two or three instances they compelled cities for instance Canton, Oberlin, and Fostoria, to purify the water supply or erect a crematory as was done in the latter city. These cities at first refused to do this. Fostoria built what they call an intermitting chemical plant.

DR. BRYCE closed the discussion, by stating that he thought a civil engineer like Mr. Hering should be made a member of the committee.

The concluding paper of the first session, was "The Report of the Committee on Animal Diseases and Animal Foods," by D. E. SALMON, D. V. M., chairman, Washington, D. C., which was read by Dr. Hewitt of Minneapolis. The report was brief, and one of the material points it contained was that the United States government should have control of meat inspection; particularly is the inspection of pork carried on in a perfunctory manner, and it is not thorough in the various States in the Union.

The report was discussed first by Dr. P. H. Bailhache who stated that the inter-state law is drawn as closely as it can be, for the enforcement of any law, and the Federal government can not further interfere. It has no right to step in and order anything done different from that which has been properly enforced by any State.

DR. CARL WEIDNER of Louisville, Ky., said he could not indorse the argument of Dr. Salmon in the matter of pork inspection as being inadequate and useless for trichina. This argument is dangerous. A thorough microscopic inspection will detect trichinous meat. We might as well say that we can not detect polluted water. This argument is unjust to the people. Thorough inspection will do a great deal of good.

DR. HEWITT stated that he does not take kindly to State inspection. Tuberculin and mallein is supplied to a State when requested, from the United States government. Over one thousand animals in Minnesota had undergone the test. Coöperation between a State and the nation is easily arranged, and this is a practical way to accomplish that which is desired.

DR. KINYOUN indorsed in the main the views contained in the report, but thought not enough emphasis was placed on the matter of tuberculous meat. While the greater portion of bad meat can be detected if the carcasses are carefully inspected, yet as long as we shut our eyes to microscopic examination, we are going to invite tuberculosis.

DR. H. N. AVERY of Indianapolis, Ind.—In relation to tuberculous meat and swine fever, nothing but local inspection by local health officers can detect these conditions. This should be done by meat inspectors. At Indianapolis nearly

five hundred head of milch cows had been inspected in the last thirty days. The sputa, and milk, cheese and butter should all be examined microscopically. Ocular and physical examination are entirely useless. Tuberculin is the only infallible test, and in nine cases out of ten, we can detect tubercular disease if it is present.

Dr. HENRY MITCHELL, of Ashbury Park, N. J., Secretary of the State Board of Health of New Jersey, offered the subjoined preamble and resolution, which under the rules was referred to the Executive Committee:

WHEREAS, An order of the Post Master-General prohibits the use of the mails for the transportation of diseased tissues.

WHEREAS, Specimens suitable for bacteriologic examination can, when inclosed in proper packages, be transported in the mails without endangering the health of persons who may handle them, and without risk of contaminating other mail matter.

WHEREAS, bacteriologic examination in cases of tuberculosis and certain other infectious diseases constitute an invaluable defense against the spread of the pestilential affections by providing an exact method for early and accurate diagnosis. Therefore be it

Resolved, That the American Public Health Association hereby respectfully requests the Postmaster-General to so modify the order now in force that specimens of diseased tissues, when properly inclosed in approved mailing packages, may be admitted to the mails for transmission to State and municipal laboratories.

FIRST DAY—AFTERNOON SESSION.

The afternoon session was called to order at 2:45 o'clock with PRESIDENT BAILEY in the chair, and was devoted to a symposium on Car Sanitation. The first paper presented on this subject was a brief one, and in absence of its author, Mr. E. C. Jordan, C. E., of Portland, Me., was read by Dr. A. G. Young, of Augusta, Secretary of the Maine State Board of Health. Although the writer made no recommendations, he described the manner in which the Pullman and Wagner sleeping car companies cleaned their cars, removing rugs, carpets, mattresses, etc. The mattresses are renovated every six months and the blankets changed once in three months. In case of any infectious disease the utmost care is used, and disinfectants are liberally applied.

The second paper was

ON THE VENTILATION OF RAILWAY COACHES,

by PROF. S. H. WOODBRIDGE, of Boston, Mass., (one of the professors in the Institute of Technology of that city) which was, in the absence of the author, read by Dr. S. H. Durgin, ex-President of the Association. The following is a brief synopsis:

In enumerating the discouragements which meet those trying to secure perfect ventilation, the author stated that human frailties were a greater obstacle than mechanical difficulties. The ventilation necessary in a hospital is unnecessary in a railway coach, and accommodation trains require less ventilation than cars used on lightning express trains. The per capita space is about sixty feet in the average day coach. To regularly supply the quantity of fresh air requires many improvements on the present unreliable and inadequate methods. The use of vestibule cars, made up for long runs, interferes with ventilation from the ends of the cars.

These propositions were laid down for the proper ventilation of cars: The air must be furnished by other than natural means. The supply must be affected as little as possible by the movement of the coach. The heat must be furnished from the floor, and the air must be filtered to avoid dust and cinders. In winter the air must also be warmed continuously, and regularly supplied without annoying drafts. The action must be plenum rather than vacuum, and care must be used to secure perfect distribution. An electric fan with a suitable filter was recommended and overhead channels for supplying air. The development of electric appliances will assist in securing a perfect system of ventilation. Finally, it should be remembered that in all ventilating undertakings but one-half of the requirements are fulfilled when the most perfect apparatus conceivable is furnished. The excellence of a tool does not insure the quality of its product. Quite as much depends upon the user as the tool, and not infrequently a superior apparatus is made, on its reputation, to bear the burden of the operator's infirmities. It would seem to be of more than doubtful utility to equip coaches with carefully designed means for ventilation unless railroad employees are systematically trained to their use, and they and the traveling public are educated to habits of cleanliness

and are free from the trouble-making notions and imaginings which prevail, even among cultivated people, with reference to ventilation. The proper function of ventilation begins only after cleanliness has done its most perfect work. For a long time to come, to an innocent and dutiful ventilation is likely to be laid the sin of uncleanness of person and environment.

Ventilation deals with unseen air, unseen aerial movements, and generally with unseen motive forces. The field is rich for a rank growth of notions and imaginings and quackery. Hence the large and important part imagination plays in ventilation effects. It is important, therefore, that any system planned to give the surest and highest satisfaction should furnish ocular evidence of its existence and of its action. In a well ventilated room a raised window through which no air moved inward has often been known to give great and immediate relief. Any successful crack ventilation must include such self-announcing means as shall enlist imagination in its favor and put an effective stop to window raising, that fatal disturber of the working of artificial ventilation. In conclusion, he thought the imagination was an important factor and not to be overlooked in any system of ventilation, but the railway managers should be required to remove every reasonable excuse for opening car windows.

The next paper announced on the program,

RELATING TO CAR SANITATION,

was by DR. DOMINIO ORVANANOS, of Mexico, Mex., and was presented by Dr. C. O. Probst. He briefly described the opposite ideas which prevailed in the United States and Mexico with reference to car ventilation, due to the different climatic conditions. The subject was one full of difficulties. In Mexico, where the railways are generally traversing high ground, the ordinary way of opening a few windows keeps the car comfortable; while he had noticed that in America the travelers generally wished the ventilators removed and the windows closed, the reverse was the case in Mexico. The ventilation must be regulated according to the temperature. It is much more difficult to devise a means of ventilating sleepers than day coaches. He finds the prevention of the transmission of disease an even more difficult matter than the regulation of ventilation, but thinks the Mexican railways are better off than those of the United States.

1. The cars, except the sleepers, are not furnished with upholstered seats.

2. Only a limited number of persons travel.

3. Two of the commonest infectious diseases, tuberculosis and diphtheria, are almost unknown in Mexico. Other infectious diseases are not propagated in railway cars because convalescents are not allowed to travel. After much investigation, he had only found a few cases of bronchitis, pneumonia and pleurisy which originated in cars. In treating of measures on this subject, it is always necessary to insist on them until their adoption is obtained. The measures he advocated were:

1. Watchfulness on the part of the local sanitary authorities to whom pertain each of the railroad stations with large traffic, and with the object of preventing the embarkation of individuals who might transmit the diseases.

2. The appointment of medical inspectors on the lines or in the places where it is considered necessary.

3. That the railroad cars should be furnished with cushions and hangings that can be easily taken off and replaced.

4. The disinfection of the cars themselves, either wholly or in part, whenever the medical inspectors should deem it advisable.

5. The prohibition under severe penalties of expectorating in any part except in the cuspidors, of which a sufficient number should be provided, and which should contain a solution of bichlorid of mercury of 1 to 1,000.

The last paper on the program and the most thorough treatment of the subject was the

REPORT OF THE COMMITTEE ON CAR SANITATION,

which was presented by DR. GRANVILLE P. CONN, of Concord, N. H., chairman of the committee. He invited attention to the fact that his subject was one which was evidently growing in interest, the proof of this being amply shown in the fact that there were three papers on this question, and a whole session devoted to its consideration. Dr. Conn thinks there is danger of overlooking the ventilation of the day coaches, in dwelling on that of sleeping cars. He spoke also of the necessity of holding employees responsible for the condition of the cars in their charge, and cited the Wagner Palace Car Company as having instituted a school of in-

struction for their train employees. A number of reports from various railways were submitted, showing the sanitary precautions used in the care of cars, supply of drinking water, ice, etc. A fact cited worthy of note was the international conference on sanitary care of railways which was recently held in Amsterdam. Its object was to consider the methods in use in various countries to care for the interest of travelers on land and sea. Its work was divided into three heads: 1, capacity of officials; 2, medical service; 3, hygienic interests of travelers and employees. As yet the sessions have not been made generally public.

For the purpose of obtaining accurate information, Dr. Conn sent out a circular letter to the general passenger agents, and was generally referred to the managers of the rolling stock. The answers show a wide range of opinion and practice in these matters. One road having one of its termini in Denver says it has no sanitary system, and does not believe it would be practicable or necessary to have an inspection similar to that made of the wheels. The Chesapeake & Ohio railway has a very satisfactory system, as has also the Baltimore & Ohio. The conditions on the Southern Pacific are by no means reassuring to the traveler. Dr. Conn said, in conclusion, that this was a matter which was receiving more and more attention, and that the through line that takes the most advanced position in alleviating the discomforts of the traveler; that shows by the cleanliness of its cars, their heating and ventilation, and above all by the uniform courtesy of their employees, the fact that they have a department of hygiene as well as of surgery, will reap its own reward, and save thousands of dollars in its advertising department. Of the preceding papers, he said: the conservative manner in which Senor Dr. Domingo Orvananos, of the Republic of Mexico, has treated the subject of car sanitation, I most heartily commend the same to the public, and to the railway managers of countries now embraced by this Pan-American Association. The sentiments contained in his report are those of wisdom and ripe judgment, and are worthy of the man, as well as an honor to the Republic of which he is a representative sanitarian.

The report of Professor Woodbridge, of Boston, is a clear and concise statement of the sanitary conditions which he found in railway cars that came under his observation, and the suggestions which he has made are to be noted, and if adopted by railway companies would insure to the public more healthy conditions in traveling, and prove of immense value to the railroads themselves.

DISCUSSION.

Dr. Kinyoun called renewed attention to the disinfection of coaches, especially of the sleeping cars of any of the sleeping car companies. They should be disinfected at the end of the route, or of every trip if it lasts over twelve hours. Phthisis, diphtheria, and perhaps pneumonia, and the exanthems could be transmitted from State to State, hence the most stringent methods should be insisted upon everywhere. What germicide shall we use for the germs of tuberculosis? A 15 per cent. volume of burning sulphur is not sufficient, although it might do for the exanthems. Steam will, in a certain sense, prove adequate when used by an experienced or competent person. An ordinary car can be disinfected in ten minutes by the use of a spray of formalin which he had found to be the best disinfectant or agent to kill smallpox and other germs. It is more effective than tricresol or carbolic acid and is easy to handle.

Dr. Duggin inquired of Dr. Kinyoun if he had considered the separation of the upholstered work, mattresses, etc., from the woodwork in the use of formalin or sulphur.

Dr. Conn closed the discussion by saying that formalin is a well-known agent, and when it dries, it forms a dust or powder that will kill germs in the carpets and in the other furnishings of our cars. He also stated that he thinks the mechanic and the sanitarian are coöperating in this matter.

At 4:10 o'clock the session adjourned until 8 p.m.

FIRST DAY—EVENING SESSION.

The Association re-assembled at 8:15 o'clock p.m. at the Trinity M. E. Church, with the President and Vice-President (alternating) in the Chair. Others on the platform were ex-presidents La Chapelle, Montizambert, Hewitt, Formento, Durgin, His Honor Mayor McMurray, His Excellency Governor McIntyre and Chancellor McDowell. Several organ solos were rendered by Dr. J. H. Gower. After prayer, President Bailey introduced Governor McIntyre, who formally welcomed the Association to the Centennial State as follows: No Association which had honored Denver with its presence was more important in the subject matter of its deliberations than the one which had just convened. He

drew a comparison between the treatment of the health of the individual as contrasted with the health of individuals in the aggregate. So important is this subject that even now the matter of public health does not receive the consideration which is its due. He believed in the elevation of the public health officers to the position of recognized State officials. He heartily welcomed the Association to this State and capital, and closed amidst applause.

Mayor McMurray was then introduced. He said it was a pleasing duty which devolved upon him to welcome them individually and as an Association. The subject to which they devoted themselves transcended in value any that could come up for consideration among any body of men or women, for the human life is of preëminent importance. Whatever the line they might consider, whether disease in the epidemic or ordinary form, their effort was to advance the public welfare. Whatever they did he hoped they would have a very pleasant and profitable time while in Denver and that the result of their labors would be of value not only here but in every community from which they hailed. He hoped their stay would be enjoyed and they would find pleasure in returning here in the days to come in their capacity as private citizens. The Mayor was greeted with a burst of hearty applause.

The magnificent "Offertoire" of Batiste was then rendered by Dr. Gower, after which Dr. Wm. Bailey of Louisville, Ky., was introduced to deliver his Annual Address as President of the Association. Dr. Bailey begged to acknowledge the honor of having been President for the past year. The Association numbered in its members and workers some of the most illustrious sanitarians of the continent. "I congratulate the Association," said Dr. Bailey, "upon its meeting in the convention city, the Queen City of the Plains, the beautiful city of Denver. In the wonderful State of Colorado, fit Centennial State, with advantages as yet untold, with a climate that will challenge the admiration of the sanitarians as perhaps none other can, with an atmosphere of marvellous purity almost sterile as to pathogenic germs, and without the necessity of international agreement of unlimited coinage, the coin of the realm, the parity of which is guaranteed and maintained by the Almighty himself.

"The American Public Health Association had a valuable object lesson of the good the Association had done by a reduction of 50 per cent. in the death rate of this city," Dr. Bailey continued. "The past year had been a good one from a health standpoint. Cholera threatened the Western border, but the efficient corps in California might be depended upon to keep it out, calling for assistance if need be. He spoke of the importance of quarantine regulation, and the value of the report on the purity of water supply. A number of college professors were unable to attend the meeting because of the college sessions having commenced. This suggested the change to an earlier date the time of meeting. The Association should perfect its plans to celebrate the centennial anniversary of Jenner, the discoverer of vaccination. He suggested a memorial report. He said there was hope that in time they would be able to afford immunity from such diseases as cholera, scarlet fever, diphtheria and consumption, as they now have immunity from smallpox."

The speaker wondered that there was not a National Department of Health. Gladstone had termed the work the highest object of government. More careful quarantine laws were needed. Careful inspection would prevent many of the contagious and infectious diseases. The difference between the government of the United States and foreign governments in respect to the investigation of diseases and their causes was contrasted. Professor Koch was assisted by his government.

The question of the pollution of the water supply was next touched upon. Nothing was of more importance than the purity of water. He hoped the members of the convention would assist the work of the committee appointed to investigate this vital question.

"The greatest question," said the speaker, "to sanitarians is immunity from disease. Management of disease must become more national as this was investigated and made known." He quoted the result of vaccination in lessening the ravages of smallpox in proof of his statement, and added that smallpox should be considered a disgrace to a city. He advised a report setting forth the truth regarding vaccination, so as to remove false impressions. Such a report would be a fitting memorial to Jenner. He gave it as his opinion that immunity from other infectious diseases was sure to come in a few years as a result of study of bacteria and disease germs.

CHANCELLOR McDOWELL was the last speaker on the

program. He said that the public health question had made many persons uncomfortable. He was afraid to go anywhere because he feared to meet a microbe with a club. It was uncomfortable because the physicians had turned the microbe loose. Now there was but one thing to do. That was to give public health the right of way. He believed in personal liberty, but personal liberty required some restraint because of the public welfare. The man who refused to obey the public health officer deserved punishment. Were not the water rates so high he would favor the mayor turning the hose on the offender. The health office should be taken out of politics. If it were kept there he feared it would become full of microbes. The speaker urged upon the public the necessity of joining with and seconding the health officer in his work, and closed by a wish for the thorough enjoyment of the delegates during their stay.

At 9:30 o'clock the Association adjourned until Wednesday forenoon.

(To be continued.)

BOOK NOTICES.

The Pathology and Surgical Treatment of Tumors. By N. SENN, M.D., Ph.D., LL.D., etc., etc. Illustrated by 515 engravings, including full page colored plates. 8vo, pp. 709. Philadelphia: W. B. Saunders. 1895.

In the year 1890, Professor Senn in the preface to his work on the "Principles of Surgery," said: "When the subject of tumors was reached it was found that the manuscript had become so voluminous that it was deemed advisable to publish the volume without this part of the intended scope of the work, an arrangement to which the publisher kindly gave his consent. It is the author's intention to make good this defect by the preparation in the near future, of a special work on 'The Pathology and surgical Treatment of Tumors.'"

The book under consideration is the outcome of the promise made five years ago, and the promise has been well and faithfully performed in the production of this handsome volume.

There are thirty chapters, viz.: I, Origin and Nature of Tumors; II, Morphology and Multiplication of Tumor Cells; III, Anatomy and Biology of Tumors; IV, Pathology of Tumors; V, Tumors in Plants and Animals; VI, Etiology of Tumors; VII, Clinical Aspects of Benign and Malignant Tumors; VIII, Transformation of Benign Tumors and Post-Natal Embryonic Tissue in Malignant Tumors; IX, Diagnosis of Tumors; X, Prognosis of Tumors; XI, Treatment of Tumors; XII, Classification of Tumors; XIII, Papilloma and Onychoma; XIV, Adenoma; XV, Cystoma; XVI, Carcinoma; XVII, Fibroma; XVIII, Lipoma; XIX, Myxoma; XX, Chondroma; XXI, Osteoma; XXII, Odontoma; XXIII, Angioma; XXIV, Lymphangioma; XXV, Lymphoma; XXVI, Myoma; XXVII, Neuroma; XXVIII, Sarcoma; XXIX, Teratoma; XXX, Retention Cysts.

This book is the most exhaustive of any recent book in English on this subject. It is well illustrated and will doubtless remain as the principal monograph on the subject in our language for some years. It will be observed that the new spelling has been generally followed.

The book not only includes the pathology of tumors, but in describing the surgical treatment discusses fully the operative surgery of the regions involved. Those interested in any special branch of operative surgery, except ophthalmology, will find the modern operations described in detail. The vast experience of the author has told its own story in these pages, which are replete with solid information, and his masterful acquaintance with German literature shows itself at every turn. The book is handsomely illustrated, and printed on good paper. Many of the illustrations are inserted plates. The publisher has done his work well, and the author has given a notable and lasting contribution to surgery.

Cutaneous Medicine; A SYSTEMATIC TREATISE ON THE DISEASES OF THE SKIN. By LOUIS A. DUHRING, M.D., etc., etc. Part I, Anatomy of the Skin, General Symptomatology, General Etiology, General Pathology, General Diagnosis, General Treatment, General Prognosis. Illustrated. Royal 8vo, pp. 221. Philadelphia: J. B. Lippincott Company. 1895.

"The present work," says the author, "has been written to take the place of the author's former 'Practical Treatise on Diseases of the Skin,' which for several years has been out of print."

The vast experience of Prof. Duhring as a teacher and practitioner makes his statements authoritative, and his book trustworthy in all matters pertaining to dermatology proper. The author, pp. 216 and 217 in mentioning skin grafting, quotes the old Hunter experiment of the transplantation of the cock's spur, and of the tooth, and then passes immediately to Reverdin's epidermal grafts in 1869. The remarkable experiments of the late Frank Hastings Hamilton, then of Buffalo, in skin grafting, set forth in a paper read June 27, 1854,¹ more than fifteen years prior to the appearance of Reverdin's paper, which appeared in the *Gazette des Hôpitaux* for Jan. 11 and 22, 1870, are not noticed.

As a rule, the author has very carefully noted all recent literature and has even quoted from papers read at the last meeting of the Association in 1895.

The paper is thin and inferior, but the illustrations are numerous and well executed plates carefully inserted. We shall look with interest for the remaining parts of this system. The author has great power of condensation. There is no superfluity or redundancy in his expressions; always clear, never involved, and withal extremely precise, he manages to put nearly twice as much in a page as the average writer. The work therefore, will be encyclopedic without being bulky.

A Text-Book on Nervous Diseases. By AMERICAN AUTHORS. Edited by FRANCIS X. DERCUM, A.M., M.D., Ph.D. With 341 engravings and 7 colored plates. Philadelphia: Lea Brothers & Company. 1895.

We have in this volume the latest of "American" text-books, and one that worthily maintains the honor of the American name. The list of the authors who have contributed, under the able editorship of Dr. Dercum, to produce this work is enough to justify expectations that will not be disappointed on its careful examination. As a composite production it perhaps lacks the symmetry that a single authorship would give, but this is so little an advantage that probably most of its readers will prefer it as it is.

Among the articles deserving especial mention as most excellent statements of our present knowledge of their subjects, may be mentioned the introductory chapter on Methods of Examination, by Drs. Weir Mitchell, Dercum and Oliver; that on Nervous Affections following Railway and Allied Injuries, by Dr. Philip Coombs Knapp, which is one of the best and most judicious descriptions of this forensically important class of cases, that we have seen; the chapter on Cerebral Localization, by Dr. Mills, which seems thoroughly up to date; and that on the Diseases of the Cranial Nerves, by Dr. de Schweinitz. We mention these, not invidiously, as better than the rest, but simply because for one reason or another they particularly attracted attention. All the contributions to the volume seem to be excellent, and the book is cordially recommended to American readers as representing the actual status of our knowledge of its subjects, and as the latest and most fully up to date of any of its class.

Modern Materia Medica, WITH THERAPEUTIC NOTES FOR THE USE OF PRACTITIONERS AND STUDENTS OF MEDICINE. By DR. OTTO ROTH. Seventh edition. Revised by DR. GREGOR SCHMITT. 8vo, pp. 467. New York: Wm. Wood & Company.

Whatever may be the uses of this book in Germany, if it is ever to be of any particular service in the United States it must be brought to conform to the United States Pharmacopœia. As it has been produced, it is in the first part a mere catalogue of drugs and in the second a list of diseases with reference to the appropriate drug therefor. The obsolete dosage of the old British and United States Pharmacopœias is used, which is all the more remarkable, as the United States Pharmacopœia of 1890 adopted the decimal system and the present revisers of the British Pharmacopœia long ago announced their intention of joining the remainder of the civilized world in the use of the decimal system of weights and measures.

¹ Buffalo Med. Jour., vol. X, p. 435.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
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Subscriptions may begin at any time and be sent to

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SATURDAY, OCTOBER 12, 1895.

THE TREATMENT OF DIPHTHERIA BY ANTITOXIN.

WELCH contributes an important article on the treatment of diphtheria by antitoxic serum (Bulletin of the Johns Hopkins Hospital, July-August, 1895,) and studies carefully the statistics of the results already reported.

In a brief historical introduction, he shows that while BABES and LEPP in 1889 were the first to show by the way of experiment that it was possible to vaccinate with fluids and cells of animals which had been rendered refractory to certain diseases, such as rabies, yet the first publication clearly demonstrating the principles of serumtherapy was made by BEHRING and KITASATO in 1890, in which they brought forward proof of the immunizing and curative property of the blood and serum of animals artificially immunized against tetanus; and then BEHRING and WERNICKE demonstrated that the serum of animals artificially immunized against diphtheria has the power to protect and cure susceptible animals inoculated with the diphtheria bacillus or its poison. In the fall of 1891 the first trial of serum of immunized animals in the treatment of human diphtheria was made in VON BERGMANN's clinic in Berlin. In April, 1893, BEHRING referred to thirty cases treated with so-called normal serum. In April, 1894, EHRLICH, KOSSEL and WASSERMANN reported 220 cases treated with the serum, and the era of serum treatment of human diphtheria by approximately sufficient doses of the antitoxin really begins with this publication. In September, 1894, Roux presented the subject at the Hygienic Congress in Buda-Pesth with such clearness and force and brought forward so strong and convincing statistics that the attention of the physicians of the world was arrested and the anti-

toxic treatment of diphtheria has, since that time, continued to be the foremost medical topic of the day.

While the laboratory does not present any more conclusive experiments than those showing the power of antitoxic serum to prevent and to cure the morbid process caused in animals by the inoculation with the diphtheria bacillus or its poison, yet the question arises as to what extent the conditions of the treatment of experimental diphtheria with antitoxin are similar to those in the use of the same agent in the treatment of human diphtheria. WELCH concludes that there is identity in essential points, anatomic and etiologic, between experimental diphtheria and uncomplicated human diphtheria. Thus there is no longer any question but that in uncomplicated human diphtheria, as well as in experimental diphtheria, the local inflammation at the site of the infection is caused by the multiplication of the LÖFFLER bacillus and that the system's symptoms are due to the absorption of toxins formed by the bacillus, and, consequently, it would be hard to understand why an agent, such as the antitoxin, which neutralizes the toxins in the animal body should be unable to neutralize the toxic effects of the same substance or substances in human beings. At all events WELCH is firmly of opinion that the results obtained from experiments on animals justify and demand the most thorough and careful trial of this new treatment in human beings.

Concerning the nature of the so-called antitoxins and their mode of action but little is known. There are two prominent theories as to the mode of action of the diphtheric antitoxin, viz., the chemic and the vital. The chemic theory holds that the antitoxin directly neutralizes in a chemic sense the toxins. Experimental evidence, however, is in favor of the vital theory that the antitoxin acts through the agency of living cells and that it probably renders the cells tolerant of the toxins.

Antitoxic serum exerts no bactericidal effect upon the diphtheria bacillus, and virulent bacilli may persist in the throat days and even weeks after recovery, after the use of the antitoxin.

The dosage of the antitoxin in human diphtheria is empirical. The main factors in determining the dose are the age of the patient, the duration and the severity of the attack. In this way it can easily happen that an insufficient dose is given and it is now well understood that in the early period after the introduction of serum entirely insufficient doses were used.

The most important difference between experimental and human diphtheria is the fact that, while experimental diphtheria is a single, pure infection, human diphtheria is often complicated with mixed infections, the most common complicating micro-organism being the streptococcus pyogenes. Thus

REICHE found the streptococcus in the kidney and spleen in 45.2 per cent. of forty-two autopsies on cases of diphtheria in which LÖFFLER'S bacillus had been demonstrated during life; streptococci and staphylococci were found together in 64.3 per cent. of these cases; these results indicate significantly the frequency and earliness of the mixed infection. There can be no doubt that the remedial rôle of the antitoxin is materially restricted by its inability to combat streptococcus sepsis, broncho-pneumonia and other forms of secondary infection. It is also a well-known fact that all necrosis and changes in the nerves may occur very early in diphtheria, and it is, of course, evident that the antitoxin can not restore cell life or repair degenerated nerves when such retrogressive changes have occurred before its use. A knowledge of these conditions will emphasize the importance of sufficient dosage and timely administration of the antitoxin.

Having considered the experimental basis and the theories of action of antitoxic treatment, the importance of early use in sufficient doses and some of the pathologic relations of human diphtheria, WELCH turns his attention to the evidence at hand concerning the efficacy of the new treatment. He finds that the general impression of clinicians who have had good opportunities to observe the effects of antitoxin is overwhelmingly in its favor and cites the observations of BAGINSKY, HEUBNER, GANGHOFNER and others, who all express favorable general opinions. But general clinical impressions do not furnish any strict scientific proof of the value of a therapeutic agent; here statistics are necessary. WELCH has collected 7,166 cases from eighty different sources and it is not necessary to state these have been gathered with all possible accuracy and that they are considered from various points of view, in order to eliminate all the possible sources of error with which statistical results nearly always are vitiated.

Of these 7,166 patients with diphtheria treated with antitoxin, 1,239, or 17.3 per cent. died. The previous or simultaneous mortality of cases not treated with antitoxin is stated in forty-six of the reports, which contain 5,406 cases treated with antitoxin, with 1,008 deaths, a fatality of 18.6 cases. Estimating the number of deaths in these cases upon the basis of the previous or simultaneous fatality for each group, there would have been 2,279 deaths, or 42.1 per cent. *There was, therefore, an apparent reduction of case mortality by the use of antitoxin of 55.8 per cent.* Separating the hospital cases from those occurring in private practice, the unusually low death rate of 18.7 per cent. is obtained for hospital cases. WELCH finds no reason to believe that the low percentage of fatality of diphtheria treated with antitoxin can be referred in any large measure to the prevalence of an unusually mild type of the disease. He does

think, however, that a large number of cases are received for treatment in the earlier stages of disease now than formerly, and that for this reason the antitoxin statistics can not always be suitable for comparison with statistics based upon the former treatment of diphtheria, inasmuch as it is universally admitted that any good treatment of this disease gives better results the earlier it is begun. This factor just alluded to is not adequate, however, to explain the great reduction in fatality obtained with the antitoxin.

Roux's analysis of his cases show very clearly that, as would be expected, the serum is far more efficacious in diphtheric anginas and croup which yielded pure cultures of the LÖFFLER bacillus than in those which gave in addition cultures of other pathogenic bacteria. The reports from private practice collected by WELCH, give a fatality percentage of only 6.9.

In a second table is shown the fatality in operated and non-operated cases of diphtheria treated with antitoxin. Of the 4,294 cases of this table, 27.2 per cent. required tracheotomy or intubation, the fatality in the tracheotomy cases being 39.8 per cent., in the cases of intubation 28.9 per cent., and in the cases of intubation followed by tracheotomy 53.8 per cent. Compared with previous statistics from the same hospitals, this means a reduction in fatality of tracheotomized cases of 34.1 per cent. since the introduction of the serum treatment—results that are strikingly favorable to the serum treatment. In the same way it is readily shown that the fatality of intubated cases is reduced 49.5 per cent. as the result of the antitoxic treatment. In connection with this, it is to be remembered that the great majority of observers bring testimony of the fact that the stenotic symptoms of laryngo-tracheal diphtheria are relieved without operation in a much larger proportion of the cases treated by antitoxin than by any other method. VON RANKE says that formerly 5 per cent. of his stenotic cases escaped operation, whereas now, 33 per cent. escape; of GANGHOFNER'S stenotic cases, formerly 12 per cent. escaped operation, whereas now, 21 per cent. escape.

In his third table, WELCH considers the ages of patients treated with antitoxin, and several striking contrasts are presented. Thus the fatality percentage for cases of diphtheria under 2 years of age, treated with serum is 33.3, while it varies 60 to over 80 per cent. for cases of the same age not so treated.

Table IV sets forth the fatality according to the day of disease upon which antitoxin is injected. Of 232 cases supposed to have been treated the first day, 5 died; the assumed duration of the disease is, of course, doubtful and in some of the fatal cases in this group the statements of friends and parents were apparently contradicted by the clinical signs and symptoms.

It is very noteworthy that the percentage of deaths in 814 cases, in which treatment was begun before the third day of the disease is only 5.5. According to this table the percentage of deaths in cases in which the serum treatment is begun on the third or fourth days of the disease is nearly three times greater than that in cases treated on the first and second day.

The essential harmlessness of the serum has been demonstrated by over a hundred thousand injections, and WELCH concludes that should the future show that through some idiosyncrasy on the part of the patient, death might be attributable to the serum, this would probably count for as much as the rare deaths from the use of ether or chloroform. The occasional untoward effects of the healing serum, such as erythema or urticaria, are annoying, but, being unattended with danger to life and without serious consequences, they do not contra-indicate the use of the serum.

The principal conclusion to be drawn from this able and timely article of WELCH's is this; that the results of the treatment of over 7,000 cases of diphtheria by antitoxin demonstrated beyond all reasonable doubt that anti-diphtheric serum is a specific curative agent for diphtheria, surpassing in its efficacy all older methods. It is therefore the positive duty of the physician to use it.

WELCH concludes his study with saying that the discovery of the healing serum is entirely the result of laboratory work; that it is an outcome of the studies of immunity and that the discovery was in no sense accidental. "It should be forcibly brought home to those whose philozoic sentiments outweigh sentiments of true philanthropy, that these discoveries which have led to the saving of untold thousands of human lives have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals."

THE PARASYPHILITIC NEUROSES.

Whatever the syphilographers may say, the opinion is growing among neurologic specialists that a number of disorders of the central and peripheral nervous system that have up to within a recent period been attributed to other causes, are, in the great majority of cases at least, to be considered as the late results of syphilitic infection. First among these are to be counted locomotor ataxia, which careful and reliable observers like ERB, DEJERINE, MARIE and others find to have been preceded by specific infection in at least 90 per cent. of all cases, and parietic dementia, which has, according to the latest reliable statistics of REGIS, SAVAGE, KOWALEVSKY, HOUGBERG and others a hardly less percentage of similar antecedents, and which MÖBIUS goes so far as to say will only be met with in those

who have previously had syphilis. Then we have the special type of progressive muscular amyotrophy described by RAYMOND, which seems to be always preceded by syphilis, to say nothing of the large numbers of cases of neurasthenia, epilepsy, etc., that follow syphilitic infection at a more or less late period and for which no other rational etiologic factor can often be discovered.

All of these disorders are treated of by FOURNIER in a work (*"Les Affections Parasyphilitiques,"* Paris, 1894,) that appeared last year, but that has not received quite all the attention it merits. The reputation of its author as a syphilographer, belonging rather to the camp of those who seem the less inclined, as a rule, to admit the connection of syphilis with these disorders, ought to give the work much more weight than would otherwise be allowed it, and the additional fact that he has frankly admitted a change of view from that formerly held by him should in no way disparage it. Perfect candor should be universal in science, but it is not yet so absolutely commonplace that it is unjustifiable to commend it. In matters incapable of accurate mathematical demonstration there is always room for a play of prejudice, for the selection of acceptable and the rejection of objectionable facts. It is perhaps in part due to this, that the acceptance of the syphilitic origin of these disorders is so limited as yet; syphilis is an objectionable disease and it is not satisfactory to have to attribute to it disorders that have heretofore been supposed to have other origins.

The arguments employed against this view are principally two; first, that the lesions of syphilis are absent; and, second, that the inefficiency of specific treatment is an evidence that the affections are not of a specific nature. The weakness of both of these is well shown by FOURNIER in his reference to the pigmentary syphilide, which is commonly reckoned among the tertiary manifestations, as a typical instance of a parasyphilitic affection. It is a little remarkable, however, that in his review of the evidence of the parasyphilitic nature of paresis, he lays no stress on the not infrequent phenomenon of conjugal paresis, husband and wife both affected simultaneously or in succession with the disorder, though, as is quite often the case, without any admission of syphilis by one or both parties. This common difficulty of obtaining the facts as to syphilis gives a special value to the statistics on which the belief in the parasyphilitic nature of these affections is based. As regards this particular disorder, it is safe to say, from common clinical experience, that the positive testimony invariably understates the facts. The fact that the lesions, so far as known of these conditions, are not syphilitic proves nothing, as it is only asserted that they are parasyphilitic, connected with syphilis, a remote consequence of the infection not

directly specific in its character. The nearness of the relations of syphilis to these disorders can be, however, at best, only an indefinite and unsettled question, like some others in regard to the later lesions of the disease.

It would be needless to enumerate all the arguments in favor of the views here stated, as they are too numerous and voluminous for the space at command. It is sufficient to say that they seem to be becoming more and more convincing to neurologic specialists.

It is not assumed that these affections, any more than the pigmentation or HUTCHINSON'S teeth are exclusively the result of syphilis—the same symptoms may arise from other causes, but this, it is held by the advocates of their parasymphilitic nature, must be considered as exceptional, and not the rule, as was heretofore held to be the case. Neither do these views exclude the participation of other causes beside syphilis in their production; were it otherwise there would be no way of explaining the increasing frequency of some of these disorders. But recognizing, as it seems possible we may have to, the infection of syphilis as their predominant primary cause, is to notably widen the range of responsibility of specific disease for human ailments.

THE BASLE ANTI-ALCOHOL CONGRESS.

There was recently held at Basle, Switzerland, the fifth annual session of the International Anti-Alcohol Congress, a temperance association which seems to be gaining in authority and influence. The late meeting was notable for the rather advanced position of certain prominent continental physicians who not only maintained the injurious action of alcohol, but proclaimed themselves as total abstainers, and the preponderance of the meeting's sympathies as stated by the London *Lancet's* correspondent, was evidently in favor of total abstinence. The temperance sentiment seems to be growing in Europe and to have perhaps its best support from scientific men of the highest rank as physicians and physiologists. It is especially among the alienist physicians that this appears to be the case, as is demonstrated by the discussions and papers in the leading psychiatric associations of France and Germany.

The movement takes, on the whole, somewhat different lines from that in this country; the use of the stronger alcoholic drinks is combated, while that of the lighter ones, wine and beer in their unadulterated forms, is countenanced and even upheld by many as an aid to the temperance reform. Still, as stated above, there seems to be a growing tendency to consider these also as hurtful and to favor more thorough restrictions of public sales of intoxicants, and even total prohibition is mentioned respectfully as a desirable if not an altogether practical ideal. The evils

of alcoholic excesses are becoming more and more appreciable in many European countries, and this movement is in evidence of the fact.

This participation of some of the first physiologists and specialists in this work is one of its most satisfactory features, as it promises a fair scientific presentation of facts that can not be gainsaid as can some of the less well informed utterances of enthusiastic reformers in this country. The names of some of the members of the late Congress, FOREL, LANCE-REAUX, LEGRAIN, GAULE, ROUBINOVITCH, among others are familiar to well informed physicians everywhere, and carry much weight.

One point of especial interest was the report made to the Congress in regard to the physiologic action of alcohol as shown by personal experimental investigations, by DRS. SMITH of Marbach, and FURER of Heidelberg. They found that the ingestion of a moderate quantity of alcohol, 40 to 80 grams, or 24 fluid ounces of wine of 15 per cent. alcohol strength, had a decided effect in retarding some of the simpler mental processes and physiologic reactions and that this was still determinable for several days after the dose.

There is certainly a large room for physiologicopsychologic studies of this special character, and these like the earlier ones of KRAEPELIN, we owe to the Heidelberg laboratory. They offer, as regards the effects of moderate doses of alcohol, almost the only means we have of obtaining reliable scientific data, and it may be will yet furnish the best arguments for the temperance reformers. It is easy enough to show that the excessive use of alcohol is hurtful, and with the liberal views of many of its users, much so-called moderation in its use is also often pathologically suspicious. But the actual harm of really small quantities is harder to demonstrate and if this can be done by the exact methods of the psycho-physiologist it will leave little to be said in favor of the indulgence of appetite on medical or scientific grounds.

OPPOSITION TO LIFE INSURANCE OF CHILDREN UNDER TEN YEARS OF AGE.

A two days' session of the sixth annual convention of Societies for the Prevention of Cruelty to Children in New York was held October 1 and 2, in the State Capitol at Albany. ELBRIDGE T. GERRY, Esq., the President of the Societies, opened the session and delivered his annual address. A resolution was adopted that it was the sense of the convention that the practice of insuring the lives of children under 10 years of age, as at present conducted, is against public policy. It calls upon all those who are interested in philanthropic work to use all legitimate efforts to procure the passage of laws that shall prohibit a practice in this country that has proved so dangerous in other parts of the world. There can

be no question of the wisdom and propriety of this resolution, and medical societies everywhere should support it.

THE HEALTH OF DOCTOR ROBERT BATTEY.

Our readers will be pleased to learn that a special telegram to this JOURNAL October 3, informs us that DR. BATTEY's condition has much improved. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was not misled into publishing an obituary notice last week on a statement in the Associated Press that our venerable friend was at the point of death. We telegraphed our fellow-member, DR. GARLINGTON, and received an immediate response. The JOURNAL does not anticipate facts in its desire to furnish its readers with the latest news. That special function is the peculiar property of our distinguished critic, the *Philadelphia Polyclinic*.

DR. FRANCESCO VALLARDI.

We regret to announce the death of our distinguished confrère, DR. FRANCESCO VALLARDI, which occurred at Milan, September 18.

DR. VALLARDI was for many years the editor of the *Gazzetta Degli Ospedali e delle Cliniche*, a journal which has done its full share in the restoration of Italian medicine to its ancient vigor. As a journalist, DR. VALLARDI will be greatly missed, not only by the readers of the *Gazzetta*, but everywhere Italian medical literature is read.

CORRESPONDENCE.

The American Medical Association and Parliamentary Law.

SAN JOSE, CAL., Sept. 30, 1895.

To the Editor:—Now that the storms have passed which threatened the equanimity of the two last annual meetings of the ASSOCIATION, it may not be time spent in vain to consider, briefly, some of the parliamentary rulings which obtained at the two meetings mentioned. It is the duty of every man connected with societies and deliberative bodies to acquaint himself with parliamentary law, but especially is this duty incumbent on those who assume to preside over deliberative bodies, even a medical body, for there must be law, order and system in every deliberative assembly, that business may be facilitated and all members secured in their rights.

I have no doubt, as a rule, that the Presidents of our ASSOCIATION endeavor to conduct the business of our annual meetings, fairly, impartially and in accordance with their best ability. Perchance, occasionally a wrong parliamentary ruling is made deliberately to carry a measure in the direction of the President's bias. But either willfully or otherwise, usually otherwise, wrong parliamentary rulings are occasionally made at our meetings, and it is not at all unusual for these wrong rulings to be sustained on an appeal to the assembly, a large majority of whom are quite incompetent to pass upon a matter of this kind.

The presiding officer of the AMERICAN MEDICAL ASSOCIATION should know the law. There is no excuse for not knowing. Each President has one year's notice that he is to preside at a meeting of this great organization—time enough to commit

to memory, four times over, Cushing, Roberts, and Smith's manuals of parliamentary law.

There should be no excuse for wrong rulings which may deprive any member of his rights or amenities in relation to the Society. No President has a right to dodge behind that old excuse, "I did the best I could—the best I knew." When such vast interests are at stake, there should be no mistakes in the plainest rules of parliamentary law.

To illustrate some of the defects which pertain to the ASSOCIATION in regard to parliamentary law and rulings, I will set forth a few facts. It will be recollected that for the past two meetings, amendments to the Code, Constitution and By-Laws have been prominently before the ASSOCIATION, and the fact developed that those opposed to amendments were not inclined to give those in favor of the same, a respectable hearing, even, at the meetings. Therefore tactics were resorted to, to cut off debate, as those opposing amendments were in large majority. But in these efforts to stifle everything and everybody favoring amendment, these parliamentarians (?) ran off the track several times, and in the last instance, at Baltimore, they remain in the ditch.

But let us notice the San Francisco meeting first.

Just a short time before the San Francisco meeting one of the most eminent members of the ASSOCIATION—one who was present at the organization of the same, and who has attended nearly every meeting from the organization to date, and one who is a staunch defender of the Code as it is, advised the ASSOCIATION how to dispose of the amendments and stifle debate as follows:

"If this eminently wise and judicious policy is to be adhered to, when the revised Code of Ethics is proposed . . . it will be subject to only two parliamentary motions; one to lay it on the table for action at the next annual meeting; the other, to postpone its consideration indefinitely, . . . neither of these motions would be debatable and the adoption of the latter would save much valuable time of the ASSOCIATION."

In accordance with the above advice, when the question of amending the Code came before the ASSOCIATION, some parliamentarian (?) moved to postpone indefinitely, thinking thereby to put a quietus on everybody—not knowing that that motion opened the whole question to the fullest debate.

The President lost no time in putting the motion, when the writer hereof interposed the point of order that the question was now open to full discussion. When this point was made the cry of no, no, no, was heard all over the house. The President hesitated, but drew forth his little Roberts' Manual and read the law which had not been clear to him before.

The Codeites were greatly excited about this time, lest some one might be heard in favor of amending the dear old document, so a new tack must be taken. Soon another bright parliamentarian moved to lay the motion to indefinitely postpone on the table, in order to cut off debate. This motion was put quickly and carried, and the parliamentary muddle was now of the most peculiar kind. A motion to indefinitely postpone was laid on the table. The maker of the motion and the majority of the convention, and probably the President supposed that the question before the house was securely tabled, but in fact it was yet before the house, as they had only killed the motion to indefinitely postpone. In this muddle the thing was left until at the afternoon meeting a motion was made and carried, to take from the table the question of amendments which had never been tabled. After these brilliant displays of parliamentary tactics, a motion to indefinitely postpone carried. Thus ended the first chapter.

Immediately following this indefinite postponement of amendments, Drs. Priestly of Iowa, and Quimby of New

Jersey, offered amendments to the Code, just such in part as had been indefinitely postponed. These amendments were properly admitted and placed on file for action at the Baltimore meeting. But lo! at Baltimore a new parliamentarian is in the chair and new and unwarranted rulings are rendered.

After postponing indefinitely all amendments to the Code, like amendments were again offered. The Chair ruled that it was out of order to offer like amendments to those postponed at this meeting. Herein he was wrong and everybody who sustained him was wrong. As I understand it, Dr. Priestly offered an amendment that was to lie over until next meeting according to the law. He had the right to offer amendments at that meeting couched in the identical language of the amendments postponed. He would have the right to re-introduce the same amendments at each meeting for the next forty years if they were defeated thus often. Re-introducing an amendment in this manner does not revive action at a given meeting on a matter that has been indefinitely postponed. There would be no action whatever taken on re-introduced amendments but to state the same to the assembly and place them on file.

The judgment of some of the members who so pertinaciously oppose any revision of the Code has been slightly warped, inasmuch that they deem any tactics warranted, whether regular or irregular, in order to down "Banquo's ghost." One eminent member used the following unwarranted argument: "The only way in which subjects of the same character can be re-introduced at this meeting, after having voted for indefinite postponement, is to vote a reconsideration of the vote of postponement, and then we will get that before us." This argument was made against the re-introduction of an amendment by Dr. Priestly.

The language just quoted is correct parliamentary law when properly applied, but it was not applicable to the case in hand. A motion indefinitely postponed by a deliberative body is forever dead unless revived at that same session by a vote to reconsider. There being no vote to reconsider, carried, then the only method by which the same subject can be brought before the body, at a subsequent session, is by offering it anew, the same as on former occasions, and that can be done immediately in any case which must necessarily lie over to a subsequent meeting for action.

Possibly, since our parliamentarians are growing in knowledge, by next year it will be ruled that, when a question has been indefinitely postponed, it can never be revived or re-introduced. Who can tell? Cushing and Roberts "are not in it." Such decision would be a boon to the veterans who have assumed the task of handing down the creed to future generations just as it was delivered to the saints from the pen of the immortal Percival. They could then sleep in peace.

Let us have correct parliamentary rulings at the meetings of our Great American Medical Association.

A. C. SIMONTON, M.D.

Another Side of the Life Insurance Question.

LA FAYETTE, IND., Oct. 2, 1895.

To the Editor:—Allow me to call attention to the communication of Dr. John L. Davis, Medical Director of the Union Central Life Insurance Company, Cincinnati, which appears in the JOURNAL of September 23, page 524, in order to speak briefly in behalf of the members of the common herd in the profession who are interested directly and indirectly in the subject of professional work for life insurance companies. I am glad that the Doctor has discussed, in a public way, the practical side of the life insurance question in its relation to the medical profession; for I do not know of any one professional topic that needs it more.

The perusal of the Doctor's article gives me the impression that its author is only practically familiar with the whole question theoretically, and that his opinions and estimates of the local examiner have been affected, if not infected, by the gossip and statements of interested, and in some instances, of unscrupulous agents. Frequent meetings with examiners, socially and professionally, at varying intervals, has led me to believe that they do not exercise their powers of speech as frequently and freely in the interest of truth and a good all-round understanding as often and as thoroughly as they ought to, because they think it injudicious in

a business way to do so; they are so dependent on the agent for position and business.

As to the Doctor's paper. With his observations and statements as to the scope and purposes of a complete practical physical examination, I have nothing to say.

First, then, let me direct attention to the commercial phase of the subject and his statement, "that while physicians are receiving as fees from insurance companies and coöperative associations about \$2,500,000 per annum, they are not in every instance giving a *quid pro quo*." The statement that the local medical examiner does not in every instance give an equivalent in work for the fee paid is, no doubt, true, but the paper would have been more instructive to all of us if it had stated what per cent. of examiners failed to furnish satisfactory reports of their work, or failed to do good valuable work, and specified wherein their reports were defective.

In view of the statement in the paper of the expenditure of such a large sum of money, I would like to ask what proportion of the \$2,500,000 the Union Central Life Insurance Company pays its local medical examiners? What per cent. of this large sum of money goes to the local medical examiners and what to the medical director? As the late Dr. McIlvaine, of Cincinnati, would say: "Let us have the facts." Detached general statements, like the one cited, prove little if anything; they are unsatisfactory.

Since nearly all firstclass life insurance companies pay the examiner \$5 for each applicant examined, and the Union Central, Dr. Davis' company, only pays \$3, I think the citation in this connection against the local examiner is not altogether timely, if fair.

The local examiner frequently finds it a very difficult undertaking to "fully sympathize with the agent," when that individual makes himself a disagreeable visitor in his office as he sometimes does; or when he solicits, hints that his company wants, yes, expects him to take out a policy "with us," and to let the physical examinations of applicants pay the premiums; or when he objects loudly, offensively it may be, to the examiner's record of facts, etc., etc., in a given examination. As a class, solicitors for life insurance are gentlemen, but the most uncivil man I ever met in a business way was an agent for a life insurance company. If an agent is disagreeable or seeks to obtain an advantage for his company through the examiner, the latter is sure to come in for a share of abuse and misrepresentation, for the interests of the examiner and agent in the presence of a difference lie in widely divergent directions.

The defective work done for the Union Central Life Insurance Company by its local medical examiners is probably due, it seems to me, to the low fee paid by the company. Three dollars, the fee allowed for a complete physical examination of applicants for insurance with the company he represents, can hardly expect to secure firstclass professional talent, or if it does secure it, to expect it to exercise "the greatest tact and skill in drawing out and properly weighing every feature required for a perfect report." Is it natural to expect a qualified physician to be at all times "tactful and approachable, willing to display a sympathetic camaraderie, putting the applicant at his ease, and by his manner, if not by word, commend the applicant's motive in taking insurance, incidentally perhaps speaking well of the company and a good word for the agent?" "The examiner must honestly and earnestly believe in insurance and his company, and must fully sympathize with the agent in his difficult task." Can a firstclass physician do all this for each applicant and be accessible for such work at all times, and do it honestly for \$3 and not sacrifice his dignity in some degree as a physician in Dr. Davis' estimation?

Knowing that his neighbor examiner receives \$5 for an examination for his companies, the examiner for the Union Central Life Insurance Company feels that he is not fully appreciated, that the company takes an advantage of him, obliging him to work for less than he is worth, for less than the work is worth if it is done "honestly and earnestly." An old physician, independent, positive, original, told me

lately that he always gave the insurance company that brought an applicant to his office for examination for \$1, one dollar's worth of work and no more; for \$2 or \$3, work in proportion to the fee and no more. Of course this remedy is impracticable, even dishonorable, and could not for a moment be held up as a rule of action against the wrong.

The AMERICAN MEDICAL ASSOCIATION has declared that the fee for each complete physical examination for life insurance should be \$5, and not \$3, as the Union Central Life Insurance Company obliges its local medical examiners to accept or go out of its service.

I have wondered if the above statements would not furnish a partial explanation, if not a complete one, of the discussion of "The Fool Doctor," by the underwriters of his company in convention; and if their discussion of this subject in his presence was not a mute appeal to him to employ at the customary rates, first-class discreet physicians for local medical examiners.

Is not the fee for work for each applicant examined, that is, the *honorarium*, the mark and degree of business or professional esteem in which the examiner is held by the company? If Dr. Davis will look into the home office of his company thoughtfully and *judicially*, he will no doubt discover the chief cause of the ills which he describes so graphically in his paper, and which caused the agents to ridicule members of his profession; and, having discovered it, the remedy will readily suggest itself.

Finally, permit me to inquire if the small fees paid physicians for professional work nowadays by insurance and railroad companies are not one of the leading causes for the unsatisfactory social position of the medical profession in this country? Small fees, too, I think, has much to do in dividing medicine into many specialisms for gain, rather than for study or investigation, as well as creating the army of self-selected specialists, regulars as well as irregulars.

Yours respectfully, W. W. VINNEDGE, M.D.

Blood Poisoning—Alcohol.

ORAN, Mo., Sept. 30, 1895.

To the Editor:—To write a readable article on blood poisoning requires considerable medical knowledge and a very vivid imagination. Witness recent articles in the JOURNAL. Many maladies come within the scope of this heading. All contagious diseases (and many non-contagious). So does la grippe, malaria, pneumonia, etc. The field is large and there is much speculation along this line.

The ancient medical philosopher believed in blood contamination and wrote much in defense of his belief. To say that he drew largely on his imagination is to put it very mildly. The modern physician is in the same category. He believes in blood poisons, too, but he thinks it silly to say of him that he does not know exactly what he is talking about, when he uses the term. He can (so he thinks), point out the particular poison in each case. He calls these poisons, *germs*. And by the aid of his microscope and his imagination, he gives each germ its form and other characteristics by which it can be known. He will also, without being asked, tell you how these poisons originate, how they act, and how to get rid of them. But when he has a case to treat and reports results, it seems that it takes him just as long to relieve the case as it does one who does not claim so much and such wonderful knowledge. If driven from his position on the germ theory, he begins to talk learnedly of ptomaines and leucomaines; he will tell you that it requires an expert in the use of the microscope to discover and analyze germs, but that he is able to see and analyze the *debris* of these so-called disease producers.

One doctor insinuates that he, by examination of the urine, can tell what effect alcohol has had in a given case. Much is being written in condemnation of alcohol as a remedy. Why? Not because it is harmful as a *remedy*, but because it does so much harm as a *beverage*. Alcohol is condemned because it is not a "tissue-builder," not a "stimulant," not a "food," but a "paralyzer." Antifebrin is not a tissue-builder, nor a stimulant, nor a food, but a paralyzer.

Chloroform, ether, chloral and a host of other remedies all belong to the same list. I see mercury is recommended for alcoholic rheumatism. I wonder if alcohol would not be good for mercurial rheumatism? Is mercury a tissue-builder, a stimulant, or a food? Neither, but a very useful remedy nevertheless.

Now to the subject again. Alcohol in large (poisonous) quantities poisons the blood, *en masse*. So does morphin, chloral, chloroform, iodine and a host of other poisons. The old-time doctor knew this, and he undertook by the use of the lancet to remove the blood and with it the poison. He also knew that poisons were removed from the system in gaseous form from the lungs, in fluid form from the skin and kidneys, and in solid form from the bowels—hence his frequent use of expectorants, diaphoretics, diuretics and purgatives. He also discovered that one poison would sometimes neutralize another, not because they were animals that would fight and destroy each other, as the modern writer would have us believe, but by a chemic process they were made harmless. The modern writer would do so much better if he "did not know so many things that were not so."

I wish to correct the writer who teaches that drunkards are made in the sick room. Most drunkards are such, long before they get sick. Alcohol is not being prescribed too much by the regular profession. Drunkards prescribe and use it for all kinds of maladies. It has a legitimate place in medicine. Its worst enemies among the profession admit that it is a pain obtunder. As such, it has few equals. It is transient in its effects in medicinal doses—is quickly thrown off from the lungs, skin and kidneys, promoting the action of each. In larger quantities it neutralizes other poisons and aids in ridding the system of them. Much of the good effect of fluid extracts is because of the alcohol they contain. Alcohol, as a remedy and a preserver of other remedies, has come to stay. I have no objection to the fight that is being made against intemperance—I am a total abstainer—but I shall prescribe alcohol whenever I think it is indicated; never for well people, but in all cases of sickness for which it is needed. The harmful effects so abundantly portrayed by writers for the JOURNAL, are those of drunkenness combined with starvation, vice, exposure and other calamities that befall the drunkard.

The reader will do well to look after *excretion* in all cases where the blood is contaminated. Do not forget the known antidotes, and do not believe everything you see written in the JOURNAL. It is much easier to guess than to know, and writers are too much given to telling plausible stories not founded upon facts. The germ theory, with all its concomitants, has got to go. It has been "weighed in the balance and found wanting." Its adherents, like those of the lancet, will have to take a back seat.

Respectfully submitted,

W. P. HOWLE, M.D.

New York Pasteur Institute.

NEW YORK, Oct. 1, 1895.

To the Editor:—In perusing the JOURNAL for August 10, I find an account of a visit to the Pasteur Institute of Paris, by Dr. Casey A. Wood, in which he writes, on page 250, as follows:

"By the way, Chicago is the only Pasteur station except, I believe, Havana and New Orleans, marked on the large map of America at the Institute. I could not discover why New York, with Gibier's station had been omitted."

Will you allow me to remark in answer to this note that when the map above mentioned was made, there was no station either in Chicago or New York, but at the Pasteur Institute it had been said that a station was going to be started in Chicago. For some reason or other, no institution was started at the time in Chicago, but a special mark was made on the map indicating that there was a station there. It was only about two years later that I started the Institute in New York, and six months afterward Dr. Lagorio started another in Chicago, but since, no change has been made on the map. However, to avoid any comment on this matter, I hope that the Directors of the Paris Institute, to whom I have submitted the facts, will make the necessary addition upon this map. Yours truly, PAUL GIBIER.

It was Dr. Fish, and not Dr. Burgess.

MILWAUKEE, WIS., Oct. 5, 1895.

To the Editor:—In your issue of the 5th inst., you state on page 578 that Dr. A. J. Burgess of Milwaukee said "so-and-so." These remarks, abbreviated though they be, were mine. I believe I am the only Fellow of the American Association of Obstetricians and Gynecologists in this State—and at least the only one present at this discussion. I most decidedly object to your quoting some one else for me, or your attributing remarks to me made by another.

Yours truly,

E. F. FISH, M.D.

The McDowell Biography.

NEW ORLEANS, Oct. 4, 1895.

To the Editor:—Some time ago, over one year, a lady came to my office soliciting subscriptions to the biography of Ephraim McDowell, M.D., claiming among other things, that she was a distant relative of the Doctor. I find my receipt for the price of said book, but no book yet. I do not believe the Doctor would approve of such slow treatment or action. As I have no her address, and I noticed some time since you had, would you kindly send this to her, or to those in charge of publication, and oblige,

S. L. HENRY, M.D.

Some Recent Comments on the Journal.

THE OPINION OF AN OLD MEMBER.

LE MARS, IOWA, Sept. 8, 1895.

To the Editor:—Your publication of letters on the line of "What I know about the JOURNAL," is correct, and some of the criticisms are good. There is an abundance of medical periodicals of the "featherweight" variety in existence, such as would suit quite a sprinkling of our profession, but for physicians who are eligible to membership in the AMERICAN MEDICAL ASSOCIATION, a journal like ours is not too scientific or too heavy. If all those who now disagree with me will but read the JOURNAL for a few months, they will soon feel the necessity for that class of medical literature. A page or two each week of light practical reading, as suggested by Dr. Towler, would certainly not be considered amiss by any one, and might make the JOURNAL more popular with some. As long as we have our editor to act as sifting committee, there will be no danger of articles finding their way into the JOURNAL which would make it a laughing stock to the profession or to other periodicals. I have in my library every issue of our JOURNAL, from No. 1 to the present, and could not spare a single number.

PAUL L. BRICK, M.D.

FROM A HEALTH OFFICER.

WOOSTER, OHIO, Oct. 1, 1895.

To the Editor:—What seemed more than an herculean task a few months since—and it was even doubted whether it could be done—the editing of the JOURNAL, is now grandly accomplished. The JOURNAL to-day is the best educator the profession in America has ever had.

Glance over the articles it has contained for three or four months last past! Many of them are exhaustive on the subjects they discuss, and some bring to light new truths of great value to the profession.

Accept my congratulations for your past success and my earnest wishes for your future usefulness. Fraternally,

JOSEPH E. BARRETT, M.D.

Health Officer.

HE COMPLIMENTS THE JOURNAL.

COLUMBUS, OHIO, Oct. 5, 1895.

To the Editor:— . . . Permit me to compliment you on the JOURNAL in general, and particularly on your editorials. The editorial of two weeks ago on Basedow's disease I think especially good. While you did not solve the secret of the

etiology and seat of that mysterious malady, you presented all that is known in a condensed and scholarly manner.

STARLING LOVING, M.D.

DR. QUIMBY'S OPINION.

To the Editor:— . . . As time rolls on, our JOURNAL grows in value and importance, and if no obstacle is thrown in the way, is destined to be one of the greatest medical lights and journals of the age.

I. N. QUIMBY, M.D.

NECROLOGY.

JOSEPH C. GORDON, M.D., of Mt. Vernon, Ohio, October 2, aged 54. He was born in Chester County, Pa., and went to Knox County, Ohio, in 1853. He served through the Civil War in Company A, 20th Regiment O. V. I., and was prominent in Masonic circles.—Wm. H. Gibson, M.D., of Chariton, Iowa, October 3.—E. P. Gaylord, M.D., of Alameda, Cal., September 27, aged 61. He was formerly from New York and had lived in Alameda nearly three years.—F. M. Everett, M.D., of Corydon, Iowa, September 29, aged 65.—James Collins, M.D., of Philadelphia, October 7.

PUBLIC HEALTH.

Pollution of the Passaic River, New Jersey.—According to the *Sanitarian* for August, the health authorities of Passaic, N. J., have passed resolutions declaring that the pollution of the Passaic River by sewage and manufacturing refuse from the cities of Passaic and Paterson has reached the danger point. Every summer, City Physician Terhune says, there is an epidemic of malarial fevers among the residents along the river and the Dundee Canal, which the river supplies. The board called on the two cities to take steps to diminish pollution. The board advocates the building of a trunk sewer from Paterson to the sea.

Cost of Cremation in New York.—The charge for cremating the body of an adult in New York city is \$35 and for that of a child \$25. Urns or vases vary in price from \$6 to \$45; the former are of bronze and white metal, the latter of serpentine stone, marble, etc. For \$25 a niche may be bought in the crematory where the urn will be cared for, or it may be taken possession of by the family. About one-half are said to be kept at the crematory; some are taken away and placed in safety deposit vaults and others are kept among the most sacred treasures of the home. A newspaper report has it that one relict carries the ashes of her deceased husband wherever she goes—to Europe and back several times and frequently to the seashore and mountains. It is not stated what rate of fare is charged for the "remains."

The New York City Board of Health's New Regulations.—The New York Board of Health has adopted rules for the prevention of the spread of contagious diseases among public school children. These rules decree that slates and slate pencils shall be abolished, and pens and pencils substituted, the latter to be kept in separate boxes by each pupil. All the school property of a child ill with a contagious disease shall be turned over to the health board. Books that are taken home shall be re-covered with brown paper once a month. Each class must have its own covered pitcher for drinking water, and each pupil a separate cup. In cases of contagious disease in a family, the children are at once to be excluded, and teachers are to report weekly to the board the names and conditions of pupils who are ill. All teachers and principals shall be forbidden to send any pupil to the home of another pupil for any reason. Circulars of instruction to the Board of Education on those matters, and also to principals, are in the course of preparation.

Another Attack on American Live Stock.—A London cable dispatch of the 5th inst., reports that the English agricultural papers are raising an outcry against the free admission into Great Britain of American sheep. A recent consignment of sheep from America was found to be suffering with scab, the spread of which disease in the United Kingdom is due, according to the *Live Stock Journal*, to the importation of sheep from the United States. Many of these sheep were dispersed over the country for grazing and they spread the disease. The paper says that the Board of Agriculture must therefore be asked to issue an edict, similar to that applied to cattle, providing that American and Canadian sheep shall be killed at their port of landing. Secretary Morton will investigate the foundation for the charge, which will probably be found to have its origin—as in other legislation hostile to American food products—in purely commercial reasons and not in any keen concern for the public health.

Dr. Dana on the Saddle.—Upon what shall the rider sit? With all the world a-wheel this is certainly a question fundamentally touching the public health, and our esteemed confrère, Dr. Charles Anderson Dana of *The Sun*, who has so long been in the saddle in more than one sense, discusses it in his usual profound and instructive fashion. Especially is he concerned about the proper saddle for women. He points out that in this feature of the bicycle's construction the pommel is high, it interferes with the dress and chafes the body, and if this part is tilted downward one slides forward on to the narrow shank of leather and the comfort of wheeling is destroyed; stout women condemn the narrowness of most saddles, while many of less weight object to a seat of more than ordinary width; out of fully a score of saddles that are satisfactory to men, not one is pronounced good by the mass of women; not one, they say, is adaptable by any possibility to woman's structure; in short, while the saddles of to-day suit wheelmen, they positively do not suit wheelwomen, and hence they must be condemned. Dr. Dana then proceeds to consider the essentials of a perfect bicycle saddle for either man or woman: 1, one that shall maintain the body in an easy and proper position; 2, one that shall afford the rider a firm, yet elastic, seat; 3, one that shall allow pedaling without needless friction. The cycling sisterhood do not demand a saddle with upholstered arms in which to recline at will, but one conforming to their bodily requirements, and from which the machine may be propelled with facility and comfort. "In these days of reform will not," he asks, "some one of our fair readers with masculine ingenuity and feminine sense of personal comfort, invent a reformed bicycle saddle? We shall hail the advent of so important a factor to our sisters seeking health and pleasure on the wheel."

A Report on Malarial Fever in New Jersey.—According to *Public Health*, August, Dr. J. C. Smock, the State Geologist for New Jersey, has summarized the facts as to the origin and means of preventing malaria in New Jersey under the following heads: 1, malarial fevers prevail over that part of the State which lies north of the terminal moraine, wherever the conditions are favorable to it; 2, there is a remarkable absence of malaria in the country south of the terminal moraine, excepting localities and districts of limited extent, where aggravated conditions of its determination exist; 3, the existence of malaria is not necessarily due to a geologic formation, but to a sub-surface condition, common in the country which is north of the terminal moraine, and covered more or less by glacial drift; 4, the element of imperfect or disturbed under-drainage is a more potent condition in determining malaria than any other; 5, the thorough under-draining of a district or tract is the most practicable and most effective means in order to amelioration and protection; 6, the distance to which the malarial poison may be carried by winds or air currents is comparatively short, and not over hills and mountains miles away, as often popularly stated; 7, belts of forests, and even hedges, tend to

arrest this conveyance of malaria by winds. One instance was cited where, in the northern part of the State, a hedge is reported to have prevented malaria. The hedge was cut down and the whole family was taken sick with malarial disease. The occurrence of malaria or its distribution areally in New Jersey seems to be explained by these conditions of sub-surface drainage and the essential factors of heat, moisture, and dead vegetation, and not by wind transmission, otherwise there would be greater uniformity in the occurrence, instead of the irregular distribution. We have here a fever-stricken locality, and there an area free from it. Referring to the Great Meadows of the Pequest Valley, in Warren County, the testimony of intelligent laymen there resident led the writer to believe that there is no malaria there. Formerly this valley was "full of it," as one said, "nearly every one had the shakes." The beneficial effects are attributed to the lowering of the bed of the Pequest River and the more rapid delivery of its waters. Where formerly were wide-spread inundated lands and a sluggish stream with scarcely a perceptible current, there are to-day productive gardens and a swift current. The possibility of future outbreaks was suggested by the writer, until the whole tract has its ground-water lowered sufficiently to make a well-drained soil and subsoil, as well as a thorough surface system of drainage.

Health Reports.—The following health reports have been received at the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—DOMESTIC.

Louisiana: New Orleans, September 21 to 28, 11 cases, 1 death.

Michigan: Smallpox reported at Battle Creek, Battle Creek Township, Bedford Township, and Detroit.

Nevada: Carson, September 15 to 17, 15 cases.

SMALLPOX—FOREIGN.

Cairo: September 3 to 9, 2 deaths.

Calcutta: August 17 to 31, 2 deaths.

Buenos Ayres: July 1 to 31, 24 deaths.

Barcelona: August 1 to 31, 8 deaths.

Dublin, September 14 to 21, 5 cases, 1 death.

Gibraltar, September 8 to 15, 1 case.

London, Eng.: September 14 to 21, 2 deaths.

Montevideo: August 3 to 10, 1 case; August 17 to 24, 4 cases, 1 death.

Naples: September 14 to 21, 3 cases, 3 deaths.

Odessa: September 7 to 14, 1 case.

Prague: September 7 to 14, 2 cases.

Rio de Janeiro: September 3 to 10, 81 deaths.

Tuxpan: September 7 to 14, 3 deaths.

Warsaw: September 1 to 14, 2 deaths.

CHOLERA.

India: Bombay, August 27 to September 1, 3 deaths. Calcutta, September 17 to 31, 17 deaths.

Tangier: September 15 to 21, 79 cases, 46 deaths.

Austro-Hungary: Tarnopol, September 3 to 9, 14 cases, 5 deaths; Tarnopol District, September 2 to 9, 3 cases, 1 death; Brody District, September 1 to 2, 1 case, 1 death; Rohatyn District, September 2, 4 cases, 4 deaths.

France: Paris, September 1 to 7, 1 case, "choleric form affection."

Russia: Volhynia Government, August 4 to 10, 1,004 cases, 322 deaths; August 11 to 17, 2,025 cases, 718 deaths; August 18 to 24, 2,497 cases, 944 deaths; August 25 to 31, 3,352 cases, 1,190 deaths.

Cases are also reported from districts of Ostrog, Kremennetz, Saslow, Starokoustantinow, Nowogradwalyuski, Dubno, Rowno, Luzk, Shitonir and Kowel.

Turkey: Aleppo, August 21 to September 4, 35 cases, 13 deaths; Brussa (city), August 29 to September 1, 38 cases, 37 deaths; Brussa (vilayet), August 24 to 30, 32 cases, 16 deaths; Diabekir (vilayet), August 24 to September 1, 77 cases, 77 deaths; Adana (vilayet), August 23 to 27, 1 case, 2 deaths.

Japan: April 18 to 30, 99 cases, 28 deaths; May 1 to 31, 665 cases, 514 deaths; June 1 to 30, 3,573 cases, 1,931 deaths; July 1 to 31, 7,575 cases, 4,891 deaths; August 1 to 2, 810 cases, 553 deaths.

YELLOW FEVER.

Cuba: Cienfuegos, September 22 to 29, 3 deaths; Havana, September 19 to 26, 70 cases, 22 deaths; Sagua la Grande, September 14 to 21, 4 cases, 1 death.

Mexico: Vera Cruz, September 19 to 26, 4 deaths.

Brazil: Rio de Janeiro, September 3 to 10, 7 deaths.

MISCELLANY.

Addresses Wanted.—Dr. F. Meyer, JOURNAL returned from Baltimore, Md. Dr. M. Perl, JOURNAL returned from Houston, Tex. Dr. L. Smith, JOURNAL returned from Chattanooga, Pa.

South Dakota Blind Asylum.—The Legislature has established an institution to be known by the foregoing name and located at Gary, in Denel County. The State Board of Charities and Corrections are to have charge of it and of the employment of superintendent, attendants and instructors.

Massachusetts Pharmacy Laws to Be Codified.—A resolution was passed by the General Court, or Legislature, of Massachusetts, providing that the board of registration in pharmacy cause to be codified, consolidated and arranged, all laws now in force relating to the regulation or practice of pharmacy, and all laws which it is the duty of the members of the board of registration in pharmacy to enforce. Such codification, consolidation and arrangement shall be reported to the general court on or before Jan. 1, 1896.

Anti-American-Alliance Serum.—The epidemic that is carrying off so many of the English titled "eligibles," who fall a ready prey to American beauty and bullion, leads London *Truth* to offer this delusive hope to the British matron with daughters of her own to marry off: "After years spent in laborious and learned research, Prof. Padmore Brown claims to have discovered a serum, a hypodermic injection of which will preserve young men of position against marrying Americans. If the serum really possesses the property which the Professor declares it has, this will undoubtedly be one of the most important discoveries of the century. No mother with eligible daughters and no unmarried woman would, in that event, ever be without one of the hypodermic syringes filled to the nozzle with anti-American-alliance fluid."

Provision Made for North Dakota Blind Asylum.—The Legislature of North Dakota at its last session established a blind asylum, to be located at Bathgate, that State. The government thereof is vested in a board of five trustees, to be nominated by the Governor and confirmed by the Senate. The 30,000 acres of land donated by Congress for the purpose of such blind asylum and appropriated by the constitution of the State for it, and all moneys received from the interest and income derived from the sales of such lands or rents derived from the leasing of such lands, are appropriated for the construction and maintenance of this asylum.

Synthetic Alcohol.—Now that acetylene can be made industrially upon a cheap scale, the question of preparing alcohol synthetically is again being agitated. Indeed Caro (*Pharm. Centralb.*), while finding previously published methods insufficient, claims to have devised a process which eventually may lead to the desired results. He passes acetylene through concentrated hydriodic acid, thereby obtaining nearly 60 per cent. of $\text{CH}_3\text{CH}_2\text{OH}$. This, when boiled with concentrated solution of potassium hydrate, yields alcohol, acetylene and potassium acetate.—*Western Druggist*.

Methyl Salicylate in Senega Root.—Rubner having noticed (*Pharm. Jour.*) that a certain sample of senega root had a distinct odor of gaultheria, attributed this to sophistication, but Goldener states that, under certain conditions, many plants of the polygalaceæ contain methyl salicylate, and therefore the supposed adulterant is a natural constituent of the root. C. Dunnenberger points out that the Swiss pharmacopœia has adopted the salicylic acid in senega root as a test of identity, thus asserting its existence as a normal constituent of the root.—*Western Druggist*.

Society Notes.

THE annual meeting of the Minnesota Academy of Medicine was held in St. Paul, October 2. The following officers were elected for the ensuing year: President, A. E. Senkler, St. Paul; Vice-President, W. A. Jones, Minneapolis; Secretary, R. O. Beard, Minneapolis.—At the annual meeting of

the Tri-State Medical Society held at Des Moines, Iowa, the following officers were elected: President, D. C. Babcock, Chicago; First Vice-President, A. H. Cordier, Kansas City, Mo.; Second Vice-President, W. A. Todd, Chariton, Iowa; Secretary, Geo. Cole, St. Louis. The next meeting will be held in Chicago.—The first annual meeting of the Utah State Medical Society was held in Salt Lake City October 1, under the presidency of Francis L. Bascom.—The Utah County Medical Society was organized in Salt Lake City September 28. The following officers were elected: President, W. E. Pike; Vice-President, M. H. Hardy; Secretary and Treasurer, F. W. Taylor.

Cleveland Notes.

THE students of the junior class in the Medical Department of the University of Wooster at Cleveland have organized a "Pathological Journal Club," which has for its chief object an instruction in the methods of literary research by bringing the students into contact with the current literature bearing upon pathology and bacteriology in connection with their required class-room and laboratory instruction in these subjects.

At the first meeting of the club, held Thursday evening, October 3, Mr. Morris Schott read his detailed translation of a paper upon "The Etiology of Rheumatic Tetanus," by Carbone and Perrero, which appeared in the *Centralblatt für Bakteriologie* of August 31, 1895; Mr. J. J. Fleming read an abstract of "Notes on Bacillus Coli Communis and Related Forms," by Theobald Smith, from the *American Journal of the Medical Sciences* for September, 1895; and Mr. R. G. Schnee gave an abstract of an article by E. O. Jordan, "On some Conditions affecting the Behavior of the Typhoid Bacillus in Water," from the *Medical News* of Sept. 28, 1895.

The club elected Dr. A. P. Ohlmacher president, and Mr. A. L. Smith secretary. The meetings will be held bi-weekly.

Louisville Notes.

G. A. R. REPORT.—The report of the Medical Director, Dr. W. H. White, of the workings of his department during the National Encampment of the G. A. R. has been submitted to the Citizens' Committee. The workings of the department have been recorded in these columns previously. Reports were returned each day by the various chairmen in the different wards, giving the name, residence, post, disability, where quartered and what disposition was made of the patient. From these reports it appears that 284 cases were cared for; 98 of these occurred during the grand parade day, being prostrations from the excessive heat. It is a great wonder that many more of the old veterans did not succumb, as the thermometer reached the 98 degree mark, and the sun beat down from a cloudless sky. Thirteen were cared for at the fireworks, mostly bruises from an accident to the seats erected on the river front; and thirty were prostrations at the barbecue. The expenses of the medical department amounted to \$556.93, quite a balance being left over from the liberal allowance made by the Board of Control. It is gratifying to announce that not a single death occurred during the Encampment, and not a single case of serious sickness or injury among the veterans occurred. A most deplorable accident was that which befell the members of the Louisville Legion. A squad of men were placed in charge of a gun which was to fire the salute of welcome. While proceeding to the selected site, the caisson exploded, and three of the Legion men were killed, and the negro driver. They were almost blown to pieces, and beyond recognition.

NULL.—Dr. C. W. Null died at the City Hospital on the 26th inst. He was 42 years of age, having come to Louisville from North Carolina. He secured a position as janitor of the Louisville Medical College, and at once began the study of medicine, graduating in due time, and shortly after being elected to the professor of physiology. Later, he lectured on materia medica. At this time he began to drink, his fall was as rapid as his rise, and he was taken from a saloon, unconscious, to the City Hospital, where he died.

LOUISVILLE ACADEMY OF MEDICINE.—The regular meeting

of this society was held in the Academy rooms Monday evening, September 30. The subject for discussion was "Texas Fever," introduced by a paper by Dr. Cashin.

DEATH REPORT.—The total number of deaths for the week ending September 28 was 72; 41 male; 56 white; 4 died at the City Hospital; 3 stillbirths; 10 deaths from typhoid fever, 6 from inanition and 6 from cerebral meningitis.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The President of this Association, Dr. Wm. Bailey, accompanied by Drs. W. L. Rodman, J. M. Mathews, President of the State Board of Health of Kentucky, and Dr. Carl Weidner, attended the meeting at Denver on the 28th ult.

KENTUCKY SCHOOL OF MEDICINE.—The catalogue of this school for the session 1896 is just out, and shows the following new appointments upon its staff: Dr. J. W. Guest, assistant in gynecology and abdominal surgery; Dr. Wm. P. Banta, assistant in the laboratory of surgery; Dr. Gavin Fulton, assistant in physiology; Dr. Florence Brande, assistant in clinical medicine; Dr. Henry H. Koehler, assistant in clinical medicine. Dr. Carl Weidner became associate professor of the practice of medicine, and director of the laboratories of histology, pathology and bacteriology; Dr. Henry E. Tuley is made an instructor of physical diagnosis, in addition to his charge as chief of medical clinic. The election of Dr. S. E. Woody as Dean was mentioned in a previous issue.

St. Louis Notes.

HEALTH OF THE CITY.—The mortuary report for the week ending October 5 gives 172 deaths, 10 less than during the preceding week, and 29 more than in the corresponding week of 1894. Death rate, 16 per 1,000. There were 27 deaths under the age of 1 year; 48 under the age of 5; 27 deaths were due to zymotic diseases. During the week 121 cases of diphtheria and 6 cases of croup were reported, with 15 deaths; 8 cases of scarlatina without mortality; 11 cases of typhoid, with 2 deaths; and 1 case of measles. The prevalence of diphtheria is still causing alarm, and the public seems more alive to the need there is for a strict compliance with the instructions of the Board of Health.

THE ST. LOUIS MEDICAL SOCIETY.—At the meeting of October 5, Dr. Sherwood Dunn, late of Pozzi's clinic, demonstrated Professor Richelot's operation for vaginal hysterectomy to an appreciative audience.

FREE DISPENSARY ABUSES.—The city has opened a branch dispensary, and *apropos* of this extension of facilities for medical aid, there is renewed discussion of the abuse of this privilege of charity. Plans are proposed looking to the restriction of this charity in the case of the city dispensaries, which are easy of accomplishment, but the abuse of free college clinics is not so easily reached. The college is anxious to obtain a sufficiency of clinical material, and is never discriminative in its acceptance of cases. The multiplication of colleges in the city has greatly increased the number of free clinics, and it has now become notorious that a large proportion of the cases seeking aid in them are persons coming from both city and country who are able to pay. It is to be hoped that the State Board of Health will hit upon some plan to curtail this evil, which harms the profession quite as much as a superfluity of its own members.

THE MISSOURI MEDICAL COLLEGE.—Tuesday, October 1, the new college building was turned over to the trustees, and dedicated with ceremony. The new building is situated on Jefferson Avenue, near Washington, and adjoins the old Polyclinic. "The building is faced with white limestone, designed in the classic style of architecture and is most delicate in all its details. At the entrance two lamps of bronze, set on pedestals, give a most artistic effect. In the basement are located the boilers, heaters, and electrical plant. The system of heating and ventilating introduced forces the heat throughout the building. The sanitary system is one of the most important features in a building of this kind and has been handled in a most satisfactory manner. On entering the building the spacious hall connects with the rooms,

clinic rooms and a spacious lecture hall. The surgical amphitheater is located in the adjoining building with easy access from main hall. The second floor contains the biologic laboratory fitted up so that each student has his table with lockers. Connecting are the professors' rooms. The main amphitheater, with a seating capacity of 300, is located on this floor, with a large stage; connecting with the stage are large compounding rooms and smaller laboratories. On the third floor is located a large well lighted reading room, the pathologic, bacteriologic and physiologic laboratories. The professors' gallery runs the entire length of the rooms and so located that each student has full view of his doings. The dissecting hall is located on the fourth floor, with cement floor and all necessary drains and lighted with an immense skylight.

THE DUESTROW CASE.—The prosecution of this insane uxoricide is still conducted with a zeal worthy of a better cause. The latest move of the prosecuting attorney is the announcement of an intention to attempt to obtain an indictment for murder in the first degree before the St. Louis grand jury. This is the result of the failure to obtain conviction in the August trial in Franklin County. To further prejudice the public, the prosecution conducted a farcical examination in Franklin County with a view to unearth bribery of the jurors who served at the last trial. It is a sad commentary upon the administration of justice to realize that the public prosecutor has it in his power to affect the course of the law by cunningly playing upon popular opinion. There is an outspoken determination to compass the legal execution of Duestrow, sane or insane.

Washington Notes.

ANNUAL REPORT OF THE HEALTH OFFICER.—The annual report of the Health Officer shows the total number of deaths during the last fiscal year was 5,565, of which 3,114 were white and 2,451 colored. The death rate was 16.97 per 1,000 white inhabitants and 28.18 per 1,000 colored, and 20.57 per 1,000 of the entire population. The decrease in deaths was 474. The deaths from zymotic diseases numbered 1,036, as against 1,398 the preceding year. There were 4,794 returns of births made during the year, of which 2,378 were white and 1,916 colored. The births fell short of the deaths by 771. Estimated from the increase of population, probably 5,000 births were not reported, although required by law. It is gratifying to note, continues the health officer, that at no previous time for twenty years was the death rate so low. The marriages reported were 2,391, as against 1,496 the year before. Of these 1,411 were white and 980 colored. The estimates appended for the expenses of the fiscal year is as follows: One health officer, \$3,000. One chief inspector, who shall be a physician and act as deputy health officer, \$1,800. Fifteen sanitary and food inspectors at \$1,200; \$18,000. One sanitary and food inspector, who shall be a practical chemist, and inspect dairy products, \$1,800. One sanitary and food inspector to assist chemist, etc., \$600. Two sanitary and food inspectors, who shall be veterinary surgeons, and act as inspectors of live stock, dairy farms, etc., at \$1,200; \$2,400. One inspector of marine products, \$1,200. One chief clerk and deputy health officer, \$1,800. One clerk, \$1,400. Four clerks, two of whom may also act as sanitary and food inspectors, at \$1,200; \$4,800. One clerk, \$1,000. One messenger and janitor, \$600. One poundmaster, \$1,200. Laborers at not exceeding \$40 per month, \$1,920. Ambulance driver, \$480. For rent of office and stable, \$1,120. For support of chemist laboratory, \$1,000. For the collection and disposal of garbage and dead animals, \$57,000. For the prevention of the spread of scarlet fever, diphtheria and other minor contagious diseases, including the establishment and maintenance of a bacteriologic laboratory and disinfecting service, to be immediately available, \$15,000. Contingent expenses, \$4,000. For the erection of an administration building, isolation ward, stable, mortuary and discharging room in connection with the smallpox hospital, and for the equipment of these buildings and of those already erected, \$15,000. For the relief of the poor—twenty physicians to the poor, at \$480 per annum, \$9,600; drugs, printing, etc., \$3,700.

COLUMBIA HOSPITAL DISPENSARY CHIEF.—The executive committee of the Board of Directors of the Columbia Hospital have appointed Dr. Lewis P. Smith chief of the dispensary service.

ANNUAL REPORT OF THE CORONER.—Dr. Chas. M. Hammett, coroner of the District, has presented his annual report for

the past year. He makes an urgent appeal for the erection of a new morgue, and asks that \$12,000 be appropriated for that purpose. The new one in Baltimore cost \$4,500, and so the coroner estimates \$5,000 for the site, \$4,500 for the building, and \$2,500 for its equipment.

THE WASHINGTON BOARD OF TRADE.—At the meeting of the Board of Trade this week, the principal matters discussed were the means of prevention of the spread of typhoid fever and the extension of the sewer system of the District.

MEDICAL EXAMINATIONS OF PHYSICIANS TO THE POOR.—The medical examining board of the District Government held its first examination on the 5th inst. to fill vacancies in the staff of physicians to the poor. Twenty-five applicants were examined. Ten vacancies will exist on December 15 next. The names of the successful candidates will be announced later.

GEORGETOWN MEDICAL COLLEGE.—The chair of surgery has been divided. Deputy Surgeon-General Forwood, U. S. A., has consented to give a number of lectures upon such portions of military surgery as will prove of decided interest to the general surgeon. He will also treat of surgical pathology and the technique of operations. Word has just been received from Prof. Ernest La Place, in response to an invitation, that he will lecture on brain surgery. Dr. Snyder, of Garfield Hospital staff, has been elected an additional professor of surgery. Dr. Snyder will also lecture at the college upon surgery.

Dr. John W. Bayne, attending surgeon to Providence Hospital, will this year lecture on theoretical as well as clinical surgery. Dr. Devereux has been elected lecturer on "minor surgery," and will continue his efficient instruction in bandaging and fracture dressing, which made last year's course in practical surgery such a success. Dr. George M. Kober, late of the United States Army Medical Corps, has been elected professor of hygiene and military surgery. As an acknowledgment of his ability in hygiene the honorable Commissioners of the District have selected him for the important post of special sanitary inspector to study the cause of the recent epidemic of typhoid fever.

The faculty has created the chair of diseases of infancy and children. To this professorship they have elected Dr. S. S. Adams. The didactic course which he will give will be illustrated by bedside instruction at the Children's and Washington Hospital for Foundlings.

The facilities for clinical medicine have been augmented by the election of Dr. T. N. Vincent as professor of clinical medicine. He will lecture at Providence Hospital. The clinical professors will add to their usual clinics at the appointed hours instruction at the bedside by ward classes. To these facilities for clinical instruction additional opportunities will be furnished by other members of the medical staffs of Providence and Emergency Hospitals, as well as the Eastern and Women's Dispensary.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 28, 1895, to October 4, 1895.

Capt. Eugene L. Swift, Asst. Surgeon (Ft. Yates, N. D.), is granted leave of absence for one month, to take effect when his services can be spared, with permission to apply for an extension of one month.

Lieut.-Col. Joseph R. Gibson, Deputy Surgeon-General, will report in person to the president of the Army retiring board at Washington Bks., D. C., at such time as he may designate, for examination by the board.

Capt. Guy L. Edie, Asst. Surgeon, is relieved from duty as assistant to the attending surgeon, in the city of Washington.

First Lieut. Frederick P. Reynolds, Asst. Surgeon, is relieved from duty at Ft. Sam Houston, Texas, and ordered to Ft. Clark, Texas, for duty, relieving Capt. Benjamin L. Ten Eyck, Asst. Surgeon. Capt. Ten Eyck, on being thus relieved, is ordered to Columbus Bks., Ohio, for duty.

First Lieut. William W. Quinton, Asst. Surgeon, will be relieved from temporary duty at Ft. Logan, Colo., to take effect upon the arrival there of Capt. W. W. Johnson, Asst. Surgeon, and ordered to Ft. Riley, Kan., for duty.

Lieut.-Col. John S. Billings, Deputy Surgeon-General, having served over thirty years in the Army, is on his own application and by direction of the President, retired from active service this date, Oct. 1, 1895.

First Lieut. Frank T. Meriwether, Asst. Surgeon, having been found incapacitated by an Army retiring board, on account of disability incident to the service, is by direction of the President retired from active service this date.

Capt. Henry P. Birmingham, Asst. Surgeon, is granted leave of absence for one month, to take effect upon the arrival at Ft. Trumbull, Conn., of Capt. George E. Bushnell, Asst. Surgeon.

Capt. George E. Bushnell, Asst. Surgeon, will proceed to Ft. Trumbull, Conn., and report for temporary duty during the absence on leave of Capt. H. P. Birmingham, Asst. Surgeon.

Major Washington Matthews, Surgeon, having been found incapacitated for active service by an Army retiring board, on account of disability incident to the service, is by direction of the President retired from active service this date, Sept. 26, 1895.

Capt. Thomas A. Raymond, Asst. Surgeon, is granted leave of absence for four months, to take effect about Nov. 5, 1895.

PROMOTION.

Capt. Louis W. Crampton, Asst. Surgeon, promoted to be Surgeon, with the rank of Major, Sept. 6, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending October 5, 1895.

Medical Director E. S. Bogert, detached from duty in charge of naval hospital at New York, November 1, and ordered to attendance on officers of the Navy in that city.

Medical Inspector T. N. Penrose, ordered to duty November 1 in charge of the naval hospital at New York, in addition to his present duties. Surgeon R. C. Person's recent orders are so far modified that, when detached from the "Minnesota," he is ordered to special duty in connection with the improvements of the naval hospital at New York. Surgeon L. G. Heneberger, ordered to duty in attendance on naval officers in New York.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended September 30, 1895.

Surgeon C. S. D. Fessenden, granted leave of absence for thirty days, Sept. 24, 1895.

Surgeon P. H. Baillache, detailed to represent Service at meeting of American Public Health Association, Sept. 24, 1895.

Surgeon J. M. Gassaway, granted leave of absence for one day, Sept. 21, 1895, and for fifteen days, Sept. 23, 1895.

Surgeon H. R. Carter, granted leave of absence for one day, Sept. 24, 1895.

P. A. Surgeon S. B. Brooks, directed to proceed from Chicago, Ill., to St. Louis, Mo., for temporary duty, Sept. 16, 1895.

P. A. Surgeon L. L. Williams, relieved from temporary duty at South Atlantic Quarantine, and directed to rejoin station at Charleston, S. C., Sept. 19, 1895. Granted leave of absence for twelve days, Sept. 25, 1895.

P. A. Surgeon J. J. Kinyoun, detailed to represent Service at meeting of American Public Health Association, Sept. 24, 1895.

P. A. Surgeon J. B. Stoner, granted leave of absence for thirty days, Sept. 20, 1895.

P. A. Surgeon M. J. Rosenau, to proceed from Eagle Pass, Texas, to San Francisco Quarantine Station, for temporary duty, Sept. 16, 1895.

Asst. Surgeon L. E. Cofer, granted leave of absence for thirty days, Sept. 23, 1895.

Asst. Surgeon J. A. Nydeger, to proceed from Savannah, Ga., to Mobile, Ala., for temporary duty, Sept. 16, 1895.

Asst. Surgeon J. H. Oakley, granted leave of absence for thirty days, Sept. 30, 1895.

LETTERS RECEIVED.

Anderson, G. K., New York, N. Y.; Allport, F., Minneapolis, Minn.; (2); Ayres, S. C., Cincinnati, Ohio; Ashmead, A. S., New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.; (2).

Bovey, J. W., Washington, D. C.; Barrett, J. E., Wooster, Ohio; Bernd, Henry & Co., St. Louis, Mo.; Bell, Clark, New York, N. Y.; Boody, Geo., Independence, Iowa.

Carstens, J. H., Detroit, Mich.; Cox, R. P., Rome, Ga.; Collins, C. A., New York, N. Y.

Duncan, B. S., Columbus, Miss.; Davis, B. B., Omaha, Neb.; Dougherty, W. H., Augusta, Ga.; Dixon, Z. A., Librarian, University of Chicago; Dewey, W. F., Petersburg, Va.

Eastman, Thos. B., Indianapolis, Ind.

Formanek, F., Chicago, Ill.; Ferguson, H. W., Chicago, Ill.

Gallaber, Thos. J., Denver, Colo.; Graf, Will J., Cincinnati, Ohio; Givens, Jno. W., Baltimore, Md.; Garlington, T. K., Rome, Ga.; Gunn, Malcolm, Rush Medical College, Chicago, Ill.

Hagan, Hugh, Atlanta, Ga.; Hooper, E. D., Boston, Mass.; Haag, D. E., Toledo, Ohio; Howle, W. P., Oran, Mo.; Hild, F. H., Librarian, Chicago Public Library; Harmon, D. C., Bath, Ill.; Hawley, D. C., Burlington, Vt.; Hektoen, Ludwig, Rush Medical College, Chicago, Ill.

Jones, D. W., Rising City, Neb.; Jones, Joseph, New Orleans, La.

Kreider, Geo. N., Springfield, Ill.; Koenig, Adolph, Pittsburgh, Pa.

Ludwig, Henry C., New York, N. Y.; Loving, Starling, Columbus, Ohio; Lea Brothers & Co., Philadelphia, Pa.; (2).

Mann, E. C., New York, N. Y.; Mathis, A., Macon, Ga.; Mudd, H. H., St. Louis, Mo.; Mason, L. D., Brooklyn, N. Y.; Mason, R. O., New York, N. Y.; Martin, Wm., San Francisco, Cal.; Moore, K. P., Macon, Ga.; Montgomery, E. E., Philadelphia, Pa.; MacNeal, Arthur, Berwyn, Ill.

Olmacher, A. P., Chicago, Ill.

Parmer, Chas. Roome Co., New York, N. Y.; Pettyjohn, E. S., Alma, Mich.; Peterson, F., New York, N. Y.

Quimby, I. N., Jersey City, N. J.

Rogers, L. L., Kingston, Pa.; Richardson, C. H., Montezuma, Ga.; Ruzicka, V. & Sons, Baltimore, Md.; von Ruck, Karl, Asheville, N. C.

Spark, W. T., Rutledge, Ga.; Simonton, A. C., San Jose, Cal.; Smith, F. T., Chattanooga, Tenn.; Schoch, L. E., Reading, Pa.; Schimmel, M. S., Baltimore, Md.; Spencer, G. A., Haverhill, Mass.

Thompson, W. Gilman, New York, N. Y.

Vance, A. J., Harrison, Ark.

Wesley, A. A., Chicago, Ill.; Warner, W. R. & Co., Philadelphia, Pa.; Wing, Albert, Chicago, Ill.; Wise, G. E., Librarian, Newberry Library, Chicago, Ill.; Wandlea, Henry W., Dallas, Texas; Whinery, S., Cincinnati, Ohio.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, OCTOBER 19, 1895.

No. 16.

ADDRESS.

STRENGTH OF THE DIFFERENT MYDRIATICS AND MYOTICS.

CHAIRMAN'S ADDRESS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY EDWARD JACKSON, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC;
SURGEON TO WILLS EYE HOSPITAL, PHILADELPHIA.

It will naturally occur to you that the development of our own Section work, the increase in the number of papers presented here which raise points for our discussion, and the increase in the number of members who can from their own observations add to the value of our discussions, together with the multiplication of ophthalmic journals, has rendered obsolete the Address which the By-laws of the AMERICAN MEDICAL ASSOCIATION say the Chairman shall prepare "on the recent advancements in the branches belonging to his Section." My predecessors for some years seem to have felt this and have chiefly confined their remarks to the other topic allotted them, viz., "suggestions in regard to improvements in methods of work."

Such suggestions as I would make regarding the conduct of our Section have been embodied in the arrangement of our program, or will appear in the course of our proceedings. The most important of them is in the attempt to enforce brevity in the communications that are to be read before us. In this effort I ask your assistance—that as readers of papers or speakers in discussion you will not ask for extension of time—and that as members of the Section you will bear in mind the rights of those who have not yet obtained the floor, as against the natural desire of a speaker to communicate more than a fair share of his ideas.

For a gathering such as this, the elementary principles, the complete and rounded treatise, the historical review, the miscellaneous details of cases, even the professional experiences of the speaker, except as they bear directly on the point under discussion, are all out of place. The office of the written paper here is to awaken and shape the discussion. If you have new facts, even of the highest importance, that will awaken no criticism from our experience, suggest no questions that we want to put to you, do not bring them here. You can communicate them more cheaply and more perfectly through the printed page. The medical society should not be a contrivance for stuffing unwilling victims with even the most valuable information. If we have tried to use it for that purpose, let us stop doing so.

It may often happen that with the papers that are to be printed, as well as read here, we may desire that as they appear in the JOURNAL, or our volume of

Transactions, they should contain matter not essential to the intelligent consideration of the points raised for discussion. Such matter may well be included in the paper, but omitted in the reading.

The absurdity of addressing you on current ophthalmic literature, with the chief additions to which you are already familiar, is too apparent to demand any apology for turning quite aside from such a course. I have chosen, therefore, to speak chiefly on a particular topic, important in itself, but I think especially appropriate, because complete knowledge of it will be best reached through collective investigation.

RELATIVE STRENGTH OF MYDRIATICS AND MYOTICS.

With the first medical use of any drug there arises the question of dosage, so that views, more or less positive, are current with reference to the absolute and relative strength of our various mydriatics and myotics. They are, however, little more than indefinite impressions, such as would not be tolerated among the accumulations of an exact science like chemistry or physics, and it is, I believe, quite within our power to replace them by definite knowledge. The mutual antagonism of these two classes of drugs, and the readiness and exactness with which we can measure the diameter of the pupil and the distance of the near point of accommodation, render this the field in which we can first gain exact quantitative knowledge of the physiologic action of drugs. In other investigations of the kind, we may know exactly the dose applied and the body weight of the animal to which it is applied; but have, commonly, no means of exactly measuring for comparison the result produced. In this matter of the dilatation or contraction of the pupil, the increased or diminished effort of the ciliary muscle, cause and effect, factors and product, can both be estimated with exactness.

The effect of a mydriatic on the eye can be most accurately observed subjectively, the subject of experiment making the observation, and one eye only should be subjected to the influence of the drug at one time, the other being kept normal for control of illumination and for comparison; the size of the pupil is to be measured by the distance apart of pin-hole openings that give tangent circles of diffusion on the retina. I have employed a series of pin-holes punched in a piece of cardboard, the distance between them varying by $\frac{1}{4}$ millimeter intervals from 2 mm. to 9 mm. The effect on accommodation is tested by placing a lens before the eye subjected to the drug, convex for a mydriatic, concave for a myotic, and covering first one eye, then the other, while they are both made to focus fine print at the near point of distinct vision, and changing the lens used until that strength is found which most accurately neutralizes the influence of the drug on the ciliary muscles. Complete absence of accommodative power or pupil-

lary reaction is ascertained by the ordinary methods.

In the experiments now referred to, I have used the various drugs dissolved in distilled water, in proportions varying from 1 to 10 (homatropin) to 1 to 2000000 (hyoscyamin, etc.) and have applied them by dropping on the cornea with a pipette, giving 180 drops of water to a drachm.

As the measure of the strength of a mydriatic we may take the amount required to produce either of several definite physiologic effects. Thus we may take the strength of the solution when carefully applied that will constantly produce the least effect that can be certainly recognized. This I have found to be for pilocarpin (hydrochlorate), 1:2000, or 1-6000 gr.; homatropin (hydrochlorate), 1:10000, or 1-30000 gr.; eserine (sulphate), 1:50000, or 1-150000 gr.; atropin (sulphate), 1:500000, or 1-1500000 gr.; hyoscyamin (hydrochlorate), 1:1000000, or 1-3000000 of a grain.

What will be said of the strength of hyoscyamin applies equally to duboisin and scopolamin, and probably to daturin. In the Transactions of the Medical Society of the State of Pennsylvania for 1882, p. 157, I published a study of the subject, and the conclusion reached through it that, "Daturia, duboisia, and hyoscyamia are physiologically identical." Recently I have carefully compared the actions of duboisin and hyoscyamin with that of the newly introduced scopolamin, and have not been able to discover any difference between them.

This relation of the sizes of the minimum dose is a simple one, easily ascertained, and one that each of you may verify or correct without causing yourselves any personal inconvenience. It is to be hoped many will test it, as its general study would almost certainly reveal important facts as to susceptibility and idiosyncrasy.

But in practice we use these drugs in doses enormously greater, and when so used the ratios of their strengths differ markedly from those above indicated. In general it appears that those drugs whose action is more evanescent, require to be used in relatively larger dose to produce the minimum effect; that is, in practical doses they prove relatively stronger. This will appear on comparison of the foregoing with the data to be given presently.

A more practical measure of strength is to be found in the amount of the drug required to produce full dilatation of the pupil or complete paralysis of the accommodation. For purposes of comparison, however, a method which eliminates errors from imperfect instillation and absorption of the drug is to determine the strength of the different mydriatics by observing their power to neutralize a rather strong (1 to 1000, nearly .5 grain to the fluid ounce) solution of eserine sulphate.

The trial has been made by using a single solution containing both the drugs in the desired proportions. When this is resorted to, the myotic effect is first manifest, and as it declines the mydriatic becomes predominant. This is the case to a slight extent even with homatropin, and is much more marked with the slower mydriatics, especially atropin. Still, even with atropin, there is a time at the beginning of its maximum effect when the influence of the eserine has scarcely begun to decline, when they can be made to closely neutralize each other.

Taking this period of most complete neutralization, which is about one and one-half hours after in-

stillation for homatropin, two and one-half hours for hyoscyamin, and three and one-half hours for atropin, I find that to neutralize the influence of the mydriatics requires for 1 part homatropin, 1-6 part eserine; 1 part atropin, 5 parts of eserine; 1 part hyoscyamin, 12½ parts eserine; 1 part homatropin, 4 parts pilocarpin.

Taking homatropin as the unit, the relative strength of the mydriatics and myotics then appears to be: pilocarpin (hydrochlorate), ¼; homatropin (hydrochlorate), 1; eserine (sulphate), 6; atropin (sulphate), 30; hyoscyamin (hydrochlorate), 75.

These proportions hold pretty nearly for either the effects on the pupil or on the accommodation, although in my own eyes (the only ones in which I have been able to note very accurately the changes in the accommodation), the mydriatics have all shown a relatively greater effect on accommodation. That is, in the transition from myosis to mydriasis, there has in each instance been a time when the pupil still remained contracted, although the accommodation had descended below the normal.

The strengths of the mydriatics and myotics that I have thus indicated has been ascertained by experiments first on my own eyes. Nearly all have been confirmed by experiments on the eyes of other persons; but not any large proportion of them on the eyes of any one person. In many respects these observations agree with the recorded observations of others; as with Risley, in his conclusion published in his first account of duboisin, that its influence on the accommodation was more than twice as great as that of atropin, and the chief results obtained by Donders and von Graefe and their students experimenting on atropin and extract of calabar bean.

But in some respects the published conclusions of earlier observers have not been confirmed. This has been especially the case in regard to minimum doses. Thus Loring, for atropin, found the minimum strength that would produce a notable effect on the pupil to be 1:150000, and Jaarsma (quoted by Landolt) concluded that a drop of either of the following solutions was the minimum dose that would affect the pupil: pilocarpin, 1:400; eserine, 1:12800; atropin, 1:80000; daturin, 1:160000; duboisin, 1:1200000. He thought that it required a strength of 1:800 of eserine to affect the accommodation. Graefe speaks of the dilatation produced by a solution of 1:120000 of atropin "long kept in contact" with the eye of a dog. The weakest solution of atropin referred to by Donders in his work was 1:14400, of which he says: "On the following day no trace of mydriasis is perceptible." ("Accommodation and Refraction of the Eye," p. 588.) I have, after the instillation of one-third of a minim of a 1:500000 solution of atropin containing 1-1500000 of a grain of the drug, found a mydriasis amounting to .25 of a mm., greater diameter of the pupil, after twenty-four hours. Subsequently, however, Donders became better acquainted with the mydriatic power of atropin, as is shown by the following letter published in the "Life and Letters of Charles Darwin," vol. II, p. 498:

Down, July 7, 1874.

My dear Professor Donders:—My son George writes to me that he has seen you and that you have been very kind to him, for which I return to you my cordial thanks. He tells me, on your authority, of a fact that interests me in the highest degree, and which I much wish to be allowed to quote. It relates to the action of 1-1000000 of a grain of atropin on the eye. Now, will you be so kind, whenever you can find a little leisure, as to tell me whether you yourself

have observed this fact, or believe it on good authority? I also wish to know what proportion, by weight, the atropin bore to the water solution, and how much of the solution was applied to the eye? The reason why I am so anxious on this head is, that it gives some support to certain facts repeatedly observed by me, with respect to the action of phosphate of ammonia on Drosera. The 1-4000000 of a grain absorbed by a gland clearly makes the tentacle which bears this gland become inflected; and I am firmly convinced that the 1-20000000 of a grain of crystallized salt (*i.e.*, containing about one-third of its weight of water of crystallization) does the same. Now I am quite unhappy at the thought of having to publish such a statement. It will be of great value to me to be able to give any analogous facts in support. The case of Drosera is all the more interesting as the absorption of the salt or any other stimulant applied to the gland causes it to transmit a motor influence to the base of the tentacle which bears the gland.

Pray forgive me for troubling you, and do not trouble yourself to answer this until your health is fully re-established. Pray believe me, yours very sincerely,

CHARLES DARWIN.

The fact here asked for is used in Darwin's "Insectivorous Plants," chap. vii. It is the dilatation of the pupil of the dog by 1-1000000 grain of atropin applied directly to the iris. But I have read this letter, not merely because it supports my observation as to the mydriatic power of atropin, but because in it lies revealed a general fact most worthy of our consideration. Does it appear to any of you that here are two great men in their dotage, pleased with mere trifles? You have then but poorly traced the course of scientific progress. This letter indicates the importance attached by two of the greatest scientists of our century to exactness and definiteness of observation; and all the history of scientific progress testifies that they were right in their estimate.

The observation of the Greek philosopher in his bath-tub, of the loss of weight by displacement of water, with a few similar observations furnished a foundation on which physics grew up, centuries before her sister sciences were imagined. For a thousand years the alchemists distilled and compounded and theorized, until in the eighteenth century, Black took to carefully weighing the products of his experiments. Priestley and Cavendish, Scheele and Lavoisier followed him, and in a single generation the crude theories of alchemy dissipated as mists before the morning sun, revealing the great vistas of modern chemistry. Within the year we have witnessed the proclaiming of a new element in our atmosphere, revealed simply by the minute difference between the weight of supposed nitrogen procured from the air, and nitrogen procured from other sources.

We all look forward to a day when we can speak with more truth of a science of medicine. Let us remember that it will come, and only come, as we bring the balance and the rule, and all other means of minute exactness into our methods of clinical investigation.

ORIGINAL ARTICLES.

THE KRÄG-JORGENSEN RIFLE.

A REPORT OF ITS EFFECTS ON THE SKULL OF THE LIVING, SHOWING THE FALLACY OF THE "HUMANE" THEORY ON GUNSHOT WOUNDS FROM THE MODERN RIFLE.

BY MAJOR ALFRED C. GIRARD, SURGEON U. S. ARMY.
FORT SHERIDAN, ILL.

The shooting through the head of a military convict attempting to escape from a sentinel at this post,

with the Kräg-Jorgensen, the new rifle adopted for the United States Army—presenting the first instance in the country of its effects on the skull of the living subject, has led to various sensational accounts in the secular press. Based on these, I have received a number of letters of inquiry from physicians interested in the result of the change of caliber. In order to prevent erroneous deductions from newspaper reports, and to give the profession a true description of the injury produced, I have deemed proper to publish this account, with a sketch of the skull as it appeared after removal of the integument.

I saw the man a few minutes after he was shot. His breathing was stertorous; he was, unconscious, and death appeared to be only a question of minutes. A cursory examination revealed two bullet wounds. The entrance wound (he was running away when shot), was located in the upper occipital region of the skull, and that of exit in the forehead a little to the right of the center. (Distance between rifle and victim ninety feet.) After passing through the man's skull, the ball went through a tree eight inches in diameter and buried itself in the ground two feet. The man died in half an hour.

Post-mortem was made the same night. The wound of entrance into the skin presented a round opening, without the appearance of scorching or blackening. The wound of exit in front was larger and more ragged. The integument was carefully dissected off and the bone of the top of the skull found extensively fractured, the parts being connected here and there by fascia.

On the calvarium being removed, the surface of the dura mater presented a state of intense congestion. To the right of the longitudinal fissure it was torn through for a distance of about four inches, about one inch from and parallel to it.

On removal of the coverings, the convolutions of the brain were made prominent by the engorged network of superficial veins. A furrow, corresponding to the injury of the dura was ploughed through the right hemisphere, in the region of the superior frontal convolution, about half an inch deep. The right lateral sinus appeared filled with blood serum; the left was normal. On section, the vessels of the brain were found engorged, but no other macroscopic injury of a prominent nature was apparent.

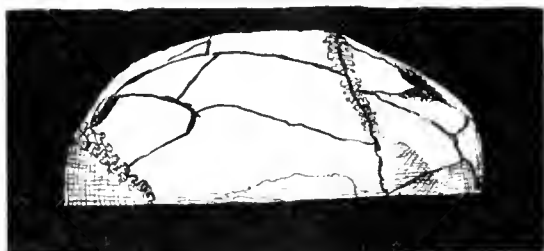
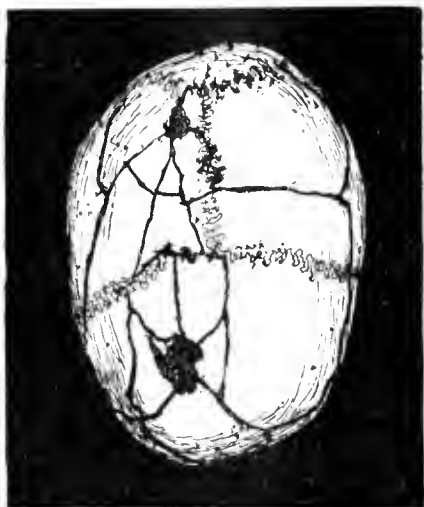
After removal of the brain, the cribriform plate exhibited comminuted fracture; one or two slight fissures in the petrous and squamous portion of the temporal bone, otherwise the bone was intact.

The skull cap presented the following injuries, viz: at the site of the entrance of the bullet, one-half inch above and to the right of the junction of the occipital and right parietal bones, an oval perforation $1 \times \frac{1}{2}$ inch, the edges shelving inward. From this opening there radiated the following fractures, viz:

1. Downward into the left lambdoid suture, separating it, thence horizontally along the parietal and frontal bones to the left orbital cavity.
2. An oblique into the sagittal suture, opening it for two inches.
3. One parallel with the sagittal suture, bifurcating one inch from its origin into a wedge-shaped piece, which, again fractured, continued to the coronal suture separating it.
4. The left fracture communicated with the horizontal left fracture, described under 1, parallel to the coronal suture and one and a half inches to the rear.
5. A fracture at an acute angle from the former to

the right, communicating with the former, and with the lambdoid, two inches to the right of the superior angle of the occipital bone, and toward the front, extending into the coronal suture.

The wound of exit, two inches in front of the coronal suture and one inch to the right of the median line, was pyriform, one and a half inches long at its greatest diameter, three-eighths of an inch wide, the edges more ragged. It communicated with the coronal suture by three fractures, with the orbital ridge by two, and thence with the horizontal breaks.



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Death was evidently caused by concussion, as no vital parts of the brain were injured, and the hemorrhage was not considerable.

Now as to the effect of the bullet, the so-called humane result of this small caliber bullet, not much larger than a pencil, may be disposed of at once in the negative. The bullet was recovered and showed but a slight indentation,—the openings, considering the pulverization of bone in the immediate vicinity of the impact were small. We had clearly, what is called an explosive effect.

A few words of explanation on the *modus operandi* of such an injury are necessary to lead to a correct understanding. Theories, such as the effect of powder gases, heating of the bullet, have generally been

abandoned. There was no deformation of the bullet or lateral impact, which might increase the striking surface.

I would exceed the limits, which have to be given to an article of this nature, if I attempted to give even in a condensed manner the experiments, which have led to the present views on this enormously destructive result accompanying an apparent slight bone defect. The conclusions arrived at have to be sufficient, and any one taking a special interest in the matter will find a complete history of the experiments in the *Bibliotheca Medica*, edited by Kocher, König and Mikulicz, names which guarantee the correctness and soundness of the accounts given (Part E, 2, 1895).

Modern projectiles act in a twofold manner: first in the line of the impact, and second, in a lateral direction. In both cases we observe beside the immediate effect, motion, which is communicated from the place of impact. If the result of impact leads to perforation, then the lateral effect is lessened in corresponding ratio. It depends on the cohesion of the molecules, on the diameter of the projectile, and on its velocity. In common terms it may be stated that the greater the cohesion, the more energy is wasted and the lesser the lateral effect—the greater the diameter, the more force is lost in the impact; but the greater the velocity, the more extended the lateral transmission of motion as the molecules have not the time to escape the lateral compression and communicate their motion until a place of minor resistance is reached, when disruption follows. This is the so-called explosive effect, which more properly should be called expansive. This is illustrated in our case by the penetration of a small bullet at a high velocity. The defect at the place of impact is small, but the lateral motion was such that the skull was raised from its base by the horizontal fractures and as this did apparently not suffice to limit the motion, the upper fragments were torn from their fascial connection.

In addition to this direct expansive effect on the bone of the skull, there is the hydrostatic result of rapid compression of the semi-fluid brain mass, confined in it. The molecules of liquids are readily displaced and a greater effect will be produced in them by a relatively smaller velocity, and with high velocity it is enormous.

It must be understood that the small caliber has not introduced the explosive effect, but owing to the higher velocity and consequently greater impact with a lesser diameter, it has extended the zone of explosive effect, always observed in large caliber projectiles, as long as they are moving under high velocity.

We may therefore give the following resumé of this case: a direct impact under the highest kind of velocity, without deformation of the bullet, small hole of entrance and exit of the bone, with extended stellate and circumferential fracture of the skull, partly due to direct impact, partly to lateral expansive motion, and partly to the hydrostatic effect of compression of the semi-fluid brain by the bullet, with displacement of the molecules in all directions, and disruption at the place of least resistance.

The base of the skull was not affected by the hydrostatic pressure because the dome was already weakened by the expansive effect of the direct impact, as shown by the longitudinal fractures and their branches.

Since completing the above, it has occurred to me that readers who are not familiar with the later experiments in gunshot injuries, might not readily understand what the "humane" theory is, and I therefore add a few words of explanation.

When the first experiments with the small caliber gun were made, it was found that occasionally the epiphysis of a bone showed an almost clean perforation and the rash conclusion was drawn that the new class of weapons, instead of shattering the bones and tearing the flesh, would make almost a punctured wound; therein they would be more humane.

The main fallacy in these experiments was that they were made on dry bones, in which the cancellated tissue of the epiphysis readily gave way to the lateral effect and thus the explosive result did not occur. In all experiments on fresh bones, and on bony cavities filled with a pulp resembling brain matter, the explosive action was manifest, as it has been found in the practical exhibit of the case under consideration.

INCIPIENT CATARACT.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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It is surprising how little real progress has been made in our knowledge of the etiology and pathology of cataract since the investigations of Marriotte,¹ Boerhaave² and Brisseau,³ two hundred years ago.

In a paper read before this Section in 1892, I presented some thoughts on infantile cataract.⁴ What I have to say to-day will apply more particularly to the so-called senile and other forms of cataract in adults.

In a large manufacturing city, like Cleveland, nearly one-half of the opacities of the lens coming under the observation of the ophthalmic surgeon are the result of traumatism, but as a discussion of injuries of the eye would require more than ten minutes, I pass to the consideration of other forms of cataract.

That there is a diabetic cataract is now generally recognized. That under dietetic and medicinal treatment the opacity of the lenses may disappear is not so generally conceded, although cases have been reported by Seegen,⁵ Tannahill,⁶ Nettleship⁷ and others.

In a paper⁸ read before the Ohio State Medical Society in 1889, I reported the case of Mrs. S., aged 43, first seen in April, 1884; cataract almost mature; could not count fingers with either eye. Urine contained large amount of sugar which almost entirely disappeared under dietetic and medicinal treatment. Vision rapidly improved to O.D. 20-70; O.S. 20-60. Continued to see very well with occasional fluctuations in vision according to amount of sugar in urine, until September, 1888, a period of four and one-half years, when after exposure she had suppression of urine and died suddenly in coma.

Since reporting the above case, Mr. M. came under my observation. Aged 56; having diabetic cataracts in both eyes. Left lens extracted in October, 1888. Shortly afterward he went abroad, lived much of the time at Carlsbad, drinking plenty of water and living on restricted diet. In February, 1894, he returned to this country improved in health and much to my surprise had discarded the cataract lenses and was using the unoperated eye with presbyopic lens.

Notwithstanding the general statement of recent writers to the contrary (Schmidt Rimpler)⁹ I believe that further observation will show that there is a nephritic as well as a diabetic cataract. Eight out of thirty consecutive cases of cataract, in one hospital in my service, had albumin in the urine, although kidney disease was not suspected by the patients or family physicians. Deutschman¹⁰ recognizes this not as a coincidence but says: "We must recognize a nephritic cataract just as we recognize a diabetic cataract, the cause in both cases being constitutional." Becker in the *Verhandl d Heidelb. Ophth. Vers.* 1884, denied Deutschman's statement that chronic nephritis leads to cataract.

The only case in which I have observed any marked improvement in vision in a nephritic cataract was that of Mr. O., aged 62, mature cataract of right eye; immature cataract of left; vision S. 20-200; operation of linear extraction performed on right eye in October, 1883; vision after operation 20-30. Urine contained a large amount of albumin and casts. There was a slight hypertrophy of the heart, but no valvular disease. Dietetic and medicinal treatment for the albuminuria was instituted with quite satisfactory results. At the end of a year found that his vision had improved to 20-50, S, in the unoperated eye; and that he had discarded the cataract spectacles and was using his old ones, with which he claimed to see better. He continued to use a pair of +2.50 D. lenses for five years, when his sight began to fail rapidly in left eye and he returned to the use of the cataract lenses. About the same time, there was a decided increase in the amount of albumin in the urine; the old gentleman after suffering from edema of the feet and legs and other serious results of kidney disease, died in 1891.

Numerous cases of cataract as the result of ergotism have been reported. Rickets is not infrequently said to be a cause of cataract as well as a certain form of skin disease. Glass blowers' cataract is recognized, and I have found cataract quite frequent among puddlers and other employes about iron mills who are exposed to intense heat.

Fraenkel,¹¹ of Lyons, "believes that cataracts are due to disorders of nutrition, i.e., that they are due to auto-intoxication." Of thirty-four cases he reports, in thirty-three the urine contained less than the normal amount of toxic substances.

Collins¹² believes that the cataract process is not an exaggerated senile change but due to disturbed nutrition of another nature, in so far as chemie and morphologic changes are concerned.

Roosa¹³ reports a case of cataract following a stroke of lightning which subsequently almost entirely disappeared.

Risley¹⁴ says: "That while opacity of the lens is a disease of advanced life, it does not in all probability depend upon senile changes, but is originated in local pathologic states involving the nutrition of the eye itself." These local pathologic changes he believes to be in the choroid, and thinks the changes in the lens and vitreous in later life to be due to the same cause as the impaired nutrition of the sclera and the resulting posterior staphyloma and consequent myopia in children. He attributes the comparative freedom from cataract in early life to the yielding of the sclera, which prevents the lens from suffering from injurious disturbances of nutrition. In support of this theory of the cause of cataract Dr. Risley pre-

sents statistics of sixty cases taken consecutively from his case-book, in forty of which there was a chorio-iritis noted, and in many of the other twenty the opacity of the lens was so far advanced as to prevent a study of the fundus oculi.

I can recall five or six cases in which a preliminary iridectomy has been performed, and the patients have waited from one to fifteen years for the cataract to become ripe; at the present time they are no nearer maturity, and in two or three cases the lens is clearer than at the time of the iridectomy.

Thomas¹⁵ and White¹⁶ each report a case in which after trituration the lens to hasten maturity, the opacity disappeared entirely.

Witvalsky¹⁸ has collected eighteen cases of spontaneous cure of senile cataract by absorption, reported within the past eight years, to which he adds two of his own and concludes that such cases are much more common than is generally supposed.

High degree of myopia has long been recognized as a predisposing cause of cataract—the same is true of glaucoma, the one can often be prevented by spectacles and the other cured by operation. While it is true that these are exceptional cases that we all recognize and act upon, is it not true that more of the cases of cataract if recognized earlier and studied carefully might be retarded or even cured? So many "cures" for cataract have been proposed by ignorant and unprincipled practitioners that any one proposing to treat incipient cataract is generally looked upon either as a fool or a knave. Consequently we have generally been contented to give the advice: "Wait until the cataract becomes ripe," and have not given these cases that honest study and close observation that we have many other diseases.

I do not believe that clinical observation will confirm Priestly Smith's¹⁷ conclusions in all cases, "that senile cataract is entirely a local process and is not dependent on any disordered state of the general health."

In view of the preceding observations, may we not say that occasionally incipient cataracts under medical, hygienic, dietetic or local treatment do remain stationary or even entirely disappear and that the resources of our art looking toward this end have not been entirely exhausted?

In conclusion, I wish to suggest that in all cases of incipient cataract: 1, the urine should be examined chemically and microscopically; 2, the general health should be carefully interrogated; 3, all errors of refraction should be corrected; 4, a careful examination of the fundus oculi should be made; 5, that the patient receive such general and local treatment as may be suggested by the above inquiries; 6, that a few carefully reported histories of cases from incipient to maturity would be of more value than statistics of hundreds of successful operations; 7, that if operative interference becomes necessary it should be instituted at the earliest possible moment before the general health becomes impaired, preferably by Knapp's¹⁹ method of peripheral capsulotomy, with an iridectomy either at the time of the operation or some time previously.

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THE OPERATIVE TREATMENT OF IMMATURE AND SOME FORMS OF ZONULAR CATARACT.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

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In the formation of ordinary senile cataract, the shrinkage of the nuclear portion of the lens, as has been pointed out by Becker, plays an important part. The shrinkage of the peripheral lamellæ does not progress as rapidly as those of the nuclear portion, and, as a result, a process of cleavage between peripheral and nuclear lamellæ is set up. The spaces thus formed are occupied by an emulsion known as the liquor Morgagni, which is composed of granular detritus, fat globules, myeline masses, and the intra-ocular fluids, and serves to produce the whitish opacities observed. The peripheral fibers themselves usually undergo degenerative changes—become filled with minute fat globules, break up into myeline masses and are sometimes entirely disintegrated. The liquor Morgagni forms between the capsule and the lens fibers, as well as between the lamellæ, serving to render the attachment between the two less intimate. At the earlier moment of this occurrence, the cataract is at the best stage for removal; however, this process is not gone through with in many cases of nuclear cataract.

In the rapidly developing cataract, particularly in relatively young individuals, the lens fibers become swollen by the imbibition of fluids and the granular degeneration of the fibers progresses very rapidly. The white soft cataract is the extreme example of this process. In these cases a stage of swelling is marked and the anterior chamber is rendered quite shallow. When the lens fibers are swollen, although they may be quite opaque, they are not readily detached from the capsule. The stage of shrinkage which follows, after it has proceeded sufficiently to permit of the presence of an anterior chamber of moderate depth, is more favorable for complete removal of the cortical portion, as some liquor Morgagni has been formed between capsule and lens. In many cases of cataract, where the process of cleavage plays a decided rôle, the stage of swelling does not develop. The nuclear lamellæ remain transparent, often are amber-hued, or show very little change, and the peripheral fibers degenerate very slowly. In still another form, occurring in older individuals, the opacity begins in the central portion of the lens, in the form of a diffuse haziness and advances slowly toward the periphery. In this form a stage of swelling seldom occurs, the lens being always smaller than the non-cataractous lens of the same age. In still another form the lens takes on a deep amber hue, all the fibers are hardened and condensed and there is

marked haziness of the nuclear portion. In the last class of cases no liquor Morgagni forms; however, the sclerosed lens is quite easily detachable from the capsule. In the forms of rapid development the vision is much reduced at an early stage. In some cases in which the cleavage affects the equatorial portion or the posterior cortex of the lens, vision becomes reduced, but often remains fairly good for a number of years. In many cases of nuclear opacification and in the typical sclerosed lens, the vision may become reduced to 20-100 or less and remain at that point for a long period of time. In the class of cases last mentioned, the patient reads with difficulty, if he reads at all, and the degree of vision is not sufficient to permit him to perform the ordinary duties of life.

There are also cases of lamellar cataract in which the opaque zone is large and dense; in some, calcareous deposits have taken place. In the process of the development of all forms of cataract there is a stage between the loss of useful vision and the formation of a condition which renders the detachment of the lens fibers from the capsule most easy, which may extend over a few months or a few years. This stage is most distressing to the individual and in not a few instances entails hardships on the patient or the patient's family.

During a long experience in the removal of the non-cataractous lens, at the dead-house, conducted for self-instruction, as well as for the instruction of students in the operative surgery of the eye, the writer has studied the behavior of the cortex of the transparent lens. It was observed that in the lenses that were twenty-five or thirty years old, the nuclear portion was fairly firm, about two-thirds of the mass of the lens coming away with the nucleus. It was further observed that much of the detached cortex could be made to follow the nuclear portion. The firm nuclear portion became larger as the age of the lens increased. On the strength of these observations, in spite of the dictum "hands off" in reference to operations on immature cataract, the writer began to remove the cataractous lens, soon after it had reached a degree of opaqueness sufficient to interfere with useful vision, whatever the form of the cataract might be. Before this plan was followed, the operation of ripening, advocated by Förster was tried in a number of cases, two of which are given in the following table. The lenses became rapidly opaque, but it was found that removal six weeks or two years later, was complicated by adhesion of cortical substance to the capsule, to probably the same extent as would have occurred had the extraction been performed at the time of the Förster operation. This experience was sufficient to cause the writer to abandon all ripening operations as not of sufficient value to compensate for the extraliability to accident and to inflammatory changes consequent on them. The writer now extracts at once when the opacity, whether posterior, cortical, nuclear, or peripheral or of any other form, interferes sufficiently with vision to render it of little value to the individual. If the lens is much swollen, the operation is postponed, and if the individual can wait until shrinkage occurs, without great sacrifice. If he can not, extraction is performed.

The form of operation attempted in all uncomplicated cases is—simple extraction, making the incision in the limbus and including about two-fifths of the circumference of the cornea, in individuals of 45 years or upward, and a little less in younger individ-

uals. The incision is made large enough to permit of the easy extrusion of the firm nuclear portion of the lens. As much of the cortical substance as possible is removed by stroking upward over the cornea with spoon or lids, or by means of Critchet's or de Wecker's spoon passed into the anterior chamber. Lavage is seldom practiced. If, during the operation, any indication for the performance of iridectomy arises, iridectomy is performed. It has been found that in the large majority of the cases, iridectomy may be avoided.

Does the cortical substance that may remain in the eye after the extraction of immature cataract give rise to inflammatory trouble? The writer has never seen it. Substances capable of producing irritation, such as tabular crystals of cholesterin or minute deposits of lime, do not exist in the cortex of the immature cataractous lens, but do appear in greater or less quantities in the cortex of the hyper-mature cataract and their escape from the lens capsule is not infrequently accompanied or followed by irritation to the eye, of greater or less severity. The cortex of the immature cataract absorbs slowly if it lies in a capsule which has been opened near its periphery and in which the opening is small. If the capsule has been opened freely, which I endeavor to do, absorption of the cortical substance advances rapidly.

The accompanying table gives the results of operation in twenty-five cases in which an immature condition of the lens was present:

The twenty-five cases reported were divided as follows:

Immature soft cataract, three cases. Two occurred in the same individual and were due to extreme prostration from sea-sickness, during an ocean voyage. Förster's operation was performed before the extractions were attempted. At the time of the extractions, which followed three weeks after the Förster operation in one case and two years after in the second case, the cortical substance was still quite adherent to the capsule in both. Vision of 20-70 was eventually obtained in each eye. The third occurred after gummatous iritis, during the process of which a broad posterior synechia formed; only part of the lens was opaque. About one-half of the lens substance remained in the capsule. In three months the cortex was entirely absorbed and vision of 20-20 + was obtained.

Zonular cataract, five cases. The ages of the patients were, 19 years, two; 20 years, one; 49 years, two. In two of the cases the nucleus was dense. In two cases, chalky deposits were present in the opaque zone. Mild iritis developed in one of the latter cases. In all cases some cortical lens matter remained in the capsule after the first operation. The immediate vision was 20-40, two; 20-100, one; 18-100, one; 1-8, one. The ultimate vision was 20-20 +, two; 20-30, one; 20-40, one. All were simple extractions except one.

Immature complicated cataract, four cases. Two cases occurred as a result of heredito-specific keratitis and were of the diffuse variety; these were removed by the combined method (with iridectomy). The lenses which were mummified came away entire. Ultimate vision 20-70 in each eye. This could not be improved because of numerous macular opacities of the cornea. One case was complicated by adherent leucoma due to corneal ulcer, occurring in the lower third of the cornea. Iridectomy—vision of

No.	Sex.	Age.	Health.	Cataract.	Functional Ex.	Date.	Operation.	Recovery.	Time. Im- mature V.	Secondary Operation.	Ultimate V.	Remarks.
1	F	35	Feeble.	Immature soft.	Good.	Sept. 28, '85.	Iridectomy; cocaine; small incision; peripheral capsulotomy; some lens cortex left in capsule.	Uneventful.	12 20-100	Oct. 15, '85.	20-70	Förster's operation. August 3, 1885.
2	F	35	Feeble.	Immature soft.	Good.	Aug. 20, '87.	Iridectomy; some lens cortex left in capsule.	Uneventful.	14 . . .	Sept. 10, '87.	20-70	Förster's operation, July 20, 1887.
Z o n u l a r.												
3	M	19	Good.	Zonular O. S.	Good.	June 15, '93.	Cocain 10 per cent. simple; some cortex remaining.	June 17; anterior chamber restored; uneventful.	14 20-40	July 25, '93, 6 days.	20-20+	Nucleus dense.
4	M	19	Good.	Zonular O. D.	Good.	June 22, '93.	Cocain 4 per cent. simple; some cortex remaining.	Uneventful.	16 20-40	July 25, '93; two needles were employed.	20-20+	Nucleus dense.
5	M	49	Good.	Zonular O. S.	Good.	July 28, '93.	Cocain 4 per cent. simple; some cortex remaining.	Uneventful.	12 20-100	Sept. '94; cortical absorbed.	20-30	Calcareous deposits in nucleus.
6	F	20	Good.	Zonular O. D.	Good.	June 19, '94.	Cocain 10 per cent. Iridectomy.	Uneventful; cortical occluded pupil.	13 1 1/2	July 17, '94.	20-40	.....
7	M	49	Good.	Zonular O. D. Degenerated.	Good.	March 5, '95.	Cocain 4 per cent. simple; some lens cortex left.	Uneventful until the sixth day, when a low form of iritis occurred.	19 18-200	Aug. 7; cortex absorbed.	20-50	Calcareous deposits in nucleus. Their escape undoubtedly produced the iritis.
I m m a t u r e, complicated.												
8	M	17	Good.	Diffuse O. S. after specific kerato iritis.	Good.	Oct. 22, '95.	Ether, large iridectomy, pupillary membrane removed with capsule forceps and excised; mummified lens removed entire; lost a few drops of vitreous.	Uneventful.	14 12-200	Nov. 26; sealed with cautery.	20-70	Cornea large with numerous maculae.
9	M	17	Good.	Diffuse O. D. as in No. 8.	Good.	Jan. 7, '93.	Cocain 10 per cent.; large iridectomy; mummified lens removed entire; pupillary membrane removed.	Uneventful.	15 15-200	Feb. 11; wound sealed with cautery.	20-70	Dense pupillary membrane.
10	M	75	Good.	O. S. Immature V.=13-200.	Good.	March 29, '93.	Cocain 10 per cent. Iridectomy.	Uneventful.	12 20-70	.....	20-70	Adherent leucoma in lower third of cornea, after corneal ulcer. Lens cortex absorbed.
11	M	38	Good.	Immature traumatic O. D.	Good.	June 5, '94.	Cocain 10 per cent. simple; some lens substance remained.	Uneventful; considerable soft lens matter in pupil.	11 1 1/2	Refused.	20-40	.....
12	F	71	Good.	Post. cortical Cat. V.=20-200 O. S.	Good.	May 17, '93.	Simple, cocain 10 per cent.; a little cortex left in capsule.	Uneventful.	12 20-80	June 8; cortex had become absorbed.	20-20	.....
13	M	54	Good.	Immature Senile, V.=20 100 O. D. Ant. cham. 2/3 normal.	Good.	March 13, '94.	Cocain 10 per cent. simple; very little capsule remaining.	Uneventful.	14 20-20	Apr. 23; cortex had become absorbed.	20-20+	Patient had been out of employment one year and was advised to wait another year because of clear cortex.
14	M	54	Good.	Immature Senile O. S., V.=20-100	Good.	March 20, '94.	Cocain 10 per cent. simple; very little cortex remained.	Uneventful.	14 20-20	Apr. 23; cortex absorbed.	20-20+	Nuclear cataracts.
15	M	31	Good.	O. S. Soft, traumatic partly opaque, Ant. cham. 2/3 normal.	Good.	May 1, '94.	Cocain 10 per cent. simple; incision 1/2 cornea; about half of the lens substance remained.	Uneventful.	12 4-200	July 30; cortex almost entirely absorbed.	20-20+	Cataract due to gummatous iritis.
16	M	64	Good.	Traumatic Senile, Ant. cham. very shallow.	Good.	May 15, '94.	Cocain 10 per cent. simple; incision very small, enlarged with scissors.	Uneventful.	20 20-50	No decision.	Nov. 6, '94, 20-20	V.=20-20 April 6, '95.
17	M	57	Good.	Immature Diabetic.	Good.	May 15, '94.	Cocain 10 per cent. simple; very little cortex remained in the capsule.	Uneventful.	11 20-50	June 26.	20-20+	.....
18	M	50	Good.	Immature Senile, V.=10-200	Good.	April 25, '94.	Cocain 10 per cent. simple; some cortex remained.	Uneventful.	9 20-50	May 19.	20-20	.....
19	M	67	Good.	Immature Senile, V.=10-200	Good.	July 3, '94.	Cocain 10 per cent. simple; some cortex remained.	Uneventful.	12 20-50	Aug. 8, '94.	20-30	.....
20	M	43	Good.	Immature Senile.	Good.	Aug. 30, '94.	Cocain 10 per cent. simple.	August 31; prolapse of iris; excised.	12 20-50	.....	20-50	Lost trace of patient after the primary operation.
21	M	69	Good.	Immature Senile.	Good.	Oct. 30, '94.	Cocain 10 per cent. simple; some cortex remained in capsule.	Uneventful.	12 20-40	Nov. 20, '94; lens cortex absorbed.	20-20+	.....
22	M	67	Good.	Immature Senile, V.=15-200	Good.	March 5, '95.	Cocain 10 per cent. simple; some lens cortex remained.	Uneventful.	13 16-200	.....	20-40	.....
23	M	51	Alcoholic.	Immature Senile, V.=12-200	Good.	March 11, '95.	Cocain 4 per cent. simple; some lens cortex remained.	Uneventful.	12 20-40	Apr. 9, '95.	20-15	Lens cortex completely absorbed.
24	M	42	Good.	Immature Senile Nuclear, V.=18-200	Good.	March 19, '95.	Cocain 4 per cent. simple; some lens cortex remained.	Uneventful.	17 20-40	Apr. 23, '95.	20-20+	Lens cortex absorbed.
25	M	42	Good.	Immature Senile Nuclear, V.=20-100	Good.	March 26, '95.	Cocain 4 per cent. simple.	Uneventful.	17 20-50	Apr. 27, '95.	20-20+	.....

20-70 was obtained. One case was that of an immature traumatic cataract following a blow on the eye. A simple extraction was performed. Vision of 20-40 was obtained. Posterior cortical cataract, one case. Simple extraction was performed. But very little difficulty was experienced in freeing the eye of the greater portion of the cortical substance. Vision of 20-20 was obtained.

Immature diabetic cataract, one case. The extraction, after the simple method, was not accompanied with difficulties. Vision of 20-20+ was obtained.

There were twelve cases of ordinary senile cataract, four of which were of the diffuse nuclear variety which develops very slowly. Simple extraction was performed in all and was not accompanied with unusual difficulty. Some cortical substance remained in

almost all cases, but was absorbed almost if not entirely in a few weeks, giving no trouble. No iritis occurred in these cases. Prolapse occurred in one case only and was probably due to traumatism. The healing in these cases was uneventful and the vision eventually obtained was extremely satisfactory. The immediate vision was 20-20—two; 20-30, one; 20-40, three; 20-50, six; 16-200, one; 4-200, one.

The ultimate vision after discission in twelve cases: 20-15, one; 20-20+, six; 20-20, two; 20-30, one; 20-40, one; 20-50, two.

In the twenty-five cases there were no losses. Iridectomy was done in six cases. Simple extraction in nineteen cases. One prolapse occurred. Discission was done in twenty cases.

The ultimate visual results were as follows: 20-20 or better, thirteen; 20-30, two; 20-40, three; 20-50, two; 20-70, five. The youngest patient operated upon was 17 years, the oldest, 75 years. The mean, 45½ years. In all cases the remaining cortex absorbed almost, if not entirely, either before or after discission was performed.

The results appear to the writer to be as favorable as those obtained by the removal of cataract ordinarily, at the stage of maturity, and the relief to the patient was in many cases very great, saving them one, two, or even more years of idle waiting.

The difficulty of removing immature cataract is greater than that of removing mature cataract and should be done by expert operators. In the hands of expert operators the danger is little more than where the lens is ripe.

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DISCUSSION ON PAPERS OF DRs. BAKER AND WEEKS.

DR GEORGE E. FROTHINGHAM, Detroit, Mich.—In regard to the paper of Dr. Baker I will say that I agree in the main with the views of the author. While I think it is the experience of most of us that any considerable opacity of the lens never fully clears up, slight opacities may nearly disappear; and we find commencing cataract at times due to change of nutrition of the lens, dependent upon disease of the choroid or some constitutional disease, that may be relieved, and with the effect to retard or arrest the development of the cataract. I remember one case in my practice in which the development of a cataract evidently due to choroiditis has apparently been arrested; at any rate it has made no progress for about seven years. With the conclusions in Dr. Baker's paper, I fully agree. They are in accordance with the general principles that in incipient cataract we should make a careful and thorough examination of the eye and of the general condition of the patient and remedy any pathologic conditions so far as we can.

In regard to the paper of Dr. Weeks, it deals with a most important subject. Fortunately we are not often called upon to hasten the maturity of the cataract. In some cases, however, where both eyes are about equally affected and advance very slowly and the condition of the patient will not allow of waiting for the natural process of ripening, we are forced to decide between extracting an immature cataract or attempting to hasten the maturity by some operation. Of the various operations that have been devised I think that Förster's is the best and safest. Although it will sometimes fail to hasten the progress of development, it is attended with very little danger. It will lead to iritis in a certain per cent. of cases but the worst result I have ever seen was a slight synechia. The pupil should be kept well dilated after the operation until all danger has past. If the operation fails to hasten maturity it will allow of the extraction of the immature cataract with the greatest possible degree of safety. If I were the most ardent advocate of simple extraction, I would make an exception in the case of immature cataract. I make in all cases a preliminary iridectomy, and after all irritation has completely subsided and the eye has perfectly recovered from the effect of the operation, if it has failed to produce ripening of the cataract, I then extract the immature cataract, making a peripheral incision in the cap-

sule as a still further safeguard against dangerous reaction from any lens matter that may remain in the eye.

DR. HERMAN KNAPP, New York.—As to heat producing cataract, I know of one case where I produced a cataract by the galvano-cautery point with which I burned off the apex of a keratoconus too cautiously, i.e., too slowly pierced the cornea. I wanted to make only a very small puncture in the cornea. I obtained this end, but a slowly developing yellowish cataract was the result and had to be extracted. Whether outward heat for instance, in fireworkers, is a notable factor in the development of cataract, I am not prepared to say. About thirty years ago, I saw a lens of a diabetic patient rather quickly become opaque and soon after clear up. The observation though not fully accurate has remained vivid in my mind, and ever since that time I have watched the progress or regress of cataract, but the above example has remained the only one, and therefore has no appreciable value. Unripe cataracts not infrequently place us in the alternative of removing a cataract prior to the time when the patient's chances of a good recovery are greatest, or to let a patient wait an indefinite length of time for that most favorable period. The vogue into which the ripening operations have come is thus easily accounted for. They would be a godsend if their action were certain and free from danger. Unfortunately many an operation for ripening has been done without producing any effect; on the other hand, these operations have proved injurious by provoking iritis and its consequences, and some by a degree of deleterious morbid process (plastic and purulent irido-cyclitis and panophthalmitis). Even if these mild or severe reactions occur only exceptionally, we are mortified to have created by our own hands any conditions that dim by complications the chances of the patient, when the chief operation, the extraction, has to be undertaken. I, for my part, thus prefer the risk of dealing with remnants by a secondary discission, to the double operation of ripening and extracting the lens which in a majority of cases requires a subsequent division also to clear the pupil.

DR. JOSEPH A. WHITE, Richmond, Va.—In regard to Dr. Baker's paper on the etiology of cataract, I am satisfied that the explanation of Dr. Risley, attributing the opacification of the lens to disturbance of its nutrition by pathologic processes in the uvea, especially the choroid, is correct in a large number of cases, while not generally applicable. All of you, as well as I, have examined many cases of cataract after extraction where there was no choroidal disease nor any other evidence of a pathologic process inside the eye, and consequently I am satisfied that there are many cases of cataract in which the etiology is to us an undiscovered factor, and that much yet remains to be found out in regard to this subject. Why in one person an opacification of the lens remains stationary and in another is progressive, is also a question yet to be solved. That this is true we well know for in zonular cataract we have it progressive in one, and stationary in another case. Why can not therefore, opacification of the lens remain stationary in adults? I know of a case of a young man who received a blow in the eye several years ago, which by *contra coup* without wound of the cornea, ruptured the iris at its pupillary edge and also the capsule of the lens in direct line with the iritic wound. A small opacity of the lens developed at this point and to this day remains stationary. Cataract has not followed nor has the opacity disappeared. As to the disappearance of lenticular opacities, I have had very little experience, my only case being the one referred to by Dr. Baker. This case was one with marked anterior central opacity of the lens sufficient to materially decrease vision, and cause a semi-blindness with a contracted pupil. He wished to have the cataract removed and submitted to the ripening process of paracentesis and external massage with great hopes of having a ripe cataract in a few weeks. His next visit showed a decided diminution in the size of the opacity. I triturated the eye again. Result, three weeks later, a perfectly clear lens. Now either this opacity of the lens disappeared or I made a mistake, but every precaution against an error had been taken. The pupil was gray when it was contracted and there was no ophthalmoscopic reflex with dilated pupil; the fundus was illuminated around the opacity and the vitreous was clear. The opacity moved up and down, with the eye locating it either in the anterior part of the lens or the cornea, and it certainly was not in the latter; hence I concluded that it was a case of partial opacification of the lens that had cleared up; how or why, I don't know; what the massage had to do with the result I am unable to say. Like other sclerosing processes, and I suppose we may so consider cataract, it may come to a standstill or it may even retro-

grade toward recovery, although such cases are rare. To discuss Dr. Weeks' paper would take more time than is allowed me. I have already, however, gone on record to some extent in regard to immature cataract. I presented to this body a paper on that subject several years ago in which I suggested the adoption of a simple process of ripening immature cataracts by paracentesis and external massage without iridectomy, because I had had bad results in Förster's operation from iritic processes. I reported a number of cases then and have done others since, and have had exceptionally good results—no bad ones. I have been lucky, I suppose. Like Dr. Knapp, I think the less traumatism an eye is subjected to the better, and hence I never ripen an immature cataract if the case will wait for nature's processes, and then only if the patient is under 60 years of age, because I thereby break up and loosen the cortex from the capsule, simplifying the extraction. Over 60 years of age, I extract without waiting for maturity, but it is difficult to say what the latter signifies, as it does not mean the same to each one of us. For instance, a patient may be too blind to move about with assistance, and the cataract be still immature; and again sight enough to see large letters may be present, and the cataract be perfectly ripe. This especially applies to those amber-tinted cataracts in old people which never become perfectly opaque and hence relatively are immature, while in reality they are perfectly ready for extraction.

Dr. J. L. THOMPSON, Indianapolis—I wish to say that I have seen a well-marked unmistakable case of cataract disappear spontaneously. I had every opportunity of watching it for years before and several years also after the clearing up of the lens. As I have published the case with all of its complications, I shall only add that this case of spontaneous cure of a cataract by liquid degeneration within the capsule was more clear to me than is the well-known fact that this world of ours revolves upon its axis.

Dr. JAMES A. LYDSTON, Chicago—A few points bearing on the subject matter as presented in the paper, suggested themselves as the paper was read and discussed: I believe that we go a little too far in assuming in all cases in which lenticular opacities disappear, that we have a true cataractous formation, for we know that cataract exhibits a process peculiar alone to itself during the formation stage and, indeed, one that is quite characteristic. Becker has done more to enhance our knowledge with respect to cataract than any other investigator in this line, and he has shown that primarily cataract develops by the formation of vacuoles as little air chambers distributed through the lens structure and that these subsequently become filled with fluid of a different density from the remaining lens substance, and finally, there is a separation of the nuclear and cortical portions of the lens from the lenticular capsule constituting light cataract. Now in many instances in which lenticular opacities disappear spontaneously, it seems that we are not confronted by a true cataractous formation. Still we have opacities occurring in cases in which the capsule has been punctured and subsequently closes. Here we may have spontaneous disappearance. But I seriously doubt the propriety of accepting the statement that any form of diabetic cataract ever spontaneously disappears, as we know such changes only assert themselves in the later stages of diabetes when our case is almost beyond redemption. We have cataract arising from large doses of naphthalin or ergot and those arising from concussion, etc., and it seems that possibly these are the types of cataract, erroneously so called, which are capable of spontaneously disappearing and which are all grouped under the heading of incipient cataract.

Dr. F. C. HOTZ, Chicago—My experience with the ripening processes of immature cataracts has not been satisfactory. In some cases no change in the lens was produced; in a number of cases the manipulation was followed by more or less decided cyclitic irritation. I have many years since given up all attempts at ripening, and have not felt induced to return to the attempt even by the favorable report Dr. White gave of his cases at the Detroit meeting. As to the extraction of immature cataract, I find the operation does not involve greater danger than the removal of a fully mature cataract, provided there is not a very large amount of absolutely transparent lens matter. But where this is the case the patient's vision is usually still so good that there exists no urgency for an operation. In the slowly progressing opacification which starts in the cortex and therefore early causes great disturbance of sight the lens seldom, if ever, becomes absolutely opaque. It appears quite opaque at focal illumination but proves transparent for the ophthalmoscope so that the fundus can be seen although through a

mist. In this form of cataract the whole lens is a piece of yellowish jelly and it comes out *in toto*, leaves a clear pupil and the healing is as smooth as after the extraction of a ripe cataract.

Dr. S. D. RISLEY, Philadelphia—Dr. Baker has very courteously noticed my published observations regarding the etiology and treatment of incipient cataract. I rise to call attention to a single point in which he has failed to interpret quite correctly some ambiguous sentence in my paper on the subject. While in the eighty cases of incipient cataract there reported, it seemed the treatment addressed to the choroidal disease had arrested the progress of the opacification of the lens. I think it is stated there that in no case had I witnessed the disappearance of opacities already formed.

Dr. A. J. ERWIN, Mansfield, Ohio—At the Detroit meeting in 1892, I read a paper on this subject, in which I brought forward ten cases that I had treated in periods of from four to ten years previous to that time, in which there had been no increase of the opacity from the time treatment was begun. Since then, one-half of those cases have died, and none of them required an operation of any kind for cataract during life. Four are living and under my observation; one has disappeared. In these four cases no increase of opacity has occurred as yet. In one-half of the cases there was at least one opaque lens—mature cataract. I think that some of them belong to that class of cases that never will mature. There was not much improvement although some amount of vision in nearly every case, but there appeared to be a complete stopping of the advancement of the opacity. My treatment as I gave it on that occasion was iron tonics, with cleansing and iodine applications about the eye. I have made up my mind since that the application of weak solutions of iodine applied daily in some cases is the most important part of the treatment, and that the best solution is that of about one-half the strength of the official tincture.

Dr. DUDLEY S. REYNOLDS, Louisville, Ky.—It is unfortunate that gentlemen who speak of stationary opacities of the lens fail to state more definitely the character and precise location of those areas of opacity. We are all familiar with the peripheral opacities of the lens observed in childhood and remaining nearly stationary through life to advanced age. Traumatic opacities of the lens often remain distinctly circumscribed for years. I have in mind the case of a student who has a foreign body encysted in the upper portion of the lens, midway between the periphery and the vertex, and which has remained more than four years without any disposition to increased opacity beyond the small area of the wounded portion.

Dr. J. E. WEEKS, New York—I am glad to hear the expressions given against the artificial methods of ripening cataracts. I think it will not be long before such methods will be entirely abandoned.

PRACTICAL POINTS IN ANESTHESIA FOR PLASTIC OPERATIONS ABOUT THE EYE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY M. W. ZIMMERMAN, M.D.
PHILADELPHIA, PA.

A perfect anesthetic would render the patient completely insensible to pain, without in the slightest degree endangering his life. Unfortunately this has not been discovered, and we must select that which best meets the requirements of the particular operation to be performed. I shall avoid entirely discussing the broad subject of anesthesia with its relations to surgery in general, and confine myself to some of the practical problems presented by operations about the eye.

Those plastic operations which come within the scope of the ophthalmic surgeon involve tissues controlled by the very mobile facial muscles, and it is desirable to avoid the disturbance of relation which would result from their activity.

Again, operations of this class, for cosmetic reasons, and because they usually have for their object

the preservation of the eye, require great care in the selection and adjustment of flaps, and consume much time. As a consequence of these facts, they demand complete and prolonged insensibility, with the least possible danger to life. The value of unconsciousness in operations about the eye must not be forgotten; it prevents mental suffering and possible interference on the part of the patient.

Beginning with the general anesthetics by inhalation, we have in nitrous oxid gas, an agent which meets two of our conditions perfectly, but by reason of the very transient character of its effect, is only suitable for the most trivial operations. The contest between chloroform and ether for acceptance as the general surgical anesthetic, is still in progress with slight hope of an early final decision, but we will be safe in assuming that ether is distinctly safer for prolonged administration. The marked early irritation of the fauces, and greater tendency to produce nausea, do not weigh against the decreased risk. Bromid of ethyl has had a revival recently; it possesses most of the good and all the bad qualities of chloroform; death has certainly resulted from its use.

As the imposed conditions of complete and prolonged anesthesia, with the minimum of danger, seem to be best fulfilled by ether, it will be proper to discuss briefly its administration where this bears upon our subject. In all details of surgery, the personal equation is large and the particular kind of tool is of minor importance. There are, however, practical points which should be considered. The region involved, especially when dealing with the lower lid and cheek, is so near the respiratory openings that large or complicated inhalers are to be avoided. My own experience while house surgeon at Wills Eye Hospital, led me to depend entirely upon two layers of a coarse, soft towel, which can be very readily molded about the mouth and nose without encroaching upon the field of operation. The moistened center of the towel directly over the nostrils and mouth should, for mechanical reasons, be kept from actual contact with these openings. This simple method has the great additional advantage of surgical cleanliness, as fresh towels can be substituted whenever vomiting or the regurgitation of mucus make it desirable. I am quite sure that many operative wounds have been infected by inhalers, which owing to their size and rigidity, could not be kept from contact.

Of the available methods for producing insensibility, limited to the locality of operation, the simplest is that of freezing by the direct contact of salted ice, which has a limited field of usefulness in preventing the pain from applications of the cautery, and like rapid measures. It is, however, unfit for prolonged plastic work. The various freezing methods by spraying volatile liquids, as ether, ethyl, chlorid and rhigolene, are distinctly more readily adopted to varying conditions of contour and extent of surface, but have the same limitations. The peculiar difficulty in protecting the eyeball from irritation, and the brief duration of the effect are the main objections. Even when used with the greatest care, the intense cold produced by these sprays sometimes does notable damage to the skin, and the nutrition of future flaps must always be more or less endangered.

Concerning the induction of local anesthesia by forcible infiltration of the tissues with benign solutions, little need be said. The method is ingenious

and an addition to our resources in cases where for any reason both cocain and general anesthesia are impossible. It presents most of the objections applying to the subcutaneous use of cocain, while the fact that insensibility is limited to the actually edematous tissue, render it useless for the class of operations being considered.

Cocain remains at the present day the one local anesthetic agent which has stood practical tests. Other substances undoubtedly possess the power of more or less completely abolishing the sense of pain in tissues to which they are applied, but for various reasons they are of purely theoretical interest. Tropococain, a very closely allied drug, has excited some interest, but the slight advantages claimed for it are not established. For plastic operations wholly within the conjunctiva, pain may be entirely abolished by using locally a 3 to 5 per cent. aqueous solution of cocain muriate, the ready penetration of the solution into the sub-conjunctival tissues rendering injections into the latter unnecessary. Gelatin disks and oily solutions are unsuitable. Where the skin is invaded to a limited extent only, and the operation is of a kind to permit rapid completion, as in canthotomy, this simple method will suffice. The well-known effect of the prolonged action of cocain upon the corneal epithelium may be modified by occasionally moistening the latter with a solution of boracic acid.

Absorption of cocain solutions by the skin is very slight, and applications to it produce practically no effect. This is even true concerning long contact of strong solutions with the carefully prepared and extremely thin integument of the lid, so that the possibility of operation depends largely upon the patient's endurance. Subcutaneous injection however, may cause a very complete anesthesia of all immediately surrounding tissues. The extent of its influence depends principally upon the anatomic peculiarities at the point of injection, and, broadly speaking, bears inversely a close relation to the density of the tissues. The superficial layers of the skin are always last to lose sensibility, hence the injections should, when possible, be made directly into it. About the eyelids, however, the skin is so very thin and so readily affected, that it is of less moment. The needle punctures are painful, and their number should be reduced as much as possible by employing a long needle and thrusting it in the direction of the projected incision. By gradually emptying the syringe during its withdrawal, a considerable region can be reached at each puncture. This familiar procedure is of great value, especially when for any reason general anesthesia is undesirable, but there are several drawbacks to its routine use. Owing to the number of punctures required, and the peculiar construction of the injecting syringe, the greatest care is necessary to prevent the introduction of septic matter, and consequent serious interference with the healing process. The danger of serious results from such a mishap is of course greater where the tissues are subjected to violence of the kind necessary in transplantation.

Another objection is based upon the violence done the tissues by forcibly introducing an irritating fluid, the chemical and physical effects of which must influence unfavorably the nutrition of the flaps. In the various forms of grafting this objection holds with peculiar force, because here the one grave danger is death of the graft. While the matter is to some extent one of idiosyncrasy, and not easy to an-

ticipate, the danger of serious and even fatal intoxication by cocain must be guarded against by using solutions not exceeding 2 per cent. in strength, and never injecting more than 2 to 2.5 grains. The recumbent position also decreases the danger. Finally, it should be remembered that cocain has little power over very hyperemic and inflamed tissues. Very briefly then, my conclusions may be stated as follows:

1. Plastic surgery about the eye requires complete and prolonged anesthesia with the minimum of risk to the patient, and which can be induced without impairing the life of the tissues, or infecting the wounds.

2. Ether, among general anesthetics, best meets these demands. The method of administration should be simple, cleanly, and avoid encroaching upon the field of operation.

3. Cocain is the only suitable local anesthetic. For the conjunctiva it may be applied to the surface in 2 to 4 per cent. solutions. When the skin is involved, subcutaneous injection becomes necessary. The punctures should be few and the dose not exceed 2.5 grains.

TRANSPLANTATION OF SKIN IN PLASTIC OPERATIONS ON THE EYELID.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WALTER B. JOHNSON, M.D.

PATERSON, N. J.

The transplantation of skin flaps in plastic operations upon the eyelid, by the method in vogue at present, is the result of a gradual development in the size of the portions of new tissue to be transplanted. The method of supplying new dermal tissues where loss of skin had resulted from accidents, burns or other causes, was originally introduced by Prof. J. L. Reverdin, of Geneva, Switzerland, in 1869. It was called "skin grafting," and consisted in the application to granulating surfaces of very small portions of epidermis snipped from the skin of a living subject, care being taken that the dermis should not be included in the graft. The grafts were applied to the diseased surfaces and resulted in the formation of new cicatricial tissue, which was undoubtedly the product of the proliferation of the transplanted elements. Thiersch, Pollock, Bryant and others adopted the method, increasing the size of the grafts and including the cutis as well as the cuticle, believing that the proliferation occurred from the dermis as well as the epidermis. Fiddes reported cases in the *Lancet*, of new tissue formation resulting from the proliferation of epidermal scales scraped from the skin by a long bistoury. The method rapidly came into general use; it is, however, only skin grafting, the implantation of a nucleus for the formation of cicatricial tissue and not transplantation of true skin.

The implantation upon granulating or fresh cut surfaces of large skin flaps from adjoining parts was introduced by Tagliacozzi many years before the possibility of skin grafting was thought of. He carefully dissected a portion of skin from a point near the surface to be covered, retaining at its base a pedicle through which the flap was to receive its nutrition. Modifications applicable to various locations were suggested by different operators. The procedures recommended for the plastic surgery about the eyelids were not wholly satisfactory, in consequence of the unsightly cicatrices at the point of removal of the

flap, the thickening about the pedicle and the frequency of ulcerative processes intervening, which resulted in still more serious deformity than existed prior to the operation.

In 1878, Mr. J. R. Wolfe, of Edinburg, reported in the *London Medical Times and Gazette* of June 3, a new method of "the transplantation of skin flaps from distant parts without pedicle." Following this, operations were successfully performed and reported by Wadsworth, Noyes, Aub, Mathewson and others. The many advantages of the procedure led to its immediate adoption by ophthalmic surgeons. The object of the operation is the transplantation of healthy skin flaps to the required situation, the agglutination and healing by first intention, the permanent adhesion of the healthy new tissue at the point of implantation, and the relief of the existing deformity.

The skin selected for transplantation must, as nearly as may be, approximate the conditions and quality of the skin at the location to which it is to be transplanted; an allowance of fully one-third must be made for shrinkage of the flap, all areolar tissue must be carefully removed, the flap must be dipped in tepid water and then thoroughly dried, the site of operation must be carefully prepared, and if the transplantation is to be made on the day of operation, all small blood clots and other detritus must be removed. In some cases it is desirable, especially if arteries have been tied, to allow an interval of two or three days to elapse between the time of the preparation of the wound and the application of the flap, as sepsis may affect the flap if sloughing of any of the tissues occur. Before transplantation the granulating surface must be very carefully washed and dried; the prepared flap is then applied and gently pressed into position where it will adhere like sticking plaster. The wound is then dressed; no sutures are recommended, although in many of the cases reported, catgut or other sutures have been used; sheet lint compress and bandage is applied and allowed to remain *in situ* for four days. Great care should be used in removing the dressing, lest the flap be torn from its new adhesion by dragging. Gold beater skin plaster is often used next to the flap.

The following case was operated upon successfully by the Wolfe method:

H. T., age 3, colored. Applied at the Paterson Eye and Ear Infirmary for treatment, stating that six months ago he had received an injury of the right eyebrow from falling upon a stone step. The injury was followed by excessive swelling and subsequent inflammation. The family physician made an incision and a large quantity of pus was evacuated. The wound closed on two occasions and re-incision was necessary. Extensive destruction of the skin of the upper eyelid resulted from ulceration which occurred during the stages of acute inflammation and was never at any time entirely healed. The contraction of the cicatricial tissue thus formed produced complete eversion of the upper eyelid, as shown in plate No. 1.

August 2. Upon admission, the child was in apparently good physical condition. There was eczema about the face resulting from the excoriation of the ichorous discharges from the eye. The ectropion of the right upper eyelid was so extensive that cicatricial tissue about 3 lines in width separated the ciliary margin of the lid and the eyebrow. The everted palpebral conjunctiva was swollen, thickened and rough, bleeding upon the slightest touch. Almost all of the retro-tarsal fold was exposed and it nearly concealed the eyeball; there was a deep central ulcer of the cornea and a constant discharge of thick muco-pus.

The patient was etherized and an incision made, exposing the frontal bone which was diseased. The carious bone was removed and the wound dressed. After the opening closed, the ulceration healed, the swelling of the lid decreased under

proper diet and palliative medication. The cicatricial contraction resulted in an increased eversion of the lid.

September 25. The patient was again etherized, and an incision was made midway between the brow and the edge of the lid $1\frac{1}{8}$ inches in length; the lid was carefully dissected, the attachment of the cicatricial bands divided and the edge of the upper lid stitched to the lower. The result of this procedure was a large gaping wound $1\frac{5}{8}$ inches in length and $\frac{7}{8}$ inch in width in the median line. An elliptical incision was made on the inner side of the left thigh $2\frac{5}{8}$ inches in length and $1\frac{1}{4}$ inches in width at the largest diameter of the ellipse. The skin within the lines of the incision was carefully dissected from the leg and all areolar tissue



Figure 1.

removed. After preparation, the flap measured nearly two inches in length and about one inch in width in its widest part. The flap and the wound were rendered aseptic; four fine catgut sutures were used to unite it to the edges of the wound, gold beater skin plaster was then placed over the new lid and the eye dressed with a compress bandage.

September 29. The dressings were removed, care being taken to prevent dragging upon the flap, the stitch uniting the eyelids and the stitches from the end and center of the flap were carefully cut and drawn out. The transplanted skin flap seemed to have united in its new location although it presented a grayish appearance, externally, which looked



Figure 2.

like semi-transparent glass. The pigment deposit in the deeper layers was so dark that it appeared as if sloughing of the entire flap was imminent. There was no purulent discharge. The eye was dressed with plaster and bandaged as before.

October 2. The dressings were again removed and a thin gray membrane nearly the size of the flap came away with the plaster. This was at first believed to be the flap itself. On closer inspection, however, the entire surface of the new lid presented a peculiar appearance of semi-granulation points of reddish color. The excessive pigment deposit having materially lessened, a glazing which seemed to be

the result of a deposit of thick viscid mucus indicated the formation of a new layer of epidermis. The dressings were reapplied.

October 4. The eyelid when exposed disclosed the presence of a grayish membrane with commencing pigment spots which covered the entire field of the operation.

October 6. The membrane has assumed the appearance of newly formed skin; the lid maintains its natural position; there has been very little purulent discharge during the recovery. After this date the skin became more natural in appearance, softness and pliability. No unfavorable symptoms occurred. There was complete relief of the deformity. The eyelid could not, however, be elevated to the extent of that of the fellow eye. The accompanying plate, No. 2, illustrates the condition six weeks after the treatment was discontinued.

SKIN GRAFTING ON THE EYELIDS.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY F. C. HOTZ, M.D.

PROFESSOR OF OPHTHALMOLOGY IN CHICAGO POLICLINIC, CHICAGO.

Skin grafts play an important rôle in the plastic operations upon the eyelids; they are especially serviceable in certain forms of ectropium and entropion.

1. *Skin Grafting in Ectropium.*—If the destruction of the integument of the eyelid has been so extensive as to result in a more or less complete ectropium, the lid can not be restored to its normal position unless it be provided with a new integument.

The material for this new covering may be obtained from three sources, to-wit.: we may transplant upon the lid a skin flap from the vicinity; or we may graft upon it a piece of skin from the arm (Wolfe's method); or we may cover the whole defect with Thiersch's grafts.

If executed under the proper aseptic precautions, these different plans are probably equally successful as far as the immediate healing of the implanted material is concerned. And those who are satisfied with their work as long as it removes the ectropium, no matter how the eyelid may look after the operation, consider one method as good as the other. But we come to a different estimate, if we demand of a plastic operation in the face that it should not only relieve the pathologic condition, but also restore, as well as it is possible, the normal appearance of the parts; or, in other words, that we should not be satisfied with the mere removal of the ectropium, but insist that the operation should also give back to the lid its normal shape and mobility.

The normal integument of the eyelids is a thin, soft and light cover which snugly adapts itself to the contours of the lid and to all its movements, which play so important a rôle in the facial expressions. It is, therefore, very essential that the new substitute possesses all these qualities of the original lid skin: it must be thin and soft, in order to bring out the normal shape of the lid; and it must be light, so as not to impede by its weight the movements of the lid. This latter condition is of particular importance in the operation for ectropium of the upper eyelid. Skin flaps taken from the vicinity occasionally—but very rarely—possess all the conditions necessary for a perfect cosmetic result; usually they are too thick and too heavy to make a nice looking eyelid. The same objections apply to Wolfe's flaps, which, in my opinion furnish the least suitable material and should never be employed for plastic work on the upper eyelids.

There remains then for our consideration Thiersch's skin grafting operation, which I regard as a priceless accession to plastic surgery; for it has solved the difficult problem of repairing the eyelids with a material possessing all the important attributes of the lid skin; and it gives us results in every respect superior to what can be achieved by the transplantation of skin flaps.

How skin grafting should be executed, what rules and precautions should be observed to attain the best results, I think, can best be shown by briefly describing the way of proceeding in a case of ectropium of the upper eyelid. An incision is made through the cicatricial tissues along the line of the border of the everted lid; and while the lid border is then drawn downward, all resisting cicatricial bands are cut transversely by gentle passes of the scalpel. This dissection is continued until the lid can be easily inverted and its free border can be drawn downward far beyond its normal position so that it describes a convex line. In this position the lid border must be fixed during the healing process, and this is accomplished by three ligatures, which are passed through the lid border and securely fastened on the cheek by adhesive plaster strips. But if there exists, also, an ectropium of the lower lid of the same eye, I pass the ligatures through the border of the everted lower lid and tie to it the border of the re-inverted upper lid.

The object of thus fastening the operated lid is twofold: 1, to make the surface which is to be covered with skin grafts, so large that the new lid skin will not become too short by the subsequent inevitable contraction of the tissues; and 2, to keep the lid immovable during the healing process, because any movements would displace or wrinkle up the grafts and render impossible their adhesion to the lid surface.

When the lid is properly fastened, the wound is temporarily covered with a gauze compress wrung out of a .5 per cent. salt solution, and we proceed with cutting the grafts. The most convenient place to take the grafts from is the right or left arm. The arm we intend to operate upon has several hours previously been thoroughly washed and scrubbed with soap and water and wrapped in a compress wet with the salt solution. The bandage being removed, I grasp the arm firmly with the left hand, in order to hold the skin well stretched between the thumb and the fingers. With my right hand I seize the razor, lay its blade flat upon the well wetted surface of the arm and press it down just enough to make its sharp edge bite into the skin, but no deeper than the papillary layer. By slow and short sawing movements the blade is now steadily pushed on in the papillary layer until a piece of epidermis of the desired size has been gathered on the razor blade. During this "shaving process" my assistant is dropping salt solution upon the blade and pushes with a probe the skin shaving back from the edge of the razor. When I wish to cut the shaving off, I turn the edge of the knife a little up, while my assistant presses the probe flat down upon the shaving near the edge of the razor blade. Now the compress is removed from the lid; the wound is carefully cleansed of all coagulated blood, and the skin shaving is transferred directly from the razor to the lid surface. For this purpose plenty of salt solution is dropped on the razor to keep the graft floating; if, now, the edge of the razor near its point is brought in contact with

the border of the wound, the solution will run off from the razor and carry the graft with it; but as soon as the solution begins to flow and the edge of the graft has come in contact with and clings to the wound border I slowly draw the razor from under the graft across the wound, by which maneuver the skin graft floating from the razor is at once spread out smoothly over the lid surface.

Some advise to place the grafts as they are removed, in salt solution until the requisite number is cut and then transfer them from the solution to the lid. I regard this as an unnecessary complication of labor; for in the solution the grafts curl up, and it takes then a great deal more time to uncurl and spread them out smoothly than if they are transplanted directly from the razor to the wound.

It is not necessary to cover the whole wound with one single graft, but, on the other hand, I think better results are obtained if the grafts are few and larger than if they are very many and very small. It is not difficult to cut shavings from one and one-half to two inches in length and from one to one and one-half inches in width, if only the knife blade is operated by a steady hand and moved in the same plane.

When the whole wound is well covered with these skin shavings, I cover them with two layers of strips of silk protective moistened with the salt solution; they are one-half inch wide and long enough to lap over the wound border on both sides; one layer is placed in a transverse direction and the second layer in a longitudinal direction. These strips are covered with a compress which is to be kept wet with the salt solution, and finally a bandage is put on the well eye also, to stop all movements of its lids, because thereby alone we can insure the absolute rest and immobility needed for the operated eyelid during the healing process.

This first dressing remains undisturbed for two days at least. To remove it the compresses and strips of protective are thoroughly wetted with salt solutions; the grafts are rinsed with the same solutions, and fresh strips and compresses are put on. After four or five days the good eye may be left open; after one week the ligatures may be removed, and during the second week the grafted lid needs only to be daily rubbed over with iodoform ointment; for at this period there is a constant desquamation going on and the lid becomes uncomfortably stiff and crusty with exfoliated epidermis scales unless the surface is kept well anointed. After the second week no further treatment is required. The grafted skin undergoes a gradual contraction of about one-fourth of its area, but if this shrinkage has been anticipated by the operator, it will not affect the perfect cosmetic success of the operation.

2. *Skin Grafting in Entropium.*—The correct position of the eyelashes is so thoroughly dependent on the presence and correct positions of the free border of the lid that no permanent relief of entropium can be attained by any operation which fails to reconstruct the lid border. As long as the tarsus is thin and elastic, the inverted border can be successfully turned back to its normal position by the operation introduced by me in 1879. But in the higher degrees of entropium, the tarsal cartilage has usually undergone structural changes and lost its elasticity to such a degree that its rigidity is a serious obstacle to the turning back of the free border. Under these circumstances the re-position of the inverted lid is possi-

ble only, if a wedge-shaped piece is removed from the cartilage. This operation, however, can be carried out successfully only in cases where the tarsus has sufficient thickness to allow the removal of a wedge of the requisite size; but in many cases we find the cartilage so thin and small that the cutting of a sufficiently large groove is impossible. Under these circumstances skin-grafting helps us over the difficulties; for if we can not turn back the inverted lid border, we may turn up the eyelashes and support them in their correct position by an artificial lid border made of a skin graft. And although I myself once advocated a grooving operation¹ I have abandoned it, because I have convinced myself that the creation of a new lid border answers our purpose much better and is a less tedious operation than the grooving; beside it can be used in all cases of extreme entropium.

The first attempt at creating an artificial lid border is found in Spencer Watson's operation; from this crude beginning the operation has been gradually improved by a process of evolution in the various transplantations of Gayet, Dianoux, Jacobson and others, until skin grafting has brought it to its present perfect and simple form.

It is executed in the following manner: the lid border is split into an anterior and posterior layer by the well-known intermarginal incision which is made so deep that the anterior layer can be turned up with perfect ease.

Now I make a transverse incision through the lid skin and orbicularis muscle just below the upper line of the tarsal cartilage, excise the strip of muscular fibers covering the upper border of the tarsus and unite the lid skin with this upper border by three sutures, one suture being placed at the center of the wound and one at either side. Each suture passes first through the edge of the lid skin, then through the upper border of the cartilage and finally through the upper skin border of the wound. When these sutures are tied, the lid skin is drawn upward and fastened to the upper border of the cartilage; and this traction upon the lid skin is sufficient to cause a thorough eversion of the anterior edge of the split lid border; and when the anterior edge is thus everted and drawn away from its posterior edge, the intermarginal incision is transformed to a gaping wound of several millimeters in depth and with sloping edges. This groove is to be filled by a skin graft. Sometimes I have used for this purpose a narrow strip trimmed off with scissors from the skin edge of the lid wound; but I prefer taking the graft from the skin behind the ear where the skin is of a firmer texture and where the presence of a smooth bone surface to which the skin is so closely attached is a great assistance in the accurate cutting of these long and slender grafts; for as they are to be but from 1.5 to 2 millimeters in width, it is very essential that the skin does not drag before the knife, because this would make the edges so ragged as to render the graft unfit for use.

I first make a longitudinal incision 1 millimeter deep and as long as the graft should be. A second incision is then made parallel to the first one at a distance of 1.5 to 2 millimeters according to the width of the intermarginal groove the graft is intended to fill. This second incision is made to join the first one at both ends and also to meet it at the depth of

1 millimeter, by giving the scalpel the proper slanting direction. The long and narrow strip of skin thus mapped out by the two incisions is seized by a fine forceps, completely dissected off and transferred directly to the lid-border which is carefully cleansed from blood coagula before the graft is put in place. The graft is spread out and gently pressed into the groove; if it fits accurately, the lid and the conjunctiva are once more irrigated with the salt solution, and both eyes are covered with compress and bandage in order to stop all movements of the lids. After twenty-four hours the graft is already firmly adhering and the bandage can be left off.

Should the graft be too long or too wide, its ends or edges can be trimmed with a pair of fine scissors without taking the graft off from its new resting place.

The surface of the graft should be even with, or a little below, the edges of the wound; it should never protrude beyond them; if it does, it is too thick and should be cut thinner. To do this, I turn the graft over with its epidermis side down and shave off a little of the cutis with a pair of fine scissors, and then put it back in place.

If, after twenty-four hours, the graft is not adherent, it is dead and useless; if it is adherent, the success of the operation is assured. During the first two weeks the epidermis of the graft comes off in scales, and it is therefore advisable to keep the new lid border well lubricated with vaselin, lest the dry and hard epidermis scales irritate the eye. After two weeks the surface of the graft becomes smooth and can hardly be distinguished from the rest of the lid border.

I regard the solid skin grafts described above, a better material for the reconstruction of the lid border than grafts of the Thiersch kind, or of mucous membrane. We must not forget the intermarginal wound being an angular groove, has the great tendency of closing up from the bottom and of drawing its edges together. This tendency is successfully overcome by filling the groove with a solid graft, but not by only lining it with mucous membrane or epidermis shavings.

The use of true skin for grafting has been objected to on the ground that it contains fine hairs which would be a source of irritation to the eye. Judging by my own experience, I should say this fear is groundless. I have never seen any hairs grow in such grafts and I am inclined to the belief that when such irritating hairs are found, a careful inspection will show they do not grow from the graft, but from the posterior edge of the lid border; they are eyelashes which have been left in the posterior edge when the lid border was split.

ON THE OPERATIVE TREATMENT OF THE SEVERER FORMS OF ENTROPIUM AND TRICHIASIS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HERMAN KNAPP, M.D.

NEW YORK.

Nothing original is claimed for what I have to say. I merely beg to submit to your judgment my preference for a method of treatment, as it has developed by personal experience during years of labor in one of the most common fields of ophthalmology. With

¹ Paper read before the 9th International Medical Congress, 1887.

your permission, I will introduce and exemplify my remarks by the report of a case, the only one I shall report.

Dec. 6, 1890, Mrs. F. W. C., of Boston, came to me with chronic trachoma. Both eyelids turned in, lashes irregularly scattered over the rounded free margin, many on the inner edge. Pannus over the whole cornea. V., 20-200. The inner surface of the lids showing an irregular network of cicatrices with projecting islets of swollen mucous membrane between the fiber tracts (xerosis glabra). Palpebral fissure narrowed. Constant lacrymation, some mucous discharge, incessant irritation. Daily touchings with the sulphate of copper crystal did not relieve her very much.

Operation Dec. 31, 1890, at the hospital. First an ordinary canthoplasty was made to enlarge the palpebral fissure. Then a clamp was applied to the upper lid and an incision of about 3 mm. carried through the whole length of the intermarginal space. It ran from the inner edge of the lid margin, obliquely backward and upward, so as to comprise the cilia and their roots in the outer flap.

Then I incised the skin and muscle of the lid 3 to 4 mm. above the ciliary border and removed a strip of skin (1.5 mm. broad) from the whole upper edge of the incision, and placed it on the sterilized forehead of the patient. A small strip of the orbicularis was excised, and a longitudinal wedge-shaped piece cut out of the tarsus. Four sutures were passed through the ciliary flap, the upper border of the groove in the tarsus, and the upper skin flap. They united the wound, broadened the gap in the intermarginal space, and turned the whole ciliary border of the lid outward. After cleansing the groove in the ciliary margin from the blood with a 1 to 5,000 solution of bichlorid of mercury, the skin flap was taken up from the patient's forehead and inserted into its wedge-shaped trough. When it was well adjusted and the hemorrhage stopped, the wound was dressed with a patch of corrosive sublimate gauze, greased with benzoate of mercury salve and covered with a thin layer of absorbent cotton, held in position by court-plaster strips.

The lady had pain for an hour. The dressing was changed daily. The implanted flap took root in its whole extent. The sutures were removed on the sixth day.

The other eye was operated on in the same way, and with the same result. The patient was completely relieved. She left the hospital on the twelfth day. The inner surfaces of the lids were treated with sulphate of copper for some time. During the next three years several mild relapses of trachomatous inflammation occurred, which were speedily cured with the copper crystal. The restored intermarginal space kept broad and even; no more inverted eyelashes.

The lashes stood in a row, all directed forward and upward. The cornea had cleared up, the patient could read with ease, and I have not heard her complain since. On inquiry a few weeks ago, she answered that her eyes had not given her any trouble. She said that for years before the operation she did not know what comfort was.

This, Mr. President, is the first case I operated on according to this method. Since then my hospital associate, Dr. R. O. Born, and myself have operated on a number of severe cases of entropion and trichiasis in the same way with a good deal of satisfaction.

The operative methods for entropion are legion. For the more marked cases I long ago acquired a

preference for the Streetfeild-Snellen operation. The method of Jaksche-Arlt, raising of the ciliary border, is very old, having been practiced by Aëtius (about 500 A. D.) and Paul of Egina¹ (about 675 A. D.) It yields very good primary results, as most entropion operations do, but all the cases I have operated on according to it, showed a gradual shrinkage of the intermarginal space gained by the operation and a return to the previous condition.

The different procedures during the last twenty-two years, to combine a plastic operation with the other methods have interested me greatly. I tried some of them, for instance, that of Burchardt,² of Berlin, which consists in implanting into the split intermarginal space a strip of skin taken from the upper lid over the cilia, the ends of the strip remaining attached. In one of my cases an unpleasant ulceration of the cornea resulted. Though the method could not be blamed for this occurrence, I have abandoned it, because I was not satisfied with the appearance of the flap shifted over the outer border of the ciliary edge; the ends of the flap remained raised and the intermarginal space was not so regular and even as when a flap without a pedicle had been inserted. Flaps with a pedicle seem to have first been used and described by Spencer Watson,³ flaps without pedicles by Waldhauer.⁴ He was followed by W. T. Smith, of Chicago, Ill., "A New Operation for Distichiasis or Entropion" (*Arch. of Ophthalm.*, 1887), v. Hippe, Fuchs, Franke, Raehlmann. (*Deutsch. Med. Woch.*, No. 1, 1891.)

Dr. J. M. Ray, of Louisville, Ky., who published a case of pedunculated flap in the *American Journal of Ophthalmology*, 1892, p. 142, writes me that he has since then tried the transplantation of skin along the lid margin in seven cases, in five of them without a pedicle. He says: "In extreme cases of trichiasis it has been the best method I have ever tried."

An objection has been made to this method, viz., that the fine hairs which grow on the skin of the lid will after the transplantation irritate the cornea. I have not heard patients complain of this condition, but Dr. Born has seen hairs coming through the transplanted flap, evidently eyelashes whose roots were left in the posterior (conjunctival) flap. He therefore excises these roots before he implants the skin flap.

The objection of the hair growing on the transplanted skin flap has determined Lidner⁵ to transplant into the incised lid margin a pedunculated flap from the conjunctiva, and Van Millingen⁶ and Benson⁷ have transplanted unpedunculated flaps of mucous membrane taken from the lips where the mucous membrane joins the skin.

I have not tried flaps of mucous membrane, as the skin flaps thus far have given me satisfaction.⁸

To recapitulate:

In severe cases of entropion and trichiasis, good results can be obtained by an implantation of skin into the intermarginal space of the lid. The steps of the operation are as follows:

1. Ordinary canthoplasty.

¹ Anagnostakis, Contribution à l'histoire, etc., A. Paris

² Charité Annalen, 1882, p. 633, u. Centralblatt, f. pr., Aug., Oct., 1887.

³ On a new operation for distichiasis with a successful case. Roy, London Ophth. Hosp. Rep., VII, 1873.

⁴ Klin. Mon. f. A., 1883, p. 432.

⁵ Allg. Wien. Med. Ztg., 1875, No. XXVI.

⁶ Ophthalmic Review, 1888.

⁷ Blepharo-Cheloplasty Operations, American Journal Ophth., 1891, p. 149.

⁸ I have tried them since. The results were good, but no better than with the skin flaps. Oct. 9, 1895.

2. Incision of the intermarginal space according to Jaksche-Arlt.

3. Curved incision of the skin, 3 to 4 mm. above the ciliary border. Removal of a small strip of muscle along this incision.

4. Grooving of the tarsus according to Streetfeild.

5. Passing sutures through the lower lip of the wound, the upper edge of the tarsus, and the skin of the upper lip.

6. Detaching from the upper lip of the wound, with a straight pair of scissors, a strip of skin, 1.5 mm. broad and as long as the incision in the intermarginal space, and implanting it into the gaping and cleansed incision. Sutures may be used, but are not essential.

7. Tying the skin-tarsus sutures, four or five in number. The threads may be cut short, or stretched and fastened to the skin above the brow by collodion (Panas) or strips of plaster (Born) if the free edge of the lid is not sufficiently everted.

8. Dressing with bichlorid gauze, greased with a salve, or leaving the eye uncovered.

9. Cutting the sutures in from three to five days. Cleansing the eye every day, very gently so as not to disturb the implanted flap, or leaving the dressing undisturbed for a week. The flap in almost every case unites in its whole extent.

This plan of operation is to be simplified or modified, according to the conditions of the case.

CASE OF EPITHELIOMA OF EYELIDS PLASTIC OPERATION, WITH EX- HIBITION OF PATIENT.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HERBERT HARLAN, M.D.
BALTIMORE, MD.

After a large number of experiments in the removal of malignant growths affecting the eyelids, or their immediate vicinity, by caustics and various surgical procedures, I have come to the conclusion that the best method is extirpation by the knife and restoration of lid by plastic operation, and as a good example I present the following case:

Basil Shipley, farmer, age 60, from Carroll County, Md., was first seen by me March 1, 1892. At that time he had what was evidently (I speak from a clinical standpoint) an epithelioma of inner side of left eye. It involved the inner margin of both lids; the upper to about one-fifth its extent, and the lower to nearly or quite one-third, and extended over or to the side of the nose. Roughly speaking, it covered a surface the size of a quarter of a dollar.

Two previous operations had been done; one by a prominent surgeon, and one by a skilled oculist. Each operation had been followed by a prompt recurrence, with increase of symptoms.

The lacrymal sac and both canaliculi were involved. The patient was put under chloroform at the Presbyterian Eye, Ear and Throat Hospital, and the whole mass freely dissected away. A very large gaping wound, certainly as large as half a dollar, was left. After the bleeding had been pretty well checked, a balloon shaped flap was dissected from the forehead, twisted down and carefully stitched in position with silk. I regarded it as quite impossible to preserve any tear duct, and made no attempt to do so. The forehead wound was closed by a single row of sutures.

Iodoform and gauze was used as dressing and the healing was uneventful. He returned in March of this year and a small growth down on the nose was burned freely by the galvano-cautery. The ectropion which you see, while unsightly, I regarded as harmless, and did not advise further operation.

DISCUSSION ON PAPERS OF DRS. ZIMMERMAN, JOHNSON, HOTZ, KNAPP AND HARLAN.

DR. R. A. REEVE, Toronto—My experience with transplantation of flaps without a pedicle was given at the Canadian Medical Association in 1879, I think. The first one was largely a failure. The technique was not at fault but the patient had psoriasis and there was hardly enough healthy looking skin on the body to suffice for a flap. As, however, there was ulceration of the cornea from exposure I operated. Another case of double cicatricial ectropion proved very successful. I think it is important to maintain the union of the lids for a long period so as to diminish the ultimate shrinkage of the flap. In another case the lids were kept united for several years though sufficiently open to permit useful vision. The patient had nothing but cicatricial tissue from the chin to the nape of the neck. There was complete ectropion of all the lids, with keloid cicatrices. In using a flap without a pedicle in order to permit wearing of an artificial eye it is desirable to implant it as centrally as possible so as to get the minimum contraction. Blepharoplasty by horizontal sliding flaps has given me gratifying results in a number of instances.

DR. H. V. WURDEMANN, Milwaukee—Referring solely to the first paper under consideration, I would say that there will soon come a time when *water* not *ether* will be deemed the only suitable anesthetic for nearly all operations connected with the skin. The injection of cocaine in percentages over .2 per cent. (not 2 per cent.) is harmful not only to life itself but to the life of the skin flap. Injection in higher solutions is radically dangerous and should be abandoned in favor of infiltration anesthesia by injection of harmless fluids into the tissues. I will not occupy your time at this moment by any further reference to the matter which I will sufficiently elaborate in the session of Thursday morning.

DR. D. S. REYNOLDS, Louisville—I would like to have the last sentence of the first paper re-read.

DR. M. W. ZIMMERMAN, Philadelphia—Cocain is the only suitable local anesthetic. For the conjunctiva it may be applied to the surface in 2 to 4 per cent. solutions. When the skin is involved, subcutaneous injection becomes necessary. The punctures should be few and the dose not exceed 2.5 grains.

DR. REYNOLDS—I noted that point and wanted it repeated that it might be thoroughly understood. I have seen a single drop of the 4 per cent. solution applied to the conjunctival membrane produce almost instant pallor with cessation of the heart beat. I have noted a dangerous reaction repeatedly and it has been referred to by others.

DR. E. J. BERNSTEIN, Baltimore, exhibited a patient. When first seen she had lost both upper and lower lids and the entire nose by syphilis, and had a beginning ulceration of the cornea due to lagophthalmus.

DR. LUCIEN HOWE, Buffalo—In regard to putting the flap in hot water, it would seem to me to be entirely unnecessary when the transplantation is made without difficulty. Promptitude seems of considerable importance.

DR. J. P. WORRELL, Terre Haute—I have made a number of grafts introducing skin from back of the ear or more frequently mucous membrane from the lip. It is rare that one fails to get union. When there is entropion I did not find it necessary to make the graft. It has seemed to me that if you can make an operation somewhat like Dr. Hotz, with the incision posterior to the ciliary margin, we shall get such a contraction that we will not have a return of the entropion. I have some cases operated upon some years ago and the results are still satisfactory. I dissect down the skin absolutely to the ciliary margin and remove all of the palpebral part of the muscle; strip the cartilage entirely. From the cicatrization that follows, I have never yet had reversion to the entropic condition. I always do these operations under cocaine and have never yet seen a single case of injury from its use. I am inclined to think Dr. Reynolds' case due rather to shock than to cocaine.

DR. P. D. KEYSER, Philadelphia, here exhibited a photograph

of a case of transplantation for epithelioma of inner canthus operated upon by him over one year ago successfully and in which there had been no return of the entropion. I find too that grafts take equally as well on cicatricial tissue as any other.

DR. S. D. RISLEY, Philadelphia—I have now quite a group of interesting lid cases in which I have done the grafting operation and I expect good results, even though the cartilage has been usually involved. I take the graft from the forearm as described by Dr. Hotz. I do not think there is any call for any more serious operation.

DR. G. C. SAVAGE, Nashville—It is not often necessary to do extensive or bloody operations for entropion and trichiasis, nor can it often be necessary to transplant skin in an inter-marginal incision. By means of the entropion forceps devised by myself, the blades of the forceps terminating in a stirrup as wide as a diseased lid is usually long, with a shoulder extending up each arm of the stirrup for one-eighth of an inch, to compress the lid margin, a bloodless and effective operation can be done. When the lid has been grasped by passing one blade of the forceps beneath, the other on the outer surface of, the lid is easily inverted and held in position. At least one-eighth inch of the lid margin is included in the fenestrum. The forceps are closed tightly by means of a sliding clamp and the pressure thus exerted makes the operation bloodless. The knife is used first for making the Burow incision the entire length of the tarsal cartilage and through all structures down to the skin and one-eighth of an inch from the free margin. This done, a vertical cut is made from either end of the Burow cut, in the lid margin through all the structures down to the skin, and two similar cuts are made at equal intervals between these. The operation thus completed the forceps are removed, when there follows a good deal of bleeding. The Burow incision widens the lid; my vertical cuts lengthen it, and the two together effect a complete out-turning of the lid margin. One or more times daily the lid should be slightly everted so as to make the wounds gap widely that the deposit of new tissue may be as abundant as possible. The operation is easy and its results effective.

DR. FRANK ALLPORT, Minneapolis—In view of the fact that we have in the operation of Dr. Hotz a procedure almost universally successful for the relief of entropion, it seems hardly necessary to multiply operations. I have used this process for fifteen years and have been almost universally and permanently satisfied with the results. In extreme cases it is usually necessary to combine with it a suitable canthoplasty and when thus applied there are but few cases in which satisfaction will not be achieved. It is an operation requiring exactness and deliberation and where failures are noted it may be because these elements are wanting.

DR. HIRAM WOODS, Baltimore—In an operation for upper lid entropion, performed yesterday by Dr. Savage as he had described his operation, the primary results were excellent. As Dr. Knapp says, many cases show this good primary result but later relapse. This seems specially true of the Arlt operation. Green's operation has been used a great deal within the past few years at the Presbyterian Eye and Ear Hospital with excellent permanent results as observed in cases two or three years old.

DR. HERMAN KNAPP, New York—I want it understood the mode of operation which I have sketched refers in its whole extent only to extreme cases. Canthoplasty is necessary in many cases because by a general shrinkage of the conjunctiva and tarsi, a more or less marked blepharo-phimosis is present. When the tarsus shows extensive cicatricial contraction on the conjunctival side and irregular thickening and curving in of its body with no intermarginal space preserved, the excision of a wedged-shaped slice on the outer part of the tarsus and the restoration of the intermarginal space is indispensable. The strip of skin can be most conveniently taken from the upper border of the elliptical wound when the sutures are inserted but not tied. The strip is then immediately placed into its bed at the edge of the lid. I have seen the inter-marginal space thus gained nicely preserved years afterward.

Exercise for the Weary.—The following is from *Puck*: Dr. Schmerz: "The trouble, Mr. Tyers, is that you don't take enough exercise." Mr. E. Z. Tyers: "Aw, I confess I don't go in vewy heavy on athletics, doctaw. What could you wecommend as a mild exercise to begin on?" Dr. Schmerz: "H'm! You might stretch your arms over your head when you yawn!"

POST-ALCOHOLISM.

BY S. V. CLEVENGER, M.D.

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Ethyl alcohol, spirit of wine, is commercially assumed to be the base of intoxicating drinks, and the purest of these is capable of working great havoc when abused, but the demand for cheap liquor in vast quantities substitutes for portions of the less harmful ethyl or vinic alcohol what is known to chemists as the poisonous amyl alcohol (potato spirit or fusel oil). The aroma or bouquet of liquors is largely due to certain ethers of the more poisonous amyl and butyl alcohols, notably the acetic and valeric; then super-added, all too often, by distiller, rectifier, wholesaler, and especially by the retailer, are sophistications, flavors and perfumes for the purpose of cheapening the resulting compound, which, by the time it reaches the average consumer, contains in addition to the alcohol diluents to increase bulk, articles to give it false strength, fictitious appearance, odor and taste.

In the English Licensing Act of 1872 (35 and 36 Vict. c. 94) there is a schedule of substances called "deleterious ingredients" found to have been used in adulterating intoxicating liquors; they are cocculus Indicus, common salt, copperas, opium, Indian hemp, strychnin, tobacco, darnel seed, logwood, salts of zinc or lead, and alum. Since then, ingenuity and cupidity have extended the list indefinitely among dye materials, both organic and inorganic; and there are also added correctives of acidity, such as litharge, lime, soda, potash; astringents like catechu, oak bark and aloe leaves; earths for decolorizing; sweetening agents, and ethers for flavoring. Most of these articles are unwholesome, to say the least, and tend to debilitate and otherwise set up depraved bodily states.

Chronic alcoholism in its most obvious features is a condition of functional poisoning such as is seen in its production of lethargy, stupidity and acute narcosis. Less noticeably, but gradually, it operates as a tissue poison, affecting parenchymatous elements, particularly epithelial and nerve structure, if not to a greater or lesser degree all the cellular components of the body. A slow degeneration is produced until the blood vessels are involved in thickening and fibroid changes. Oxidation of tissues is checked, since alcohol is consumed in place of the fat, leading to fatty changes which may advance to general steatosis.

Dr. Magnus Huss, of Stockholm, in 1849 first prominently directed the attention of physicians to the subject of alcoholism, a term he was the first to use. He described the paralytic and anesthetic forms of chronic alcoholism, also later referred to by Hammond ("Diseases of the Nervous System," 1881), Ross ("Diseases of the Nervous System, 1885), and other neurologists.

Gowers ("Diseases of the Nervous System," vol. i, 110, *et. seq.*, 1892) under the heading "Multiple Neuritis," gives still more recent details of these distressing consequences of drinking alcoholics.

Magnan (*De L'Alcoolisme des diverses formes du Delire Alcoolique, et de leur traitement*, 1874), Virenque, Hammond and others observed an occasional loss of sensation involving only one lateral half of the body, as in hysteria. The other special senses are generally implicated. Thus the patient loses the sight of

one eye; can not hear with one ear; can taste with only half the tongue; and smells with but one nostril.

Gowers (op. cit. 119), states that alcoholic polyneuritis is most frequently met with and preponderates over all other forms of nerve inflammation. It results chiefly from the stronger forms of alcoholic drinks, and especially from spirit drinking. It is more common among those who take small quantities frequently, than among those who indulge in an occasional spree, probably because the total quantity is greater by the former. It is far more frequent among women than among men; probably three times as frequent. Other causes often coöperate with alcohol in exciting polyneuritis, especially exposure to cold, and, in the poor, insufficient nourishment.

The symptoms consist in motor weakness, sensory disturbance and incoördination. The weakness involves first and chiefly the flexors of the ankle and extensors of the wrist and fingers in the forearm; the result is wrist-drop and foot-drop. Other muscles suffer in severe cases. The sensory symptoms are tinglings, pains, varying in place and degree, tenderness and loss of cutaneous sensibility. The incoördination resembles that present in the slighter forms of locomotor ataxia.

Neuritis is the most common finding in chronic alcoholic autopsies.

Catarrh of the stomach with furred tongue, heavy breath, a feeling of epigastric distress or "sinking," impaired appetite and constipation are ordinarily experienced.

The liver may undergo changes leading to various forms of cirrhosis. Sometimes moderate drinking may reveal a special liability to hepatic cirrhosis, while, on the other hand, hard drinking for thirty years may leave the liver nearly intact.

The stomach and liver disorders of drunkards produce dilated veins of the cheeks and nose, causing suffusion of those parts; acne rosacea. The eyes are watery, the conjunctivæ hyperemic and often tinged with bile.

Formad claims that the kidneys are hypertrophied without other change as a rule, and Guy's Hospital Reports verify this finding. Pitt places this as occurring in 43 per cent. of hard drinkers, and where the typical granular kidney occurs it is indirectly caused by arterial changes. (Osler, "Practice of Medicine," 1001, 1892).

The greatest variability in general manifestations can be found in different patients amounting to idiosyncrasies in particular cases, and in other patients are classifiable into groups of a great or less number.

The organic changes seem to be erratic, but are according to the resistance of organs. As a forerunner of serious alterations in the spinal cord, neuritis is not a simple and harmless disorder.

Magnan has demonstrated an alcoholic paraplegia in which Buzzard found electrical degeneration reaction. Some cases end fatally, though Bramwell ("Diseases of the Spinal Cord," 307, 1884), considers it for the most part functional. Broadbent's description (*Medical Times and Gazette*, Feb. 16, 1884), in which myalgic pains, hyperesthesia and double wrist-drop is included, should be compared with the pathologic changes found by Eichorst, of Zurich (London *Lancet*, May 19, 1888), attending alcoholic neuritis, in cases of incoördination followed by paraplegia and wrist-drop, tenderness of muscles, anesthesia, abolition of

reflexes and, finally, vesical and rectal paralysis. The pathologic anatomy consisted in cord hemorrhages in the dorsal gray, thickened, blood vessels, degenerated and atrophied tibial and radial nerves with axis cylinders destroyed; the peripheral extremities were worst diseased; connective tissue proliferations of endo- and perineurium and inflammatory changes in their vicinity. A muscular atrophy was secondary to the neuritis, the nerve sheath inflammation extended to the interstitial muscular tissue. Bramwell notes that myelitis and other forms of organic disease may be caused by alcoholic excess, hence the paralysis may be permanent and incurable.

The enfeeblement of judgment and will may finally end in dementia.

Post-mortem does not show any particularly characteristic changes in the nervous system invariable for all cases of chronic alcoholism, showing that resistance is greater in some than in others. Sometimes hemorrhagic pachymeningitis is observed with thickening and opacity of the pia-arachnoid membranes and wasting of the convolutions, or there may be a chronic encephalo-meningitis with membrane adhesions, but most of these pathologic states are in advanced cases of alcoholism, the more incorrigible sort, as can be readily believed when we note the fact of many chronic drunkards having been reclaimed and restored to the world about as they were before the habit was formed. The older the patient and the longer the addiction, the greater probability would there be of finding organic changes in the brain and its envelopes and blood vessels.

Many chronic alcoholic insane exhibit remarkably close resemblance of symptoms to those commonly found as the result of injury to the brain, in traumatic insanity. These symptoms are: changes of character, lapses of memory, headaches, sleeplessness, irritability, suspiciousness, long apparently lucid intervals, homicidal and suicidal impulses, delusions of persecution. These peculiarities appearing in the alcoholic insane long after being incarcerated in an asylum, during which time no intoxicating liquor has been taken by them, point clearly to organic brain destruction, accomplished from within, but as severe and hopeless as when the brain had been injured by a blow upon the head, with subsequent extension of inflammation to the membranes and cerebral tissues.

It is when the mental degradation which temporarily occurs in alcoholism becomes permanent that chronic alcoholic insanity may be said to exist. During the acute stages there may be hallucinations, illusions and delusions which disappear on recovery from the blood poisoning; the persistence of some of these states betokens permanent damage to the mental apparatus, and the brains of the chronic alcoholic insane invariably exhibit evidences of destructive organic changes.

It is with astonishing frequency that jealousy of the wife or mistress exists to an exaggerated degree in most forms of drunkenness, from simple suspicion to delusions of marital infidelity, which in extreme cases may originate hallucinations of gross amours being carried on in the patient's presence.

It sometimes happens that the alcoholic may have grounds for suspicion in facts, but this does not lessen the delusional origin of his accusations. A frequent outcome of the notorious marital unhappiness thus caused is a brutal wife murder, the body of the victim sometimes being found hacked to pieces or

partly destroyed by fire. The insane fiend may make but a stupid attempt to escape, or none at all, either expressing surprise at, or doubt of the reality of the event, or attempting justification in explanations.

The memory and intelligence suffer gravely, though not always obviously, for it may require considerable familiarity with the former peculiarities of the patient to determine the degree of mental impairment, and comparisons of his past and present are often possible only when he has been under observation for a greater or lesser period; in some cases months may be necessary. He may be able to attend to routine duties, but is inconstant and easily diverted. The reasoning powers are lessened in varying degrees, and many such changes are not determinable off-hand.

Delusions, particularly such as relate to the wife's unfaithfulness, are fixed, but not systematized, for his explanations concerning them are vague and illogical. There is a melancholic persecutory tinge to all his ideas.

Some cases of chronic alcoholism on the verge of chronic alcoholic insanity experience auditory hallucinations of mandatory and accusatory kinds, and these may become so distressing as to lead to suicide, homicide, or insane acts generally. The dangerous character of insanity with auditory hallucinations is fully recognized by alienists.

In asylums for the insane will be found many cases of insanity that have been complicated with alcoholism, particularly a peculiar form called traumatic insanity, the result of head injuries, after the receipt of which there is a remarkable tendency to drink to excess, and the alcoholism may be combined with the traumatic insanity in every conceivable degree, sometimes outrunning the original psychosis in its influence for evil. Epileptics are sometimes incorrigible drunkards, and epilepsy may appear for the first time when an alcoholic has abstained from liquor for some unusual length of time. In such cases there may have existed petit mal, unnoticed previously, or even convulsions may have occurred at night, during sleep, and after stopping the use of liquor the fits have appeared during the day, through the alterations in habits. Any other form of insanity may have, to some degree, the impress of alcoholism to modify it, and where this complication is extreme, as it is frequently in the head injury cases mentioned (sunstroke victims fall into this category), there are characteristics in common with those of chronic alcoholic insanity that are well recognized by asylum physicians and that often cause considerable annoyance.

Soon after the commitment of a chronic alcoholic insane case to the asylum or hospital, he appears to improve remarkably, if he escape the consequences of his last debauch and does not die of pneumonia or exhaustion; locked up at first in a ward, he is sooner or later trusted about the grounds and can be made very useful as a workman of some sort. He may refrain from asking for a discharge for a long while for the purpose of convincing the superintendent of his recovery, but unless the patient conceal his delusions, as many insane do, he is liable, with a little questioning or in his letters to friends or relatives, to reveal the permanency of his delusions of persecution. The writings of some of these apparently sane alcoholics contain the foulest abuse of mother, wife or children, without the least warrant for it in their former treatment of the patient.

Sometimes a weak-minded relative may be found espousing the cause of the "unjustly detained" alcoholic, or well-meaning but misguided friends may satisfy themselves of the "recovery," and even resort to habeas corpus proceedings to secure the patient's discharge.

Under the watch and restraint of hospital sojourn and their gradual admission to parole, with occasional breaks thereof, many of these patients assume, to all appearances, their original mental condition. To the superficial observer they are perfectly sane; many work cheerfully in the shops and talk quite intelligently about the possibility of relapses if allowed to go. But a large percentage are importunate, and these are the least to be trusted, for their anxiety to flit is born of their inability to gauge their feeble will power to resist temptation. If they are discharged, back they come, not infrequently with newspaper and other criticism of the hospital authorities for having liberated such a dangerous character. These same critics are just as liable to write up sensational comments on the injustice of keeping perfectly sane persons at the behest of relatives who, the critics affirm, have some pecuniary motive in the patient's being deprived of liberty. Nor is the trouble taken to inquire whether the county is charged with the case as a pauper or not.

When habeas corpus proceedings are begun, the natural inference is that there must be some malign reason for the detention. Probably it is just as well in the long run that the public should be suspicious, but the conscientious hospital physicians are put to unnecessary trouble in explaining matters of pathology and general medical experience to laymen who are much more familiar with business affairs.

The hospital physicians will congratulate themselves that cases of this kind are improving, and discuss the advisability of trusting them on parole, preliminary to letting them go home on trial, but the records of the cases suggest caution, such as domestic horrors, including attempted wife murder, brutality to children, improvidence to a criminal degree, the wife usually faring the worst, though when he is not drinking she claims her husband to be the "best and kindest of men."

Notwithstanding all this, such near relatives often beset those in charge of the hospitals to liberate their husbands, sons or fathers; poor ignorant creatures, because they can only see the hopeful side of matters for themselves, and can not appreciate the vast fund of information possessed by the doctors as to the frequently disastrous consequences of too early discharges, or, sometimes, any discharge at all.

The alcoholic insane have been apparently sane while at the asylum, and even after ten years' trial when they were allowed to return home they would resume all their bad habits, such as furniture smashing, chasing the family into the streets with axes or knives, and after being returned to the asylum in a maniacal state they would resume all their apparent sanity and sweetness of disposition, which arouse the suspicion of the visitor that some unworthy motive on the part of somebody withholds so useful a person from society at large.

Among the sadly comic instances of this kind appear liberations after carefully weighing probabilities and enduring the threats, entreaties and promises of the family and the patient, against the better judgment and misgivings of the physicians; and when something does occur from the risk, as too often hap-

pens, forthwith not only the public but the relatives censure the weakness of the doctors for having listened to them at all.

A washerwoman, who had about as much experience with the inner life of a large city as some physicians acquire, used to dub the defects produced by alcoholism as "street angels and home devils." Much danger to the community exists in the seeming sanity of such cases. There is no provision for their incarceration on the ground of their great liability to be homicidal, and when they do commit a murder it is a difficult matter for the public to comprehend the insanity during the quiet stage induced by imprisonment and liquor deprivation.

Alcoholic dementia is simply a secondary or terminal dementia of profound type, that has usually supervened upon alcoholism, the intermediate stage of chronic insanity being often short, or having escaped notice altogether, as such; being merged from the general alcoholism. It is as permanent and incurable as any other secondary dementia. The organic brain and blood vessel changes in this, and other chronic alcoholic insane states often shorten the lives of patients; many succumb from pneumonia which proves so fatal to drunkards generally.

Post-alcoholic conditions are such as become evident during abstinence after the protracted use of liquor.

If the shock of abstinence is rallied from, we can then determine how much is left of the patient. Destructive changes in the brain may be, to an extent, masked by drinking; that is, the behavior of the patient may be erroneously ascribed to the drinking when it in larger part may be due to brain alterations produced by over-indulgence.

The extreme ground is taken that by whatsoever means recovery from habitual drunkenness is made, the health is never regained. Dr. Clum (*Quarterly Journal of Inebriety*, October, 1891, 382), observes that those who have been addicted to the excessive use of alcoholic beverages for a number of years may be restored to a state of sobriety but they are generally left with an entail of chronic disease which eventually ends their career. They die temperance men, but die as a result of disease contracted by the excessive use of liquor. The habit is abandoned and nature and remedies are given a chance to do their part toward reinstating the individual, but the vital organs have been injured beyond reparation.

This gloomy outlook for the "reformed" inebriate concerns a large percentage of cases, but is far from being universal. Drunkenness is not the only consideration; the health previous to and during the addiction should be regarded, aside from, as well as with, the drinking habit and its extent; the age, associations and conditions, such as exposure and immoral practices, as incidental or consequential matters, need consideration in ascertaining how far a breakdown is ascribable to drink or its stoppage.

Heart weakness that had previously been compensated to some extent by stimulants, whether created by their use or not, often becomes apparent in post-alcoholic life. Syphilis is known to have become modified and somewhat checked through the alcoholic poison acting upon the syphilitic poison, and when this antagonism ceases the syphilis has become more virulent. Livers, kidneys, nerves and brains that have been structurally degraded can not be restored by mere change of habit; indeed, paralytic states may

become evident immediately after liquor withdrawal through the shock of readjustment to new vascular workings. For example, when an alcoholic neuritis with membrane thickening and beginning spinal cord myelitis has been inaugurated through alcoholism, the sudden change in the circulation caused by abstinence will inevitably render the physical consequences of such inflammatory and neoplastic states more apparent. Pressure symptoms, debility, and marked sensory and motor impairment are liable to occur, from monoplegias to complete paraplegia.

Tremens begins during the abstinence of drinkers, and from circulation changes in the brain, temporary sobriety causes a dazed, bewildered mental state in the hard drinker. Even were the craving destroyed, and were the will power to resist drinking to be imparted, by any means, too often the inebriate then finds himself so completely out of his environment, so changed are inner to outer relations as to what constituted his previous existence that he rushes back to his former habits about as a fish would take to water, and for analogous reasons.

Hard drinkers are the first to succumb to epidemics, such as cholera and yellow fever, and abstinence merely uncovers the debased organic weaknesses that these epidemics coöperated with destructively.

After prolonged use of liquor, abstinence sometimes is followed by acute melancholia in which the delusions of that psychosis are commingled with some that are peculiar to alcoholic insanity. This depressed state seems to be owing to exhaustion of the system habituated to alcoholic sustenance, and not yet readjusted to the assimilation of proper food.

A demented condition more or less profound may set in from the same causes. A well-known stockyards millionaire of Chicago had, up to his sixtieth year, guzzled fusel oil in all its disguises as ethyl alcohol compounds, and a sharper shrewder person was hard to find; but he abandoned his drinking suddenly, utterly and completely, and during the succeeding three or four years gradually became incapable of attending to business, presenting the apathy, memory loss and other characteristics of what was known as "primary mental deterioration" but which Voisin claims to be "atheromatous insanity," the blood vessel destruction found post-mortem justifying the designation. While this mental malady is often independent of alcoholic habits, its appearance as apparently connected with the stoppage of drinking is worth noting. In those who indulge many years and then quit drinking, the alteration in behavior is quite observable; they are certainly quieter, calmer, and while doubtless far better off than when stimulating, the general tone is below what it used to be, or what it would have been had they not drunk at all; meddling with fire must be at the expense of some scars. While atheromatous insanity may occur in the temperate, a condition like it, if not identical with it, could readily be conceived as consequent upon abstinence after long addiction, or the pathologic condition mentioned itself could be directly induced by alcohol, and persist, whether alcohol is or is not taken after the condition is instituted. The tendency to steatosis in the intemperate can be recalled in this connection and doubtless many cases of so-called dementia from abuse of alcohol may be found to be of Voisin's type of atheromatous insanity.

The hyperemic state of chronic alcoholism necessarily alters the cerebral circulation in various ways

in many, but not in all cases, causing endarteritis, leucocytic exudation, neoplastic organization and capillary extravasation into the cerebral tissues comparable to the rosacea observable in some drunkards' cheeks and noses. In my autopsies of the alcoholic insane at the county asylum, I invariably noticed a rusty discoloration of the dura mater along the course of the superior longitudinal sinus, and other evidences of old inflammatory conditions such as adhesions of the membranes and cerebral tissue of the convexity and basilar regions. The vascular and meningeal alterations varied in degree according to the patient's age. Where frailty of blood vessel organization existed congenitally there was greater liability to pathologic change in such cases.

The finer mental coördinations in any one are maintained by effort; being the latest faculties acquired, and their tenure being so dependent upon full brain integrity, it is plain that the moral nature has been superimposed upon the less easily destroyed brute nature, through finer and weaker histologic arrangements acquired and inherited, demanding for their exercise the clearest kind of brain activity. Vitiating blood quickly blots out these better but feebler functions for the time being, just as exhaustion is felt first in our weakest joints. So the moral nature, which is merely a higher intelligence, may depart when the seat of intellect is weakened by any cause such as senility, drinking, insanity, arrest of development, traumatism and some diseases.

When certain pathologic adjustments, involving imperfect compensations, occur, such as thickened arterial walls which resist the increased flow of blood, then a new plane of mental operation is established, which, if disturbed by change of habits, as by withdrawal of the customary greater heart impulse, it is but partially and inadequately recompensated by the pure blood. Practically, the adjacent cerebral tissue must suffer from anemia to a greater or lesser extent, and where previously the blood was driven through disarranged avenues, it now makes its way feebly and in places not at all. Nor is this all; the sclerosed and otherwise changed tissue becomes a more prominent hindrance to function when the artificial nutrition and circulation is cut off. So the poor fool of a drunkard is too often thus "damned if he does, and damned if he don't" continue.

Summarizing post-alcoholic bodily and mental states there may be found many organic destructive changes in the blood vessels, liver, nerves and brain, which were not so evident during the addiction, owing to the somewhat compensatory effect of the alcohol, and hence the masking of diseases.

The simple privation may kill through the weak heart losing its wonted stimulant, but such cases are not very common; debility is the most frequent consequence of "reform," but this is often a return to what preceded and may have led to the over-indulgence. Cerebral blood vessels subjected to engorgement are liable to rupture at any time where weak points exist, and fatty degeneration of vessel walls, induced by the liquor, may culminate in apoplexy, whether drinking is continued or not.

A single severe attack of delirium tremens may make profound changes for the worse in the future workings of the brain, and the typhoid stage of some cases of delirium tremens show the ravages of the poison often in life-long sequelæ.

Chronic alcoholic insanity may make its first gross

appearance after abstinence enforced in jail or otherwise.

Necessarily, when liquor is withdrawn, a change for the better is ordinarily the rule, but such withdrawal in some cases may operate as a shock, and in all cases a readjustment of the entire physiologic make-up must occur. It is conceivable that epilepsy or insanity may find in such shock a potent exciting cause and the whisky soaking is ample as a predisposing influence, when it can alter the brain structure, in time, as thoroughly as a contusion or a concussion.

But what the inebriate has drunk, how long he has been drinking, and his power of resistance, associated diseases, hereditary and other tendencies, are to be taken into account; and with these it is surprising how large a number of heavy drinkers escape any obvious trouble due to such excesses. A well-known druggist of Chicago was a sot until his fortieth year, stopped drinking and died at 70 years, having built up a large business; while others who had not taken half his risks with liquor succumbed during or after ceasing their bad habits.

Post-alcoholic conditions such as insanity, paralysis, weak heart, etc., that occur in a minority of cases after alcoholic disuse, only the most thoughtless or perverted could use as arguments against the stopping of drink; as the liquor in such cases produced the trouble which merely culminated after the habits were changed; such climax, being inevitable in any case, and impending, might have been reached earlier, or in a graver form, had the inebriety continued.

In a few words, drunkenness is a constant menace to the mental and bodily health, and it is far safer to escape from its ravages, scarred and maimed, than to go on sooner or later to certain destruction. Though the vast majority may be rescued entire, or nearly so from intemperance, no one can tell what the chemic devil has left of him until months or years of sobriety have passed.

THE ESSENTIAL OF INSANITY.

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If by insanity we simply mean more or less deviation from the free normal action of the mind, without regard to cause, then, indeed, no mortal is constantly free from it. For as mental activity, in degree and range, is a measure of physical tone and proportion, especially of the brain, it is quite evident the accidents of existence preclude a constant normal. But the term insanity, to the popular mind implies the state of personal irresponsibility and the question in regard to a particular act, is the proof of the existence of this state. The law, with reference to a specific act, simply demands, Was he sane or was he not? implying by the question either a fracture of mental integrity or a degree of derangement beyond which responsibility justly ceases.

It is quite clear that from a practical standpoint, we can not hold to the position that all men are insane or that all abnormal states of the mind are degrees of insanity, though leading to it. Just as we do not recognize tuberculosis until the bacillus is in the field, so we may have an essential characteristic of insanity. That essential of insanity is a delusion

uninfluenced by evidence sufficient to refute and due to disease of the brain. This definition includes a much wider range than asylum wards and embraces a class to whom we might hesitate to impute the charge, while it drops others into the still wider circle of cranks and crippled creatures. But to maintain that a man is not really a lunatic unless he holds a delusion will depend upon what we regard a delusion to be. An insane delusion is a false concept—an idea which is the product of defective data and defective reasoning and held in spite of the presentation of a corrected data and corrected reasoning. This distinguishes it from a common delusion—an error of belief remediable by suitably put evidence.

A common or simple delusion is due more to educational errors, but which by necessity—from the aberrant nature of errors—they more or less induce material conditions off the normal line, and thus, in addition to the direct evil of their falsity, they indirectly conduce to undermine the physical tone requisite for perfectly free mental action. But the lesser degree of defect may be in the course of the evolution, of the greater, yet so common is it that few of us could plead freedom from a finding of some sort.

Insanity has no direct relationship to the size or shape of the brain, but only to its lack of tone or integrity—a molecular disintegration—which in its last analysis is the registration of conduct and which ought to be in line with a motive consistent with common sense—the normal product of common experience. A simple error of belief, a mere notion or faint suspicion, may so mislead as to react injuriously before correction is made, or they may even become the substructure of a slowly constructed system of beliefs having a degree of plausibility which may earn for its advocate a respectful attention. As one error held begets another, and as all errors, when actuating, mislead in conduct which determines the tone of the organs of mind, it is evident the result of the one becomes a cause of the other, and thus we may have insidiously developed a fixed delusion or systematized set as in a Swedenborg or a Schweinfurth. If the tone of the brain is fully at par, the action of the mind will be accurate as far as attention is directed both as regards the nature, number and order of perceptions or sensations and the process of reasoning on their relationship and thus correct conception result. It will be the truth, if not the whole truth. A greater brain and one more perfectly proportioned would supply the energy, other things being equal, for more extended attention, and thereby a more comprehensive result.

Systematic observations in prison and asylum practice in New York city abundantly satisfied me that neither mere shape nor size of brain had anything to do with insanity or criminality. But it was evident that the causative conditions of shape and size did have to do with capacities or talents which, did they not meet a fitting environment, would at least negatively contribute to loss of brain tone from the simple lack of proportional exercise, and in this way lead to demoralization, which, of course, always induces disease or a receptivity for it in some degree.

The delusions of illusion and hallucination differ from the purely relational—those wholly due to ideational incompetence—only in being less centric in origin. They are more fleeting and susceptible of

correction, but they may be just as strongly actuating while present. Every delusion is an immediate product of defective ideation—the intellectual act involving perception, reason and will and expressing a failure of the brain. When illusion and hallucination are absent, the delusion is purely the product of ideational incoherence—an incompetent relationship of the ideas involved. The faculties are subjective and the emotions are irregular and either excessive or greatly reduced, with egotism, suspicion, jealousy or fear made manifest. These states are always symptomatic of cerebral instability and although so common, they can not exist in the perfect individual who necessarily has a clear conscience and correct appreciation of facts within the range of his vision, which is serene at all times. Their combination and form of associated delusion are formed by the elements in the history of the individual. Great depression or great excitement can not exist without delusion, for the mental condition is such that ideas can not be correctly associated and thus, if the stage of confusion is transcended, some insane delusions arise, although they may only be fleeting. If correct facts in correct form or relationship were present in consciousness, such morbid manifestations could not exist any more than fire can without fuel. Egotism, jealousy, suspicion, hatred, envy, anger and fear are all expressions of morbid condition or weakness, though we regard them in moderation as perfectly natural. They are due to imperfect comprehension of facts before the mind and which is a measure of lost energy. In delusion, the faculty of attention is so weakened that the presentation of the truth is not appreciated.

The emotions are the product of subconscious ideational activity, made conscious in the form of feeling instead of image, and their precise disposition will accord with the data of the memory—the purely conservative faculty—but only those data which are in affinity with the exciting agent. Emotion is inversely proportionate to intellectual range and is the expression of the inability of the intellect to take distinct and immediate cognizance of all the ideas in the memory aroused by the excitant, just as it fails to distinctly perceive all sensory impressions from the outside. This is a normal condition, but is very often out of proportion long before derangement to the degree of insanity is reached.

By the free normal action of the mind, I do not mean an everyday type of health, but a much higher. To be on a level with a certain class or race of humanity, may be a long way below the highest possibilities of individual capacity. Indicative of this fact is the common lack of quickness, preciseness and completeness of mental action within the range of individual knowledge and capacity. Our criterion should be formed from ultimate motives for existence. Insanity is not a relative term, but a positive. It is an extreme aberration from the normal, and the normal is only normal in so far as it is in correct line with evolution or final purpose in nature and not simply in harmony with immediate social environment.

An insane delusion has three components, error of fact, incapacity for correction, error of inference and illogical tenacity. The responsible faculty for this is the attention which is so affected by a weakened will that it can not be held long enough to complete perception and conception, and ideational

displacement results. But as the will is the dominant power of the mind and owes its strength to support from the other faculties, it is evident that its weakness is due to a general loss of energy, which subserves the mind as a whole, and as a consequence thus becomes an added cause for farther evil.

The evidence of a delusion is not always readily recognized, even by asylum physicians. Some subjects secrete their delusions; some have their delusions instantly dissipated by the presence of a physician, officer or stranger; some only have momentary delusions or perhaps frequently changed; some change with prominent events; some have delusions so buried that they can only be elicited by particular conditions and requiring the analytical skill of an expert.

But the point of present issue is that where there is no delusion, there is no insanity, for the mind that is competent to comprehend facts and their bearings within the scope of its education and the limits of ordinary surroundings is a mind capable of correction on any error; and, conversely, a mind that is not thus competent must of necessity beget delusion of one form or another which it is as incompetent to discharge, no matter what the evidence combating.

FURTHER REPORT OF THE SERUMTHERAPY IN TUBERCULOSIS.

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PHYSICIAN-IN-CHIEF ST. LOUIS SANITARIUM FOR THROAT AND LUNG DISEASES.
ST. LOUIS, MO.

Up to this date all of the reports which I have had the honor to make to the medical profession, bearing on the use of the horse-blood serum in the treatment of tuberculosis, cover a number of cases in which the improvement had been more or less marked. Our experiments up to the last report had not gone far enough to justify the statement that we had, in fact, cases of tuberculosis which had been cured. The present writing is chiefly for the purpose of reporting results of a more positive nature and, at the same time, to say a few words on the complications that may arise during serum injections; the conditions which militate against its use; also the extent, so far as I am able to present from past experience, of the expectations that may be based on the new treatment. I will begin with the latter propositions.

In the first place, one should always bear in mind that tuberculosis varies a great deal with individuals and with respect to the organs affected. Pulmonary tuberculosis itself presents a wide range of pathologic conditions that must be judged and interpreted according to the extent and nature of each, locally and generally on the system. Consequently, no two cases of pulmonary consumption can, with safety, and hope of success, be treated alike by any one remedy, irrespective of the general and local constitutional or organ disturbances. One would suppose that a specific treatment should apply to all forms of it. One would think that if creasote is good in one case it ought to be in another. If inhalation of essential oils does good in one case it should benefit in another. If serum injections produce good results in a given case, they should have similar effects, irrespective of any other treatment, in any case, affecting any organ.

But such is not the case. It is unfortunate that so

many seem to think that with a given specific remedy for any given disease, all that is necessary is to apply that remedy mechanically, without respect to anything else, physiologic or pathologic. Chronic tuberculosis of the lungs may consist of scattered tubercles throughout one or both lungs (and hundreds of them), each surrounded by a special envelope, impenetrable by the circulation or by medicines. These tubercles may be surrounded by acute inflammatory processes or free from them. Some may be in an advanced stage and others just forming. In such cases, the opening of the tubercles happens gradually and successively; that is, some of them break to-day and others to-morrow or later on. Consequently, a more or less constant process of eruption goes on for months or years. Sometimes eventually, cavities are formed, during which certain principles of the morbid matter are partly absorbed, but mostly expelled by expectoration. It is evident that no form of treatment can arrest these slow cases promptly. The good results of serumtherapy in these have been slow in proportion to the nature of the affection, but have occurred, and we have under observation patients of this class who are unquestionably steadily improving, if we are to judge by the disappearance of the chief symptoms, such as night sweats, fever, loss of appetite, emaciation. Indeed, to arrest the progress of the disease in such cases is itself progress toward a cure. In another form of tuberculosis, one may meet with contracted lungs, sometimes with alterations of a more or less fibrous character, lungs encased usually in a narrow or otherwise defective chest. These cases are also very slow (they do not always end with cavities), and serumtherapy as well as other agents must naturally fail to bring quick improvement.

It is only slowly that one can reach such pathologic lesions, whatever agent is used.

On the other hand, we find chronic cases of tuberculous processes existing here and there, or localized in one apex or both apices, which are of a subacute character, and around which there exists more or less infiltration which, under physical examination, simulate to some degree the fibrous consolidations which I have mentioned before. This form of tuberculosis yields more readily to the serumtherapy than those above mentioned.

Again, there are cases of chronic tuberculosis of the lungs in which the tuberculous alterations consist first in localized inflammatory processes, unknown sometimes to the individual until a hemorrhage takes place and which sometimes end in cavities more or less extensive, and more or less serious according to their location, etc. One occasionally meets with such cases without detecting any other alterations in the lungs.

It must be apparent to any physician that the various conditions just mentioned (which do not by any means cover all the types of pulmonary phthisis) are not to be treated by any stereotyped formula and serotherapy, acting as a specific agent, should not be depended upon exclusively, irrespective of other conditions in the diseased organization. In other words, every case should be managed scientifically, using the serum only for the purpose it is intended, namely, to give to the organism the physiologic elements which it lacks to fight the tuberculous process from within.

Most of the chronic forms are mixed infections,

and therefore demand additional treatment, and were they not such, accessory therapy is certainly in order to meet any special condition, and physicians should not neglect them under any circumstances. In our first reports we made it a point to explain that all our experimental cases had been treated exclusively with serum. Exclusive serumtherapy was necessary in those experiments, because we had to demonstrate as far as possible what the serum alone could do, but we are not justified in this early stage of the serumtherapy to lay aside everything else that may be useful to meet any special phase of disorders in a tuberculous individual. In fact, it is unscientific to treat diseases by any stereotyped method. Each case of any given disease should be considered on its merits, if I may so speak, and after proper consideration one should use the most potent or most specific therapy and add to it, if necessary, according to what the symptoms may suggest.

We have beside to deal with acute forms of tuberculosis which, under ordinary treatment, may be classed as hopeless from the very beginning. It may be said that they always end in death. Medicine of the past shows no authentic records of cures in any such case. It is in these, however, that serumtherapy has proved its efficacy most strikingly. It is only within the last three months that we have had opportunities of testing the serum in this form of the disease and, already, I am in position to point to three patients in which the diagnosis made microscopically and physically was unmistakable, who have arisen from a bed of sickness where everything pointed to death within a short time. These cases, were not in my own practice, and, consequently, I am not at liberty at present to give their history. But I will mention that I have seen two of them, and that I have verified the microscopic analyses previously made in them and know that both of them had acute tuberculosis of the lungs in the worst form and both are now entirely free from bacilli, and are up and about and gaining strength, and one has absolutely no physical or microscopic sign of the disease left. This one, a young lady of about 18 years, had been at the time of the beginning of the treatment, prostrated in bed some four or five weeks; had had a temperature of 104 to 105 during three weeks preceding the injections; had had cerebral symptoms to the degree of absolute loss of mind during all that time; had both lungs so seriously involved that breathing was painfully short and laborious; emaciation and weakness were so pronounced that she was absolutely unable to raise her head, and could barely lift her hand. She was treated about three weeks with the serum and the temperature went down steadily after about four days from 105 to 98.5; the lungs gradually but steadily cleared up; hemoptysis and expectoration ceased; the bacilli entirely disappeared; the clouds were lifted from the mind; the appetite returned and the young lady is out of bed, up and around, and putting on flesh rapidly. This is the most striking result we have obtained by the exclusive use of the serum. The physician in charge, who will report the case himself shortly, excluded all other medicines because the case, after consultation with other physicians, was considered hopeless by any of the old modes of therapy. The serum was used as the last resort without any hope whatever.

The other patient of the two just mentioned, whom I have seen, was an old gentleman who had also

been prostrated in bed several weeks with acute tuberculosis diagnosed as such by some of the most eminent physicians of St. Louis, who, after consultation, considered his case hopeless. This patient began the serumtherapy under another physician, and within six weeks, I believe, was also raised from his bed and is out and about. Not a bacillus is to be found in his expectoration to-day; one lung is entirely cleared, but in the other there remain some adhesions, which will probably remain, as they seem to be of a fibrous character. Certainly the tuberculous phenomena seem to have been arrested; the germs are there no more, and the ravages which they have produced are being healed.¹ We have also two cases of chronic tuberculosis without any more symptoms of the disease except the evidence of the cicatrix. They were both bedridden and are now both working hard every day.

Now as to the complications that may arise in acute tuberculosis by injections of serum, I will mention first the general disturbances. Constant injections of serum may result in rheumatic symptoms, particularly in those with rheumatic diathesis. Swelling and pain of the articulations and pain in the muscles may arise. By suspending injections and using lithia the symptoms disappear. Occasionally urticaria results, scattered over the skin around the ankles, body, neck, etc. A curious accident that occurs sometimes is a sudden disturbance of the circulation, evidenced by a very pronounced flushing of the face, a condition which usually promptly disappears. This occurs during injections or just after. The face becomes gorged with blood, the patient feels dizzy and will fall if not assisted to lie down. These symptoms appear and disappear within two to five minutes, in my experience. Two or three times, after such occurrences, there resulted a chill and occasionally a headache, and pain appeared in the spinal column. In no instance, except one, did the heart suffer during the trouble. In this case it became very feeble and hypodermic injections of stimulants (whisky and nitro-glycerin) were deemed useful to assist recuperation. This disturbance of the circulation occurred in my practice and my experiments eight times in a total of some eight thousand injections. Whether it can be fatal or not, I am unable to say, but it is so rare that it is not to be considered in any worse light than any untoward symptom that may arise from the administering of any other medicine of a potent character which we use daily in medical practice, such as cocain, sulfo-nal and numerous other medicinal agents which the readers will readily recall to memory.

With respect to the kidney's action, I have to mention that in two cases in which there existed already a trace of albumin, albuminuria increased without, however, producing any of the serious symptoms that we note in Bright's disease. In neither of these cases were there any casts to be found. In another case, which was not directly under my control, and which unfortunately had not been analyzed before beginning the injections, albumin was found in great quantities after the patient had been treated two or three weeks. I am unable to say whether this came from the injections or not, inasmuch as it occurs frequently enough, that albuminuria exists with tuberculosis. On this point, I will mention that,

¹ This old gentleman patient now weighs nearly 200 pounds. Weight at beginning of treatment less than 160.

being in the habit of analyzing the urine of every case of tuberculosis before treatment, I have found the last four months, six cases of albuminuria in thirty-two cases of pulmonary consumption.

From the foregoing, I judge that it is not wise to use the serum in cases where there is kidney inactivity. Locally, the serum injections may produce erythema and local irritations more or less pronounced. These are sometimes sufficient to produce an elevation of temperature and they should be treated according to their nature. It would seem from the foregoing, that serum injections in tuberculosis, or in any other disease for that matter, should not be considered entirely free from possible complications, and that every case treated should first be thoroughly analyzed and treated on its merits. With respect to the results of the serum in the hands of others, I am pleased to say that I am getting daily excellent reports which will serve materially in deciphering the conditions in which the serum will or will not act beneficially or will be too slow for practical purposes. I have now in my hands, reports covering the use of the serum in various parts of the country in many different tuberculous conditions from which I shall glean material for an article explaining various kinds of results. All these, I can now state conscientiously, give evidence that the principle of serotherapy in consumption is correctly interpreted in our experiments and our judgment as made known by our reports. In New Orleans, California, Missouri, Illinois, etc., we have had excellent results, and, naturally a percentage of failures.

Before closing, I wish to state that in local tuberculosis of the skin, glands, and surgical cases with fistulae, with and without operations, the results have been positively beneficial. Specific reports will be given by the physicians who have undertaken such cases in this city and elsewhere. Cures have practically occurred.

In conclusion, I beg to warn the over-anxious against the idea that a few weeks of treatment of any case of chronic tuberculosis will effect a cure. The cases we can now report as free from tuberculous symptoms and which were in the first and second stages of the disease have been treated not less than four to six months steadily. Four to ten months of steady treatment should be contemplated from the onset. No miraculous or magic effects should be expected by any doctor or patient. Considering that tuberculosis is fatal in 99 per cent. of cases, and generally very slow, this conclusion is entirely reasonable.

SOCIETY PROCEEDINGS.

American Public Health Association.

Proceedings of the Twenty-Third Annual Meeting held in Denver, Colo., Oct. 1-4, 1895.

SECOND DAY—WEDNESDAY, OCTOBER 2.

(Continued from p. 632.)

The Association reconvened at 10 o'clock, A.M. in the Brown Palace Hotel, with PRESIDENT BAILEY presiding.

There was a larger attendance than during the preceding day's sessions, as a number of delegates had arrived since last adjournment.

CHAIRMAN SEWALL, of the Local Committee of Arrangements made announcements regarding various trips, excursion rates to same, social functions, etc.

The Executive Committee, through Secretary Watson, recommended that the names of the applicants in his hands

be elected to membership. Upon motion duly seconded the Secretary cast the ballot of the Association for them.

The Committee also recommended the adoption of the resolutions offered at Tuesday morning's session by Dr. Mitchell, regarding the transmission through the mails of bacteriologic specimens when properly prepared so that no danger could possibly accrue to those handling the packages, etc. Dr. Mitchell then exhibited two samples of tubes and cases that he had devised for this purpose which he had proved was perfectly safe to send specimens in, and deemed to be absolutely safe to admit through the mails.

The resolutions were then unanimously adopted. The committee also recommended that the committee on the centennial celebration of the discovery of vaccination be restored by the Association. Adopted.

The committee recommended the creation of a new committee, namely, a Committee on Forestry and its Relation to Public Health. Adopted.

After some additional routine business had been disposed of, Treasurer Henry D. Holton, of Brattleboro, Vt., submitted his annual report which showed receipts from September, 1894, to date from all sources to be \$3,627, and disbursements as per fourteen vouchers; that there is remaining in the treasury \$493.98, *Indefund* unexpended. Upon motion, the report was received and referred to an auditing committee consisting of Mr. Crosby Gray, Dr. H. B. Horlbeck, and Dr. J. N. McCormack.

DR. C. N. HEWITT introduced the following resolution on the death of M. Louis Pasteur, which was duly seconded:

Resolved, That this Association has heard with profound sorrow of the death of Louis Pasteur. That it offers to his family, to his assistants at the Institute Pasteur, to his country, to the members of the profession, sincere condolence in the loss of a master of science. His work for the alleviation of human suffering is as he would have chosen—his everlasting monument. His example as an humble and attentive servant and student of nature, is the precious legacy he has left us.

On motion of Dr. McCormack, a silent rising vote was taken. In addition to the foregoing, upon motion of Dr. Formento, a cablegram was sent to Dr. Roux, collaborateur to Pasteur, containing these words: "The American Public Health Association mourns the loss of Pasteur."

The roll of the Advisory Council was called, and the following members were present:

Colorado—Dr. Henry Sewall, Denver.
Connecticut—Dr. R. S. Goodwin, Thomaston.
Delaware—W. C. R. Calquhoven, Wilmington.
Illinois—Dr. Liston H. Montgomery, Chicago.
Indiana—Dr. L. S. Whitesides, Franklin.
Iowa—Dr. A. W. Cantwell, Davenport.
Kansas, Dr. Daniel C. Jones.
Kentucky—Dr. J. N. McCormack, Bowling Green.
Louisiana—Dr. Felix Formento, New Orleans.
Maine—Dr. A. G. Young, Augusta.
Maryland—Dr. James F. McShane, Baltimore.
Massachusetts—Dr. S. H. Durgin, Boston.
Michigan—Dr. Cressy L. Wilbur, Lansing.
Minnesota—Dr. C. N. Hewitt, Minneapolis.
New Hampshire—Dr. Granite P. Conn, Concord.
New Jersey—Dr. Henry Mitchell, Asbury Park.
New Mexico—Dr. S. D. Swope, Deming.
New York—Dr. A. W. Suiter, Herkimer.
North Carolina—Dr. R. H. Lewis, Raleigh.
North Dakota—Dr. John Montgomery.
Ohio—Dr. Charles O. Probst, Columbus.
Pennsylvania—Crosby Gray, Pittsburg.
Rhode Island—Dr. Gardner T. Swartz, Providence.
South Carolina—Dr. H. B. Horlbeck, Charleston.
Tennessee—Dr. W. C. Bailey, Knoxville.
Vermont—Dr. H. D. Holton, Brattleboro.
Wisconsin—Dr. U. O. B. Wingate, Milwaukee.
District of Columbia—Dr. Ralph Walsh, Washington.
U. S. Army—Deputy Surgeon-General A. H. Woodhull, Denver, Colo.
U. S. M.-H. Service—Surgeon P. H. Bailhache, New York.
U. S. Navy—Surgeon Bates, New York.
Dominion of Canada—Dr. F. Montizambert, Quebec.
Province of Ontario—Dr. Peter H. Bryce, Toronto.
Province of Quebec—Dr. E. P. La Chapelle, Montreal.
Manitoba—Dr. James Patterson, Winnipeg.
New Brunswick—Dr. George E. Coulthard, Fredericton.
The appointment of Mexican members to the Council was deferred until the arrival of the delegates from the Republic.
DR. H. B. HORLBECK, Health Officer of Charleston, S. C., read the first paper which was a brief one, entitled "Municipi-

pal Steam Disinfection." The author illustrated his remarks by lines and drawings upon blue paper.

The succeeding essay was practically upon the same topic, "Disinfection in American Cities," by Dr. Charles V. Chapin, of Providence, R. I.

Both papers elicited marked attention and contained much valuable information concerning the methods of various cities throughout the United States. Dr. Horlbeck thinks that Charleston has the best steam disinfecting system in this country. The use of steam and a solution of bichlorid of mercury was recommended where contagious diseases were prevalent. Dr. Chapin's remarks were more extended. The statistics he presented were gathered from fifty cities in this country and Canada. Only two out of this number disinfect after measles and the other minor contagious diseases. These are Rochester and Toledo, and their systems are very thorough. New York, Brooklyn and Philadelphia were mentioned as devoting particular attention to the spread of phthisis. In Detroit, Denver and Newark, the favorite method of fumigation is with sulphur. St. Louis uses steam, and several other cities use mercuric bichlorid.

Mr. GEORGE J. KINDEL, of Denver, was accorded the privileges of the Association. He is a manufacturer of bedding supplies, mattresses, etc., and dumped on the floor a collection of shoddy rags, not very clean in appearance, which he stated in a vigorous manner was a fair sample of the sort of material put into rag mattresses of the cheaper quality. He thought it was dangerous and quite likely to breed disease. He asked the Association to investigate the manufacture of such bedding, and concluded by saying:

"For years I have earnestly endeavored to bring about reform in the manufacturing of bedding. In the interest of pure and healthy bedding, I, three years ago, visited the health authorities of the cities of Chicago, St. Louis, Cincinnati, Buffalo and New York city. Also those of Liverpool and London, England.

"Near New York city is manufactured to-day, a shoddy (rag) comforter that is sold in every city in the United States. Shoddy (rag) mattresses are manufactured in every city of 100,000 inhabitants. In our beautiful city of Denver, there are two such manufactories, my own, and that of Kent & Stuchfield. It is not by choice, but by compulsion that they are made here. Chicago, Omaha, Lincoln and Wichita ship them in by the carload, hence we must make them or go out of the bedding business, as in this section four-fifths of the bedding is made of this vile stuff.

"In addition to the notice of this subject to the State Board of Health, I have again called the attention of our esteemed Board of Health to this subject, while a member of the grand jury in April, 1894, when I endeavored to indict myself for making this dangerous bed filling. We had these medical officers before us to give expert testimony. They differed widely. Some went so far as to say that there was nothing unhealthy or dangerous about it. Needless to say, the grand jury did nothing, except to make a slight mention in their report to the court about it.

"So long as there is no national law governing the subject, just so long will these goods be manufactured and sold under the innocent title of wool bedding. Every drygoods and house furnishing goods store have these goods on their counters.

"The following extract from a Chicago paper may be read with interest. It furnishes a good example of the old truth that an ounce of prevention is better than a pound of cure. What precautions have we in the matter of the old rags? None, and it is an enemy tenfold greater to the public than the mails could be:

ORIENT MAIL TO BE FUMIGATED.—*Passengers landed from the Galic after being inspected.*—SAN FRANCISCO, Sept. 20.—The steamer *Galic*, which arrived this morning from Hong Kong and Yokohama, did not stop at Honolulu. She brought eleven passengers from Hogo, the worst infected port in the Orient. No sickness was reported on the trip across and no alarm was felt by the ship's officers. Since last advices there has been an increase of the cholera plague in the Oriental ports. During the two weeks preceding the sailing of the ship there has been 6 deaths from cholera in Hong Kong, 51 deaths out of 54 cases at Fagasaki, 256 deaths out of 329 cases at Hogo and 27 cases with 19 deaths at Yokohama. After inspection by members of the Board of Health the passengers and mail was landed, and the steamer returned to quarantine.

The postmaster to-day received instructions from Washington, in response to his suggestion, directing him to fumigate all mails received from infected ports.

The chief of police to-day ordered a house-to-house canvass for the purpose of compelling all citizens to put their houses in the best sanitary condition possible.

I hope you will take up this matter earnestly, and prevent, at least, one source of contagion.

THE MICROSCOPIC DIAGNOSIS OF DIPHTHERIA BY A NEW STAINING METHOD,

was read by Dr. H. C. CROUCH, of Denver, member of the Colorado State Board of Health. The author stated that the diagnosis of diphtheria by the microscopic examination of cover-glass preparations from the membrane is admittedly imperfect. By the ordinary method, we are obliged to rely upon the occurrence in large numbers, or almost pure cultures of bacilli having certain morphologic peculiarities which, however, are not sufficient to distinguish them from other bacilli found in the mouth, if such are present in any quantity. A method which would give a specific stain as with the tubercle bacilli would evidently be of the greatest importance. Such a stain has not yet been found. Fortunately it is not necessary to have a stain so specific as to detect single diphtheria bacillus, for they are invariably present in a certain quantity, if present at all. A method which will detect certain of them with some degree of certainty would be sufficient in most cases, and such a method it seems to me I have found, at least if used with the proper precautions and with sufficient skill. I believe from my experience with a large number of cases that this method will suffice to determine the diagnosis in a very large percentage of cases.

In conclusion, he said, that the diphtheria bacillus as seen in preparations from cultures consist of bacilli of varying sizes, the larger ones particularly presenting characteristic features in the way of club-shaped ends and irregular staining, but all forms showing a tendency to the alteration of deeply and lightly stained portions. In addition to this, and distinct from it, are certain round or oval bodies which may be made apparent by certain methods, the existence of which was brought to our attention by Babes, Neitser, and Ernst. The method pursued by the latter was to stain strongly with hot methylene blue, and follow this with bismarck brown. These bodies would be blue, the rest of the bacillus being brown. I have been investigating the feasibility of employing this peculiarity of the diphtheria bacillus to differentiate it from other bacilli found in the mouth, and with a degree of success beyond expectation. I found, likewise simpler methods of staining, and peculiarities which I believed have escaped attention hitherto. If a fresh serum culture is stained momentarily with a 1 per cent. solution of methyl green, it is often possible to bring out these bodies without further treatment. Treated thus they have the peculiarity of reddish granules in a faintly green bacillus, usually one at each end. By staining with methyl green more strongly and following with methylene blue, bacilli with red dots resembling spores will be seen. These bodies have apparently a peculiar affinity for methyl green, with which they enter into a chemie combination resulting in change of color from green to red. He had consequently employed methyl green for their detection. By adding other colors, the penetration of the methyl green may be increased, and a double stain obtained immediately. I found dahlia most useful, employed in the following proportions: 1 part of 1 per cent. dahlia water, 5 parts 1 per cent. methyl green, and 4 parts water. If either color predominates in the stain too decidedly, the other color is cautiously added until the desired result is tested on the bacilli from which a culture is obtained. The stain works instantaneously, and if too deep the effect is not obtained. In such a case, the cover-glass may be treated quickly with bismarck brown, which replaces the dahlia in the body of the bacillus, leaving the bodies described standing out in contrast. I have tested this method on a large number of cases during the last six or eight months and have never failed to find the result of the culture positive where I found these forms present in the cover-glass examination. In one case where I had diagnosed diphtheria, the first culture was unsuccessful, but the second culture which I had taken, confirmed the diagnosis, which fact, it seemed to me, indicated that the direct examination should always have its place in addition to the culture. These bodies I do not consider to have any connection with spores in spite of their superficial resemblance. They are found in the greatest numbers in young freshly growing cultures, and are much less abundant in older cultures. They may be readily detected in cultures only a few hours old, and thus made use of to confirm a diagnosis earlier than the full development of the culture. That they are not degenerative forms is evident from the same considerations. I am inclined to attribute a nuclear nature to them, and propose the name *nucleoid* bodies. They are evidently connected with the active growth, and are absent in the resting forms, suggesting thus the resemblance with indirect cell division. Being particularly

abundant during the earlier and more rapid growth, they are readily found in the earlier stages of the disease, and from the ease with which they may be brought out, they acquire a very great practical importance in the microscopic diagnosis of diphtheria.

In the discussion that followed, by Drs. Mitchell and Kinyoun, the latter gentleman said among other things, "that all methods are a question of doubt in diagnosis." Other members who discussed the paper and viewed the slides under the microscope were Drs. Swartz-Chapin, Wright, Shrader, Guilbert, Leal and Montgomery.

At 11:45 o'clock the Association adjourned until 2:30 P.M.

SECOND DAY—AFTERNOON SESSION.

The Association convened at 2:30 P.M. with the President in the chair.

The first paper announced to be read was by DR. EDWARD JACKSON, of Colorado Springs on

SUGGESTIONS AS TO OCULAR HYGIENE IN THE SCHOOLS.

Among other statements, the author said, all schemes for the improvement of the ocular conditions of school rooms failed more or less to take into consideration the necessity of teaching children how to use their eyes. The child is not taught to use his eyes, nor is he taught how to avoid eye strain. To accomplish this it is necessary to teach the teachers a few things which they usually do not know. Much of the work done has been merely in showing the defects existing without showing any remedies. Even if it were usual to have examinations made of the eyes of the children, this would not be sufficient. If the teachers do not themselves understand the eye they can not teach its proper use. The eye itself is not a sufficient monitor, as indicated when eyes are habitually used after they are tired. The matter of fair limits of study, and the lighting of rooms should be given careful consideration in every instance. The more light the better, so long as the light is not blinding. The point of determination should be the darkest part of the room. By an arrangement for diffusing and mellowing the brilliant rays, and throwing them into the darker corners, the room can be made satisfactory. The relation of floor space to window space does not by any means furnish the proper standard for determining the proper amount of light. The conclusions arrived at were:

1. The child should be trained in the use of its eyes.
2. The supervision of the work in the school room as to the way in which children use their eyes should be constant.
3. More care is needed in lighting school rooms.

In the discussion, DR. R. H. LEWIS of Raleigh, N. C., said, one trouble was, that the child was permitted to stoop over his desk. He called attention also to the great improvement which the system of vertical writing affords over the old slanting system, which made it impossible for a child to assume a wrong attitude at the desk.

DR. JAMES MADISON WATSON, of Elizabeth, N. J., said--the question under consideration is of the utmost importance, and he hoped that there would be some practicable suggestions for future work. He emphasized the fact that Nature must be aided in this, as in all things. A man walking on a street in a city, gradually learned to see many things at once without appearing to see anything. The child must be trained to see many things at once, but not too many. Most people see too much, consequently they use the eye too much.

DA. H. D. HOLTON, spoke of the trouble and danger arising from constantly changing the focus of the eye of the child in school, looking from the blackboard to the book, and back again frequently. School directors should investigate this matter and provide against such a danger to children's eyes. Distant focus and near focus should be more intermediate when a child has to study simultaneously its book and a blackboard.

DR. A. G. YOUNG stated, that it was more trying to read from the blackboard than from the book, because the range of vision was usually less, the figures were not so plain and the light was often bad. He thought there should be great care exercised in this matter.

DR. S. H. DUROIN inquired of the essayist, if there had been any examination made by an oculist of the children's eyes. He thought there should be an inspection of children in all schools to ascertain their ocular powers, as there is great variety of vision and the same requirements should not be made upon all alike. Teachers should learn the peculiar characteristics of each child and always consider them.

DA. H. M. BRACKEN of Minnaapolis, Minn., considered that

teachers should be taught enough to discover faults in the eyes of pupils and know which ones should be sent to an oculist for closer examination.

DR. JAMES A. STEWART of Baltimore, Md., inquired if a blue board would not be better than a black board--he thought perhaps, black boards are oftentimes too shiny.

DR. JACKSON closed this interesting discussion. He mentioned several methods for teaching children to see quickly and accurately. He stated the fact that the illumination should be centered upon the thing looked at and as little as possible upon other things. It is very difficult to see figures on a black board because of the polished surface. Black board work is also hard on the eyes because of the uncertain amount of reflection of outside light. He had purposely kept the number of points in his paper down to the minimum, thinking it would prove more interesting to do so. As for the examination of children, he thought it an anomaly that they were questioned so closely concerning their former studies and so little concerning their physical powers, their ability to see, hear, and feel. He would not underestimate the advantages of having physical investigation of individual children, for he thought this quite necessary, if not more so than to look after the conditions of all children. He thought it was a mistake which surely only needed to be brought to the attention of school directors. The system in vogue in examining the eyes of railway employees might be introduced in the schools with good effects. Regarding the color of the board he thinks this is of less importance than the reflection of the board. If a board, dead black, with no gloss, is secured, it will not injure the eyes.

The second paper of the afternoon, was

ON THE OUTLOOK FOR A GENERAL SYSTEM OF REGISTRATION OF VITAL STATISTICS IN THE UNITED STATES,

presented by DR. CRESSY L. WILBUR, division of vital statistics, State department, Lansing, Mich. The Doctor began by quoting a prophecy made at the first meeting of the Association twenty years ago by Dr. Elisha Harris, who thought at that time that the United States would have a perfect inter-State system of vital statistics before the end of this century. He took up the points and showed why it was that this prophetic vision had not been realized, and continued by stating that the dependence of accurate registration of vital statistics upon a certain degree of density of population, was illustrated by the experience of this country and Europe. Limits of density of population were suggested below the minor of which accurate registration is practically impossible, and above the major of which such registration naturally goes into effect as an indispensable adjunct of social organization. The condition of the United States as a whole was considered with reference to such limits, and the conclusion reached that the advent of a general system of registration for this country is much more remote than many vital statisticians have supposed. A review of the actual results of State registration in all the States of this country having systems of registration, good, bad and indifferent, was presented for the past fifteen years by means of a table of registered death rates and a diagram. The favorable and unfavorable facts bearing upon general registration were noted, and suggestions made whereby a fairly representative, though partial, return of mortality from a large part of the United States may be obtained until the general advance in populousness will admit of general registration. Among these means are: 1, the promotion of municipal registration, and a fuller utilization of the results of such registration; 2, supporting the work of the United States Weather Bureau of the Department of Agriculture, in its studies of sanitary climatology recently undertaken; 3, extension of the methods employed by Dr. Billings in the compilation and study of the mortality statistics of the eleventh census, together with the establishment of a permanent division of vital statistics as an important part of any proposed permanent census organization; 4, prevention of retrograde action on the part of any States sufficiently advanced in wealth and populousness to support accurate systems of registration. It was further urged that the attention of the boards of commissioners appointed by many States for the purpose of securing greater uniformity of statute laws, be called to the importance of uniform legislation relating to the registration of births and deaths.

There was no discussion on this paper.

DR. CHARLES DENISON introduced a series of resolutions favoring the creation of a National Department of Health, with special reference toward prohibiting the immigration to this country of diseased and otherwise unfit persons, also with power to guard against the introduction of contagious and

infectious diseases, which were, under the rules, referred to the Executive Committee.

Dr. HENRY D. HOLTON moved, duly seconded, that when the Association adjourns on Friday, it does so, to reconvene at Colorado Springs on Monday morning, the 7th inst., at 10 o'clock, for a short session. The motion prevailed.

THE PRESIDENT announced the following gentlemen to constitute the Special Committee in reference to the "International Pollution of Waters Problem," as suggested during the forenoon of Tuesday's session: Dr. P. H. Bryce, Rudolph Hering, Dr. C. O. Probst.

The report of the Auditing Committee upon the Treasurer's annual report was next heard. The report stated that all vouchers for disbursements of funds, and the entire report of the Treasurer was found correct. The report was adopted.

Dr. WILBUR submitted the following resolutions, which were referred to the Executive Committee:

Resolved, That the American Public Health Association cordially commends the action of the Weather Bureau of the United States Department of Agriculture in undertaking the collection of data relating to sanitary climatology.

Resolved, That the American Public Health Association indorses the method first employed in the last United States census, of studying the vital statistics of certain American cities, as registered by local authority, for a series of years, and recommends that such method of treating vital statistics be carried out, so far as may be practicable, by the twelfth United States census for each year of the present decade. Inasmuch as the collection of accurate vital data implies continuous, and not intermittent, action on the part of the central registration authority, it is obvious that a permanent division of vital statistics, as a part of a permanent census bureau, is essential to the proper conduct of this important branch of the decennial census.

Resolved, That a committee be appointed to prepare a draft of a registration law (or to formulate the principles to which a registration law should conform) suitable for adoption by States not having at present an accurate system of registration of births and deaths.

Resolved, That a committee of the American Public Health Association be appointed to present to the boards of commissioners appointed by certain States to promote greater uniformity of statute laws, the importance of uniformity in the methods of registration of births and deaths in the several States of the Union.

The Association then adjourned until 10 o'clock A.M. Thursday.

THIRD DAY—THURSDAY, OCTOBER 3.

The Association did not convene until 11 o'clock owing to the protracted session of the Advisory Council which held nearly a two hours' meeting during the forenoon. PRESIDENT BAILEY presided. The first announcement was a report from the Executive Committee on the resolutions offered by Dr. Wilbur during the preceding afternoon. The Committee recommended that the resolutions be submitted to the Committee on Nomenclature of Diseases and Forms of Statistics, which upon motion duly seconded was so ordered. After a number of announcements by the chairman of the Local Committee of Arrangements, the first paper announced on the program was on

NATIONAL LEGISLATION FOR THE CARE OF THE PUBLIC HEALTH, by Dr. WM. P. MUNN, Commissioner of Health, Denver, Colo., in which he said the failure of Congress to support the National Board of Health which ended its existence some ten or twelve years ago has been a source of deep regret to working sanitarians of the whole country. It seems to be an axiom with our national legislators that cattle and hogs are of infinitely more importance than are human beings. There are, therefore, in existence in this country half a dozen kinds of institutions whose existence depends upon the amount of noise they make about the investigation of diseases of the great American Hog and other animals whose welfare is of much importance from a monetary standpoint, to the agricultural classes. The medical profession has for a number of years been asking Congress, with little apparent prospect of success, to establish a Department of Public Health, which shall give to the interests of human beings at least as much attention as has been bestowed in the past upon farm animals. Congress has practically told the medical profession that the interests of human beings are not of sufficient importance to demand national legislation for their protection. It is apparently futile to demand of Congress a recognition which it is so loath to give. For this reason I have thought of making a proposal of a different nature, which it is hoped

will not arouse antagonism, and being based upon the same general plan as that which has been so uniformly successful in securing recognition for the agricultural element of our nation, will at the same time appeal to the selfish interests of the various Congressmen in making an appropriation for expenditure by the various State authorities and to this extent strengthening certain already existing State institutions, without the State itself being forced into any further expenditure for the purpose. Briefly, the proposition is this: to establish in each State and Territory in connection with each State Board of Health now established, or which may hereafter be established, a State Laboratory of Hygiene which shall be supported by an annual appropriation from the National Congress. The plan is formulated upon the same basis as that upon which was established the agricultural experiment stations in connection with the various agricultural colleges in each State. These experiment stations have been an unqualified success in many of the States, and have been instrumental in arousing an enthusiasm among scientific agriculturists and promoting sensible experimentation among farmers. It is hoped that a similar beneficial influence would be exerted by the establishment in each State of a Laboratory of Hygiene in connection with the State Board of Health. In States where no State Board exists, the fact that the Congressional appropriation might be available would be a sensible stimulus to the enactment of statutes creating a State Board. State Boards having the usual dribbling allowance that is made for their support by the average Legislature, because the doctors composing their membership are not politicians of sufficient influence to secure proper recognition, would be placed upon a firm financial footing and made capable of doing their proper work and wielding their proper influence in their respective communities. The many advantages that would accrue to sanitary science from the coöperation of forty or more laboratories, working by coördinate methods upon similar problems can not be more than hinted at. The vast improvement which would follow in the sanitation of all local communities in the natural course of events should succeed to the positions of local health officers, now only too often held by pot-house politicians, would result in an incalculable saving of human lives.

I submit the proposed bill without further comment:

An Act to establish Laboratories of Hygiene in connection with State Boards of Health existing by law in the several States.

SECTION 1.—Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with public health and to promote scientific investigation and experiment respecting the principles and applications of hygienic science, there shall be established under the direction of the State Boards of Health in each State or Territory established, or which may hereafter be established, a department to be known and designated as a "Laboratory of Hygiene."

SEC. 2.—That it shall be the object and duty of said Laboratories of Hygiene to conduct original researches or verify experiments upon the diseases to which human beings are subject, and methods of prevention of the same; the chemico composition of human and animal substances of various kinds; the production within the animal organism of toxins and antitoxins; the comparative advantage to human beings of residence in certain localities and under certain climatic and meteorologic conditions; the effect upon the health of human beings of varying conditions of soil, atmosphere, altitude, occupation, food, drink, clothing and dwelling places; the scientific and economic questions involved in the study of disease and disease prevention and such other researches and experiments bearing upon the health of human beings as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States and Territories.

SEC. 3.—That in order to secure as far as practicable, uniformity of methods and results in the work of said laboratories, it shall be the duty of the Supervising Surgeon-General of the Marine-Hospital Service to furnish forms, as far as practicable, for the tabulation of the results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important; and in general, to furnish such advice and assistance as will best promote the purpose of this act. It shall be the duty of each of said laboratories annually, on or before the first day of February, to make to the Governor of the State or Territory in which it is located, a full and detailed report of its

operations, including a report of its receipts and expenditures, a copy of which report shall be sent to each of said laboratories, to the said Supervising Surgeon-General of the Marine-Hospital Service and to the Secretary of the Treasury of the United States.

SEC. 4.—That bulletins or reports of progress shall be published at said laboratories at least once every six months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to all public health officers and to such other persons actually interested in matters of public health as may request the same, so far as the means of the laboratories will permit. Such bulletins or reports and the annual reports of said laboratories shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

SEC. 5.—That for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results, as hereinbefore prescribed, the sum of \$15,000 per annum is hereby appropriated to each State, to be especially provided for by Congress in the appropriation from year to year out of money in the Treasury, to be paid in equal quarterly installments, on the first day of January, April, July and October of each year, to the treasurer or other officer duly appointed by each of said State Boards of Health, to receive the same, the first payment to be made on the first day of October, 1897; Provided, however, that out of the first annual appropriation so received by any laboratory, an amount not exceeding one-fifth may be expended in the erection, enlargement or repair of a building or buildings necessary for carrying on the work of said laboratory; and thereafter an amount not exceeding 5 per centum of such annual appropriation may be so expended.

SEC. 6.—That whenever it shall appear to the Secretary of the Treasury, from the annual statement of receipts and expenditures of any of said laboratories, that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such laboratory, in order that the amount of money appropriated to any laboratory shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7.—That nothing in this Act shall be so construed as to impair or modify the legal relations existing between any of the said laboratories or Boards of Health and the government of the States or Territories in which they are respectively located.

SEC. 8.—That in States having Boards of Health entitled under this section to the benefits of this Act, and having also Laboratories of Hygiene established by law, separate from said Boards of Health, such States shall be authorized to apply such benefits to investigations, researches at laboratories so established by such States; and no Legislature shall by contract, express or implied, disable itself from so doing.

SEC. 9.—That the grants of moneys authorized by this Act are made subject to the legislative assent of the several States and Territories to the purposes of said grants; Provided, that payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its Legislature meeting next after the passage of this Act shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

SEC. 10.—Nothing in this Act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all of the States or institutions mentioned in this Act, but Congress may at any time amend, suspend or repeal any or all of the provisions of this Act.

There was no discussion upon the foregoing topic or resolutions.

An abstract of a report by E. B. Weston, C. E., of Providence, R. I., upon "Bacterial Results from Mechanical Filtration," was read by Dr. Gardner T. Swartz. (This paper will be printed in the JOURNAL hereafter.)

The next paper was presented by Dr. S. H. DUROIN,

ON MEDICAL INSPECTION OF SCHOOLS.

The author said: It is my purpose to give a brief statement of how work is done in Boston, and the result of four months work, as the machinery to do this was set in motion Nov. 1, 1894. The statistics given showed that over one thousand cases of contagious and infectious diseases were detected in time to prevent a spread of the contagion by the

medical inspector. The city is divided into fifty school districts, giving an average of about four school houses and 1,400 pupils to each district. One physician was appointed by the Board of Health for each district at a salary of \$200 a year. It is his duty to make a visit to each master of schools daily, soon after the beginning of the morning session. The master receives from each of the teachers in the district, early reports as to the appearance of symptoms of illness in any pupil under their charge. These reports are given to the visiting physician who at once examines the child and makes a record of his diagnosis and action; if the physician finds the child too ill to remain in school, it is sent home for the care of the parents and the family physician. . . . Only favorable reports have been made concerning the operation of the plan. The corps of medical men serve an excellent purpose in the control of contagious disease. The work is generally approved by the medical profession, by school teachers, and the community at large. For \$10,000 a year, the teachers and 70,000 school children have the benefit of well selected medical oversight.

The succeeding paper was a very voluminous one, namely, "Report of the Committee on the Disposal of the Dead," which was read by the Chairman, Dr. Charles O. Probst. It was largely historical, as the committee had taken considerable pains to gather most valuable statistics regarding cremation in this country. The report will be printed in full in this JOURNAL later.

DR. A. WALTER SUITER, of Herkimer, N. Y., followed with a paper, entitled,

ON THE DISPOSAL OF THE DEAD, HAVING SPECIAL REFERENCE TO THE PREVALENT PRACTICE OF EMBALMING.

Herewith is a very brief synopsis, as the paper in its original form will be published in the JOURNAL next month:

"From remotest antiquity to the present time, topics relating to the disposal of dead bodies have been universally interesting. No subject has been more carefully studied from all points of view, and yet it is not inconsistent with facts to state that no material advancement as to methods of preservation or final disposition has been made over those which were practiced more than twenty centuries ago. Indeed, there is a growing belief in the public mind that to return to the custom generally in vogue previous to the Christian era (cremation) would solve many perplexing problems with which sanitarians are not unfamiliar."

The Doctor referred to the customs of mummifying the bodies of Egyptians and the practice of cremation in Greece and Rome. The common custom of burial of the dead he thought obtained originally from the Chinese.

"According to early chronologic records, no branch of art was cultivated in higher degree than that of the embalming of the human corpse. Affection and superstition—always the greatest motive powers of the world—together with the prevalent fanciful ideas associated with death and subsequent everlasting life, all combined to give the greatest prominence to the extraordinary, elaborate and costly methods which were employed in the remote periods of civilization for the preservation of dead bodies in order that they might be kept uninterred."

In regard to the present custom of embalming, the essayist argued that there is too much carelessness shown in doing the work by undertakers, without legal regulation to obviate it. It is the doorway to an enormous and systematic deception—a commercial fraud, in fact, as a comfortable fee is charged for the service.

"To illustrate," said the Doctor, "take the case of General Grant. Extraordinary precautions were taken to preserve the body. The embalming was done in accordance with methods in vogue, but a few days later when the remains reached Albany, the well-known features of the distinguished man were almost unrecognizable."

The danger of embalming as a means of concealing crime by poisoning was referred to, and incidents cited to show that it had been done.

The result of careless embalming, the essayist claimed was not dangerous. "Gallons of poisonous solutions are squirted into bodies indiscriminately, which are in an incredibly short time imbibed by other bodies in cemeteries and are absorbed by contiguous soils and streams and also wells that are fed by subterranean waters which receive the percolations of graveyards filled with bodies thus treated. For example, a recent examination of the waters of Scajagadu Creek, which flows through Forest Lawn Cemetery, Buffalo, were found to be impregnated with considerable quantities of arsenic of this kind used in the prevalent method of embalming."

A law to regulate embalming, the essayist considered imperative.

At 1:30 o'clock the Association adjourned until evening.

THIRD DAY—EVENING SESSION.

The Association reconvened at 8 o'clock in Unity Church, with PRESIDENT BAILEY presiding.

The first paper was read by DR. S. E. SOLLY, of Colorado Springs, Colo.,

ON THE INFLUENCES PECULIAR TO HIGH ALTITUDES UPON SANITARY CONDITIONS.

The paper was a carefully prepared treatise. The author said in part: With diminished barometric pressure we have less pressure upon the body, hence a diminished amount of oxygen. High altitude increases the red corpuscles in the blood. The heart is increased in strength and made larger, and the blood has greater ability to absorb oxygen. The lungs are rendered more powerful to resist germicidal tendencies. There is a more vigorous circulation, hence more violent inflammatory action may supervene, as in acute pneumonia. Better results are attained in anemia, or neurasthenia, or where anemia is a prime factor in a disease, also in chronic germ disease as in tuberculosis. The germicidal power of the blood is strengthened. Typhoid and scarlet fevers and measles are of much milder form than in a lower climate and oftentimes they are unrecognizable. Convalescence is more rapid and complete than at sea level. In elevated climates there is greater increased precipitation. If dizziness supervene, this lessens the temperature upon the body. Sunstrokes as a matter of course are rare. Myalgias and pleurisy are frequent. Dry air, sunlight and sun heat increases nerve tension. Dry air allows the sun to shine with greater brightness, therefore with more vivifying effects. On the other hand, if the physique is depressed, the effects will be as fatal as in lower climates. Horses raised in high regions had been able to endure much fatigue. It was the same with men, who had a larger lung expansion. The dryness improved the action of the skin, liver and bowels in one class of persons, while in another it decreased their action. Disease is less easily acquired in high altitudes. Nevertheless, people living there must observe as proper sanitary precautions as though they lived elsewhere. The author also argued that the amount of hemoglobin in the blood is increased. The chest expansion as is remarked frequently by almost all observers is augmented, and especially are the apices of the lungs of the native born children and old residents better filled with air. Further deductions were to the effect that where there are other deficiencies in the blood, provided that other conditions do not exist, high altitude is a most important factor and influence in the treatment as well as prevention of disease.

DR. HENRY SEWALL, in the discussion said that no such paper should be read without some discussion upon it, as our ignorance of the physiologic condition and vital forces that high altitudes exert upon the human economy is so great. No such field for the study of any similar topic presents itself to my mind as this one of the simple problems of blood pressure, etc. We should all take up the study of this subject, of the effect of high altitudes upon hearts, to study if their area of dullness is increased, also regarding the increased or decreased action of the liver and skin. If there is a decreased action of the skin, the kidneys must reply. He has treated cases, and illustrated his remarks, where the urinary secretion is enormous, and where hyalin, granular and epithelial casts are very common indeed, due, as he stated, where there was no pathologic condition, but attributable to a less active condition of the skin. He thought it was a shame that those who lived in high altitudes did not experiment more upon the effect of high altitude on health. He pleaded for individual observation for researches in this altitude, and an earnest desire for truth. Regarding his personal experience; years ago, before removing to Colorado, a "homeopathic" physician advised him not to do so, as he would die within a week. He came here, however, and was glad to be disappointed.

DR. DOMINGO ORVANANOS, of the city of Mexico, who followed, stated that there was an institution in his city where experiments were made upon the effects of altitude upon disease. The average number of red corpuscles in the blood, in the high altitude of the city of Mexico, were several millions more than in persons who dwell in a low altitude. Consumption in the first and second stages was very easily cured. Pleurisy is not as common in Mexico as it is here. The remainder of his remarks were confined principally to the methods of heating the houses in Mexico.

DR. PETER H. BAYCE spoke at some length regarding the

prevalence of catarrhal troubles and diphtheria which prevails unusually in the central States of the country, and of the large mortality from the latter disease in his province, as well as in certain portions of the United States. In Ireland the mortality of those dying of diphtheria is one-third less than in England. In England, those who succumb to diphtheria are one-half less than in Ontario, hence her record is better than in Canada, while in Ontario the mortality from diphtheria is the same as in the United States. If the methods of heating dwelling houses have anything to do with the prevalence of diphtheria, or of inducing diphtheritic throats and so-called catarrh, wherein is the relation between abnormal dryness and these maladies? He desired to know about the frequency of catarrh said to exist in this climate?

DR. CARL WENDE desired a little more information regarding the presence of hyalin casts in the cases cited by Dr. Sewall.

DR. EDUARDO LICEAGA, of Mexico, stated that the climate of Mexico is divided into three zones. High altitude, which is 2,000 meters above sea level, medium altitude which is below this, and low altitude or sea level. In the latter zone, tubercular disease is very frequent, and microorganisms were readily recognized there. The disease is difficult to cure. In the medium altitude, phthisis prevails to a very much less extent, while at 2,000 meters, or above this, it does not exist at all.

DR. GREGORIO MENDIZABAL, of Orizaba, Vera Cruz, Mexico, briefly stated his observations by calling attention to the influence of humidity in different little towns of the Republic, on the development of phthisis. Dampness also has a great deal to do with development of microorganisms and this disease.

DR. SOLLY concluded by saying: We cry loudly for careful research and the study of facts regarding the influence of high altitudes upon the human system. Physiologists state it as a broad proposition that a high climate is good for thin blooded people. He answered Dr. Bryce by stating that diphtheria was not uncommon on high ground, and when it did exist it was not so contagious as on low ground, but if it became contagious it was likely to be very virulent. The peculiar conditions of the dryness of the upper air passages render them more easy for lodgment of germs, and then disease is more serious in high altitudes, and yet high altitudes are prejudicial to germ diseases. As regards humidity, we know this will induce tubercular difficulties. Cold and dampness combined is also a peculiar element to bring it on. The relative frequency with which phthisis is induced might be studied and compared, in a cold damp climate and a hot damp climate. Catarrhal troubles exist frequently and indiscriminately in different climates.

The next topic announced on the evening's program was the "Report of the Committee on the Abuse of Alcoholic Drinks from a Sanitary Standpoint," and was made by Dr. Felix Formento, Chairman, of New Orleans, La. The subjoined excerpt is herewith presented, as the report *in toto* is a most extensive one:

The crusade against alcoholism is universal, and the question is now being investigated in a most scientific and thorough manner. Physicians, clergymen, statesmen and others have banded themselves together, hoping to eradicate the abuse of alcoholic drinks.

Alcoholism does not apply to taking a glass of pure wine at meals or a glass of pure whisky. The use of beers and wines at meals might be commended—both were valuable because of their nutritive qualities; they helped digestion and invigorated without intoxicating. He defined alcoholism to mean the chronic excessive use of alcoholic drinks. The drunkard should not be confounded with the gentleman who takes his wine at table. The habitual use of strong liquors can not be too strongly condemned.

French brandy, when pure was less injurious than either rum or whisky. In wine-growing countries like Italy, alcoholism was almost unknown. One of the committee, it was related lived six years in Italy, and never in that time saw a really drunken man, but only jolly, good-natured ones. This incident was mentioned in connection with a statement that there is less intoxication in wine-growing countries and districts than in portions of the country where no wines are grown. The worst alcohol is the potato article, which contains the deadly fusel oil. In America many of the distinguished men of the country are addicted to the use of alcohol, and it seemed to be the national vice. This is the only country in the world where the people high and low drink standing, without eating, and without being thirsty.

Alcoholism is one of the potent factors in crime, suicide and poverty. It peoples the hospitals; it is responsible for cripples, epileptics, and while it exists mostly among the

poorer classes, the wealthy and intellectual do not escape. Many of the brightest statesmen, scholars, and professional men are addicted to the habit. Much of the disease caused by alcoholism is really due to adulterations. For years France did not produce any real wine because of a disease of the vine. Then toxic alcohol was introduced and was converted into numerous liquors deadly to life. Afterward alcoholic diseases increased.

Reference was made to the almost countless saloons throughout the country of both low and high degree—the grog shop and the drinking palace. Attention was called to the growing habit of social drinking; this the reporter decried as much of the intoxication of the country was attributed to it. Beside this, the habit has extended into the home circle, and many fashionable women do not now consider it out of the way to take their regular whisky punch or cocktail. The establishment of American saloons in London and other continental cities was due to the growth of the drinking custom and American travel abroad.

Alcoholism, it was maintained, is responsible for more deaths and diseases than anything else.

In concluding, the report urged that the United States government have charge of all alcohol in every branch of its manufacture. An increased tax on all liquors was urged. Increase the penalties for adulterations, remove the tax on beer, wine and coffee. Total prohibition in communities composed of vicious classes, high license to diminish the number of bar-rooms and cause better liquors to be sold; enforce a strict sanitary inspection of all drinks sold over the bar, promote the culture of grapes, double the penalty for selling to minors, heavy fines for drunkards, and that habitual drunkards or drunken men should be sent to jail, and that when sent to jail they should not be allowed to lie idle but be required to work. The condition of the workingman should be improved. Eating houses should be established, although the American cuisine is inferior to what it should be—not because of lack of products, but because the people do not know how to prepare a meal or how to eat it. To this end cooking schools should be established. The use of black coffee was recommended in greater quantities, for it is a fact, in the great coffee consuming countries, like Turkey, intoxication is unknown. The concluding paper was an essay entitled "Degenerative Heredity, or some Degenerative Influences of Modern Civilization on Health," by Dr. Charles Denison, of Denver. The following is a carefully prepared abstract:

The discussion of this question was divided in five propositions.

First, the advance in the healing art, in so far as the saving and prolongation of life is concerned, suspends the law of natural selection and permits the weak to propagate their kind.

The tendency to or aptitude for tuberculosis in the offspring was the main point dwelt upon. The doubling of diseased tendencies in the progeny of those consumptively inclined was emphasized as a result of the intermarriage of certain classes. Analogies were noted in the high-breeding and in-breeding of cattle, and the results were given which explain the remarkable prevalence of tuberculosis in all the highest bred herds. The conclusions were given, going to show that high-breeding is synonymous with in-breeding and this surely leads to scrofula which in turn is a sign of or surely leads to tuberculosis. Illustrations of similar effects were given in the human family, and the resulting decadence or degeneration in the highest grades of aristocracy and plutocracy were explained.

As to the disease consumption, "with all our splendid climatic and other advantages arrest is not the eradication of the disease; on the contrary, the total of hereditary influence is necessarily increased because more affected persons survive. . . . The vicious seed is not destroyed but preserved to be again mixed with the good . . . and it becomes a serious problem how a community like that in Colorado, largely made up of recovered invalids, will be governed in future, that a normal state of health may be assured to her inhabitants."

Second Proposition.—The present civilization stimulates the intellectual and nervous system to such an extreme as to injure the physical (reproductive) powers and favor sterility.

The results of the strivings to excel both in the social and intellectual world are given in the working out of a law of decadence of the race—a failure at the top which has to be made good from the lower orders or there would be an extinction of the race. "This all serves to confirm the statement of Royce in 'A Study of Genius' that 'mental exertion actually restricts the reproductive energy.'"

"This tendency to degeneration and to consequent race extinction among those classes devoted to advanced intellectual pursuits, is by no means a peculiarity of sex. That women are not exceptions to the rule is shown by the remarkable paucity of healthy living children born of members of high class women's debating clubs, as well as of authoresses, lecturers and female physicians."

Third Proposition.—The social, commercial and manufacturing phases of our civilization favor indoor and effeminate modes of life which are detrimental to successful development, and inheritance propagates the depreciated life force.

Statistics were appealed to in support of this proposition. The large proportion of our people devoted to what may be classed as indoor occupations is shown by the census report of 1890, where what may be called the outdoor occupations, i.e., agriculture, fisheries and mining, are represented by about 9,000,000 souls, and "professional service, domestic and personal service, trade and transportation, manufacturing and mechanical industries all together by about 13,700,000."

Fourth Proposition.—The independence and self-supporting of women in clerical positions removes from the probability if not the possibility of successful motherhood, a considerable portion of the so-called gentler sex, through the resulting great decrease in matrimony and the exhaustion of the vital powers of women in nerve taxing occupations. Among other facts presented in support of this proposition, was the increase in the females represented in various occupations as shown by a comparison of the census of 1890 with that of 1880. One item of which comparison—that of "Trade and Transportation"—showed an increase of males so employed of 71 per cent. and of females 263 per cent.

Fifth Proposition.—The present unaided efforts of natural selection should be supplemented by warning the young before matrimony; the masses ought to be educated physiologically that the laws of heredity may be understood, that physical development and mental strength may be appreciated, and the responsibilities of parentage recognized. The State and the nation have a duty to perform. The literature extant, and that needed to instruct young people in the choice of their mates in life was here discussed, and a rule for choice of partners to avoid consumptive offspring, original with the author, was presented based upon a combination of main factors: 1, the percentage of a party's parents, uncles, and aunt's children who had survived the age of five years; 2, the inheritance of the party to consumption, cancer or scrofula; 3, the party's own health; and, 4, the doubling of bad strains by the intermarriage of those with like defects.

"Considering that the object of matrimony is the begetting of children, it would be a good thing for the State to legally recognize that it is as much a sin for an invalid in advanced consumption to marry, as it is for a leper or an insane person. As for two tubercular or scrofulous persons marrying each other, it ought to be prevented by law if possible; otherwise it ought to be understood that such tainted unions are not for the purpose of progeny. Since the law is not allowed to interfere and help solve this problem, the only recourse is education. With us Americans this is the saving grace from the universal law of degeneracy. The lower strata are constantly made capable and worthy to take the places made vacant by degeneracy in the upper. To give character, mental force and healthy bodies, fit for the propagation of a truly noble race, a change in our system of education is needed." The introduction of physical training is needed and the regular superintendence of the physical condition and habits of scholars, also the introduction of science teaching, the teaching of physiology and anatomy, and finally, in seminaries and colleges, direction should be given to all this previous acquirement by books purposely written for both young men and women, to enable them to understand the whys and wherefores of the correct mating of the sexes.

Owing to the inclemency of the weather and late hour, the foregoing report and address were but briefly discussed.

Dr. J. M. WATSON did not favor the committee's report on alcohol and much else that was therein contained. There are two points in Dr. Denison's address regarding heredity and conception that he thought we all concurred in, but it was too late to discuss either of them.

Dr. W. L. SCHENCK, of Colorado, did not support the views advanced by Dr. Formento in his report. He denied that Americans were a nation of drunkards. The names of the breweries and on the liquor stores in cities showed that foreigners kept them.

(To be concluded.)

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, OCTOBER 19, 1895.

ANATOMIC CAUSES OF THE DISTURBANCES OF
COMPENSATION IN VALVULAR HEART
LESIONS.

The causes which lead to death on account of the disturbance of compensation in valvular heart disease are not yet thoroughly understood. AUERBACH¹ concluded that muscular hypertrophy is not accompanied with a proportional increase in the blood vessels so that the muscular fibers undergo retrogressive changes on account of a lack of nutrition. FRIEDREICH² assumed that hypertrophic muscular fibers so compress the capillaries during contraction as to hinder their own nourishment. NOTHNAGEL³ believed that these assumptions in regard to the skeletal muscles could both be applied as to the heart. There are, however, no anatomic demonstrations of the truth of AUERBACH's theory and the investigations of LUDWIG⁴ have shown that the capillaries dilate during muscular contraction so that the muscle is then hyperemic rather than anemic.

The causes of disturbance of compensation in aortic lesions are fairly well understood. In most cases the lesions of the aortic orifice develop in consequence of an atheromatous process which spreads from the aorta into the semilunar valves. Sooner or later the coronary arteries become involved in the same process and these changes in the intramyocardial vessels lead to obliteration of smaller arteries and a consecutive degenerative atrophy of the muscular elements and hyperplasia of the connective tissue. The progressive disappearance of muscle fibers naturally leads to a diminution in the contractility of the cardiac muscle which finally becomes unable to longer maintain the equilibrium of the circulation and asystole appears.

¹ Banti, *Centralblatt f. Allg., Path. Anat.* vi B. No. 14 and 15. ² Banti, *loc cit.* ³ Banti, *loc cit.* ⁴ Banti, *loc cit.*

The morbid anatomic process in the myocardium is consequently a cirrhosis and in view of its origin this may be said to be arterial.

The mechanism of disturbances of the compensation in the cases of mitral lesions differs from that just outlined as regards the aortic valves. The mitral lesions are oftener the result of an infectious endocarditis, the duration of the disease is usually shorter, and the compensation is hardly ever as complete as in the case of aortic disease, and disturbances in the compensation develop more readily and earlier. BANTI (*Centralblatt für Pathologische Anatomie und Allgemeine Pathologie*, Band vi, No. 14-15) has made the following interesting observations concerning the cause of the broken compensation in mitral valve lesions: when death occurred during the period of efficient compensation and was due to some intercurrent disease, BANTI found a pure hypertrophy of the heart muscle without any demonstrable microscopic lesions. When death supervened on account of embolism or the like, during an early attack of asystole, he found a marked dilatation of the coronary veins and their subepicardial branches which were filled with blood. Microscopically, the same changes were found in the intramyocardial venous branches, as well as in the capillary network that surrounds the individual muscle fibers. The intermuscular septa of fibrous tissue seemed to be made up of fibers that were separated from each other by a finely granular substance which was cleared up by acetic acid or potassic hydrate. In muscle cells there would be spherical or irregular vacuoles which contained a transparent substance that did not stain with osmic acid. These changes demonstrate conclusively a stasis in the coronary veins and an edema of the intermuscular connective tissue and the muscular fibers.

In cases that died after a condition of continuous asystole, or cardiac cachexia, BANTI found a constant dilatation of the coronary vein which occasionally was very marked. The opening into the right auricle would be very large and the *valvula thebesii* would form a semilunar fold that surrounded only a small portion of the orifice. The walls of the veins and of its subepicardial branches would be stiff, thick and whitish, resembling more the walls of arteries than of veins. Microscopically, this condition was found to be due to a sclerosis. Sometimes the muscular cells of the media would be entirely absent on account of the invasion of connective tissue. Surrounding the veins would be a ring of fibrous tissue of varying thickness. The intramyocardial veins would also be thickened and dilated. The intermuscular septa would consist of firm, coarse, broad, connective tissue bundles. Within the muscle bundles there would be dilatation of the capillaries and the individual fibers would be inclosed in a connective tissue ring. Thick connective tissue strands would pass out from the vein walls

and invade the adjacent muscle bundles. The arteries were, in the main, free from any changes.

The muscle fibers themselves showed extensive retrogressive changes, being at times the seat of a simple atrophy, at other times vacuolated or fatty. In some of the connective tissue masses the muscular tissue had disappeared completely, leaving sometimes heaps of pigment behind. In some places one could find zones of hyalin necrosis in the myocardium adjacent to markedly dilated veins. These changes were not evenly distributed, being most marked in the walls of the ventricles, less in the interventricular septum and still less marked in the auricles. The intensity of these changes was greatest in those individuals who had suffered from repeated attacks of asystole and in whom the final condition of cardiac weakness had lasted the longest.

It is quite clear that such changes belong to the cirrheses and that the point of origin was in the venous walls. The morbid changes described can consequently be included under the name of venous cirrheses in contradistinction to the arterial cirrheses which develop in connection with lesions at the aortic valves.

How can the genesis of this venous cirrhosis be explained? The right ventricle has not sufficient reserve power and in consequence early attacks of asystole develop in mitral disease. During such an attack the circulation of the blood in the veins is hindered. The venæ cavæ can not empty themselves readily; stasis in the liver and kidneys, and edema come on. In addition to the caval veins, the coronary and small accessory coronary veins also empty into the right auricle and the coronary veins therefore meet with the same difficulties as the caval under these conditions and, consequently, a stasis develops in the myocardium as well as in the liver, kidneys and elsewhere. The anatomic changes found in the myocardium show this inference to be correct. Repeated stasis results in retrogressive changes in the muscle fibers and these lesions enfeeble contractility and renewed disturbances of compensation occur after slighter provocation. Finally, hyperplasia of the connective tissue ensues and the heart muscle at last is no longer able to perform its functions. There arises a *circulus vitiosus*, inasmuch as the lessened contractility increases the stasis in the changed heart muscle which on its side diminishes the power of contraction.

BANTI considers, as will have been observed, the mitral lesions as due to endocarditis, and the aortic lesions as due to atheroma. This is undoubtedly true in the majority of cases, but it can not be denied that there are aortic lesions of inflammatory nature, and mitral of atheromatous, and the myocardial changes that cause disturbances of compensation in such cases he does not attempt to discuss.

The essential outcome of BANTI's investigation may be stated in this way,—that in aortic valvular lesions, due to an atheromatous process, the principal cause of the final disturbance of compensation is an arterial sclerosis of the myocardium, while in mitral lesions, due to endocarditis, compensation is disturbed and at last destroyed on account of a myocardial sclerosis of venous origin.

POPULATION AND LONGEVITY.

Some years ago, a prominent medical writer published an account of an ideal "City of Health," an assumedly impossible municipality in which all preventable causes of disease were avoided, and the death rate lowered to two or three in the thousand by faultless construction and organization and absolutely perfect sanitation. The article was widely quoted in the lay and medical press, and everywhere with approval, until a mathematician or an actuary ventured to figure on the possibilities and demonstrated that with such a death rate without a corresponding reduction in births, there would not, in a relatively very few years, be standing room for the population in such a community.

Man is a very prolific animal and the procreative instinct is one of the strongest in our nature; certainly this is so with what has been called in continental Europe, the proletariat, a class that includes mainly the improvident poor, and therefore a large proportion of the population of the great cities in this country, as well as abroad. Prudential considerations have little weight with this class of individuals, and were the death rate low and longevity the rule, the inconveniences of over-population would soon be manifest. As it is, the urban tendencies of this class and the consequent degeneracy (which properly signifies any tendency to race decay), may possibly save us from having to meet with the Malthusian problem in a severely practical form.

If the average of human life were 100 years, as it has been claimed it should be, and were perfect sanitation and the reign of universal peace, the ideal of philanthropists, to be realized, the near future would show an inconveniently over-populated world, unless some providential dispensation stepped in to give us elbow room or some social regulation were adopted, such as raising the marriageable age, ruling out all but the physically, morally and mentally best fitted from the privilege of procreation, or some other similar device. It is doubtful whether mankind would be any happier under such conditions, but they would be found indispensable in the social Utopias such as that of BELLAMY, were these ever realized. The rock of population is the one on which, as MR. BENJAMIN KIDD in "Social Evolution" says, all these social systems split; it is the problem of which their authors take no account. Over-population would work

its own cure through intensified human misery and degeneracy; possibly, as has repeatedly happened with the lower animals in localities, with the more or less complete extinction of the species.

While, however, one can thus even say a good word for human degeneracy, as perhaps on the whole a safety valve for populations collectively, it is individually an evil, and one that needs to be vigorously met. Man can not control evolution, and so far as he can be effective, he must use his efforts to combat obvious evils, and leave general results to work out themselves. There is therefore no excuse for lowering our sanitary ideals. The problems here suggested are not for immediate solution, and matters can be very much improved before unusual longevity and general perfection in health conditions render them at all practical. But they are perhaps worth considering, if it is only to temper a little our hygienic air castles and as a sort of consolation for our unavoidable sanitary failures.

"DRUGS MANY: REMEDIES FEW."

The current issue of *New Remedies* quotes this caption from the *Hospital* as being a succinct summary of the present pharmaceutic situation. Since 1880, "while two hundred remedies have been introduced, probably not more than twenty are in daily use." Twenty years ago the words "new remedies," designated botanic products introduced as newly discovered agents of extraordinary therapeutic value. Ten years later, synthetic chemistry, beginning with antipyrin (the first notable success) usurped the title. And now bacteriology is fast pushing the autocrat of the last decade into retirement.

If present activity in, and enthusiasm over, serums, antitoxins and extracts continue, and are justified by results, we may have to discard all our old *materia medica* before the end of this century. But on this point the *New Remedies* is not sanguine, its sympathies being somewhat closely identified with the products of the manufacturing chemist, although free to admit that these interests have been hurtfully overdone.

The therapeutic pendulum has swung, first away from botany, next away from chemistry and presently, it is predicted, the swing will be away from bacteriology. We note, in the foreign letter of the *American Practitioner* the following intimation, that our German confrères are disposed to swing back to botany.

"An important step is about to be taken by the Berlin Pharmaceutical Society, for the purpose of extending the world's knowledge of poisonous and healing plants. A central office is to be established for collecting and publishing reports from every quarter of the globe on the botanic, chemic, and pharmacologic discoveries in plants of a healing or poisonous nature. The Berlin Society does not intend merely

to collect unknown facts, but hopes to encourage further inquiries in a field which has not yet been fully explored."

For the present, however, the German bacteriologists are said to be so fully occupied with their respective original researches, that they have no time or patience to expend upon students from abroad. Some ambitious students from this country have returned, not without disappointment at the scant attention they were able to obtain at some of the foreign laboratories, chiefly for the reason that the teachers are, for the time being, preoccupied with their own special investigations.

GENUINE DIPHTHERIA OF THE SKIN.

A few cases of genuine diphtheria of the skin have been described, in which the diagnosis rests upon the cultural and microscopic demonstration of LÖFFLER'S bacilli. BRUNNER¹ describes four cases of this unusual infection of the skin upon the fingers; NEISSER² found diphtheria bacilli in a membranous deposit near the anus; TREITEL³ in an excoriated area near the external ear; VUCETIC⁴ describes an extensive diphtheria of the skin of the neck in which the bacilli were demonstrated microscopically but not in cultures. FEER,⁵ ESCHERICH⁶ and TOWNSEND⁷ describe genuine diphtheria of tracheotomy wounds. PARK⁸ has recorded two cases of genuine diphtheria in finger wounds in physicians, the infection following tracheotomies, and WRIGHT⁹ details seven instances of diphtheric infection in excoriations and exulcerations of the skin as, for instance, in connection with paronychia and mastoid abscess. ABEL¹⁰ has also described diphtheria in a wound of the finger.

In addition to these cases of wound diphtheria of the fingers, recorded by BRUNNER, PARK and ABEL, a new case is added by ZAUFAL (*Prager medicinische Wochenschrift*, 1895). This case occurred in a child, 4½ years old, with fatal laryngeal and pharyngeal diphtheria. He succeeded in demonstrating in the microscopic sections, as well as in cultures, that LÖFFLER'S bacillus was present in an infiltration, 1 cm. square in size, situated upon the ulnar margin of the first phalanx of the right index finger. The center of this area was ulcerated and covered with a fibrinous deposit. The cultures of diphtheria bacilli obtained possessed a considerable degree of virulence as 1 ccm. of a two days' old bouillon culture killed a guinea pig, 300 grams in weight, forty hours after intraperitoneal injection. In addition to the diphtheria bacilli, the yellow pus coccus was isolated from the infiltration in the skin of the finger, and ZAUFAL regards the case as an instance of genuine wound

¹ Cited by Escherich, *Etiologie und Pathogenese der epidermischen Diphtherie*, Wien, 1894, I. ² Escherich, loc. cit. ³ Escherich, loc. cit. ⁴ *Allg. Wr. Medic. Zeitg.*, xxxix, No. 50. ⁵ Escherich, loc. cit. ⁶ loc. cit. ⁷ Welch, *Bact. Investig. of Diphtheria in the United States*, Am. Jour. of Medical Sciences, October, 1894. ⁸ Welch, loc. cit. ⁹ Welch, loc. cit. ¹⁰ Escherich, loc. cit.

diphtheria which was engrafted upon a scratch in the skin that had been infected with the staphylococcus pyogenes aureus.

MAJOR A. C. GIRARD.

MAJOR A. C. GIRARD, U. S. Army, who has been stationed at Fort Sheridan, Chicago, for the past four years, has been ordered to Fort Douglass, Salt Lake City, Utah. MAJOR GIRARD was given a farewell reception and a dinner by Dr. F. B. TURCK and some of his medical friends in the city, who view his departure with regret.

The occasional contributions of MAJOR GIRARD which have appeared in these columns, not less than the one in this issue of the JOURNAL show him to be an accomplished surgeon, and one no less gifted with the pencil than the pen. Few of our profession are able to so skillfully illustrate their own articles.

The medical profession of Salt Lake will receive a notable addition to their ranks in the person of MAJOR GIRARD.

CORRESPONDENCE.

Association of American Medical Colleges.

CHICAGO, Oct. 9, 1895.

To the Editor:—The decision of the Judicial Council is asked upon the following propositions:

1. Is there any rule to prevent colleges, members of the Association, from admitting students in September, 1895, and allowing them to graduate, after taking three full courses of lectures, ending in 1898?

2. If such rule exists and is enforced, what will be done to those colleges, members of the Association, who violate the rules? Shall recognition be refused to diplomas issued to students in 1898 because they began the study of medicine in 1895?

3. Students A and B matriculate in 1895. A graduates in 1898; B in 1899. Are the two on equal footing according to the rules of the Association?

DECISION.

1. It is the judgment of the Council that there is no rule of the College Association preventing any of the members matriculating students in September, 1895, and allowing them to graduate after taking three full courses of lectures of six months each, in three separate years, ending in 1898.

2. The Council is now prepared to decide what should be done with colleges which violate any of the rules of the Association.

3. It is the judgment of the Council that A and B must be recognized as of equal respectability. Because the progressive advancement in methods of teaching, *pari passu* with the increasing demands for more lengthened collegiate instruction, must have a definitely stated date of beginning, and can not be made retroactive. If this rule could be made *ex post facto*, all the elder members of the profession might be rated as of inferior standing to those gentlemen who now graduate under our graded system of instruction, and are required to have attended more terms, and for a longer period of time than was formerly exacted.

Signed by,

DUDLEY S. REYNOLDS,
JULIAN J. CHINOLM,
STARLING LOVING,
JAMES H. ETHERIDGE,
ALBERT R. BAKER,
VICTOR C. VAUGHAN.

Attest: LILLIE B. BALDWIN, Clerk.

BAYARD HOLMER, Secretary.

Did Not Boom an Irregular Device.

CHAMBERSBURG, PA., Oct. 7, 1895.

To the Editor:—I send you by this mail, a reprint of my article on "Electricity," not so much on account of any merit it may possess, but to demonstrate to you how little your reporter understood what I was talking about when he wrote you the report of the proceedings of our State Society. He must have been a very serious man to fail to see that I was poking fun at "Electropoise," and write you that I said that *argon* was what was driven into the system, etc.

Look at the report, and then at the latter part of my article, and determine whether I was too ponderous at my fun, or he too dull of comprehension.

No serious harm has been done—the "Electropoise" men have not yet thanked me for my ad. through your JOURNAL, nor yet have they "gone for me" for my temerity in handling their pet instrument.

Very truly yours,

GEO. S. HULL, M.D.

ASSOCIATION NEWS.

Section on Ophthalmology.—Report of the Secretary.

Place of meeting, gentlemen's reception room, Music Hall. Meeting called to order at 3:30 p.m., by the chairman, Edward Jackson, of Philadelphia, Pa., who delivered the Annual Address, "The Strength of the Different Mydriatics and Myoptics." At the close of the address a resolution was passed limiting time for reading of papers to ten minutes and discussion to five minutes for each speaker. A. R. Baker, of Cleveland, Ohio, read a paper on "Incipient Cataract," followed by J. E. Weeks, of New York, with "The Operative Treatment of Immature and Some Forms of Zonular Cataract."

The discussion on these papers was opened by Geo. E. Frothingham, of Detroit, Mich., followed by Herman Knapp, of New York; Joseph A. White, of Richmond; J. L. Thompson, of Indianapolis; Jas. A. Lydston, of Chicago; F. C. Hotz, of Chicago; S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Dudley S. Reynolds, of Louisville. Discussion was closed by J. E. Weeks, of New York.

The first of the papers on "Operations About the Eye" was read by M. W. Zimmermann, of Philadelphia, Pa.; on "Practical Points on Anesthesia for Operations about the Eye," Dr. Tyree, of Kansas City, and Eugene Smith, of Detroit, being absent, the next paper of the series was read by W. B. Johnson, of Paterson, N.J., on "Transplantation of Skin in Plastic Operations on the Eyelids." He was followed by F. C. Hotz, of Chicago, on "Skin Grafting in Ectropion and Entropion." The next paper was by Herman Knapp, of New York, on "Transplantation of a Strip of Skin into the Intermarginal Space of the Lids." The last of the series was by Herbert Harlan, of Baltimore, Md., on "Some Cases of Restoration of Eyelids with Exhibition of Patients." The discussion was opened by R. A. Reeve, of Toronto, followed by H. V. Würdemann, of Milwaukee; D. S. Reynolds, of Louisville; E. J. Bernstein, of Baltimore; Lucien Howe, of Buffalo; J. P. Worrell, of Terre Haute; P. D. Keyser, of Philadelphia; S. D. Risley, of Philadelphia; G. C. Savage, of Nashville; Frank Allport, of Minneapolis; Hiram Woods, of Baltimore; Herman Knapp, of New York, and M. W. Zimmermann, of Philadelphia. In the course of the discussion, patients were exhibited by Herbert Harlan and E. J. Bernstein.

WEDNESDAY, MAY 8—MORNING SESSION.

Meeting called to order at 9:10 a.m. By request the Chairman called for the report of the Committee on Legislation for the Prevention of Blindness which was presented

by the Chairman, Lucien Howe, of Buffalo, N.Y. On motion by Leartus Connor, seconded by H. M. Starkey, the thanks of the Section were tendered and the committee extended. L. Webster Fox read a paper on "Evisceration of the Eyeball," upon which the discussion was opened by S. D. Risley, of Philadelphia; followed by G. Oram Ring, of Philadelphia; F. C. Hotz, of Chicago; E. Oliver Belt, of Washington; H. Gifford, of Omaha; L. J. Lautenbach, of Philadelphia; R. C. Hodges, of Houston, and discussion closed by L. Webster Fox, of Philadelphia.

The next paper was by Geo. E. de Schweinitz, of Philadelphia, Pa., on "Histologic and Bacteriologic Notes on Some Cases of Penetrating Wounds of the Eyeball with Experimental Observations on Certain Bacilli found in a Case of Post-Suppurative Panophthalmitis," discussion of which was opened by R. L. Randall, of Baltimore, followed by Harold Gifford, of Omaha.

The next paper was by Harry Friedenwald, of Baltimore, on "Hemorrhage into the Retina and Vitreous in young Persons, Associated with Evident Disease of the Retinal Blood Vessels—Remarks on the Formation of Vessels in the Vitreous in a Case of Immigrating Subhyaloid Hemorrhage"; followed by E. Oliver Belt, of Washington, D.C., on the "Prognostic Significance of Albuminuric Retinitis," and by J. T. Carpenter Jr., of Philadelphia, Pa., on "Extensive Colloid Changes in the Choroid with Report of Cases." Discussion opened by Geo. E. de Schweinitz, of Philadelphia; B. Alexander Randall, of Philadelphia; Harold Gifford, of Omaha; Herman Knapp, of New York, and J. T. Carpenter Jr., of Philadelphia.

WEDNESDAY, MAY 8—AFTERNOON SESSION.

Called to order at 3 P.M. The Nominating Committee reported as follows: for President, Lucien Howe, of Buffalo; for Secretary, Frank Allport, of Minneapolis. Upon motion of J. H. Thompson, seconded by G. C. Savage, it was resolved that the report of committee be accepted and the Secretary was instructed to cast the ballot electing the above-named officers. A series of papers then followed upon the "Ocular Muscles," the first of which was by Leartus Connor, of Detroit, Mich., "The Technique of Tenotomy of the Ocular Muscles"; Samuel Theobald, of Baltimore, Md., "The Slight Effects Sometimes Produced as the Results of Free Tenotomies of the Ocular Muscles for Heterophoria"; H. F. Hansell, of Philadelphia, Pa., "The Limitations of Tenotomies of the Ocular Muscles"; C. H. Thomas, of Philadelphia, Pa., "Tendon Advancement with a Special Indication for its Employment"; G. C. Savage, of Nashville, Tenn., "The Indications for Advantages and Technique of Muscle Shortening." Geo. T. Stevens, of New York, opened the discussion by reading a carefully prepared paper followed by S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Samuel Theobald, of Baltimore; Herman Knapp, of New York; F. C. Hotz, of Chicago; G. Hermon Thomas, of Philadelphia; G. Edgar Dean, of Scranton; Frank Allport, of Minneapolis; Leartus Connor, of Detroit; G. C. Savage, of Nashville; G. T. Stevens, of New York. C. M. Hobby being absent, the next papers were by Hiram Woods, of Baltimore, "To What Extent Should Recently Suggested Methods of Muscular Exercise Displace Tenotomy in the Treatment of Heterophoria." J. W. Park, of Harrisburg, Pa., on "Practical Points Gained in the Treatment of 1,000 Cases of Insufficiency of the Ocular Muscles"; E. J. Bernstein, of Baltimore, Md., "Some Remarks on Paralysis of the Superior Rectus Muscle"; followed by G. M. Gould, of Philadelphia, Pa., on "Some Findings Concerning Muscle Imbalance and its Treatment." The discussion was opened by Leartus Connor, of Detroit; followed by G. C. Savage, of Nashville; G. H. Price, of Nashville; Geo. S. Hull, of Chambersburg; R. A. Reeve, of Toronto; G. Edgar Dean, of Scranton; Hiram Woods, of Baltimore; J. W. Park, of Harrisburg, and E. J. Bernstein, of Baltimore. Henry Gradle, of Chicago, was absent but his paper on "Hysterical Insufficiency of Convergence," being in the hands of the Secretary was read by title.

THURSDAY, MAY 9—MORNING SESSION.

Meeting called to order at 9:15 A.M. The first paper read was by J. A. Lydston, of Chicago, Ill., "The Relationship Between the Eye and Brain." Next paper was by S. C. Ayres, of Cincinnati, Ohio, on "Lymphangioepithelioma Cavernosum of the Orbit." Dr. Ayres being absent, and his paper in the hands of the Secretary, it was read by title. P. D. Keyser and C. A. Oliver being absent, a paper by Flavel B. Tiffany, of Kansas City, Mo., on "Ectopia Lentis," was read. This was discussed by J. L. Thompson, of Indianapolis; A. R. Baker, of Cleveland; Harold Gifford, of Omaha; F. C. Hotz,

of Chicago; B. A. Randall, of Philadelphia; Herbert Harlan, of Baltimore; S. L. Ziegler, of Philadelphia; J. A. Lydston, of Chicago; R. C. Hodges, of Houston, and closed by Flavel B. Tiffany, of Kansas City.

P. D. Keyser, of Philadelphia, Pa., then read a paper on "A Case of Enchondroma of the Cartilage of the Upper Lid," which was discussed by F. C. Hotz, of Chicago; J. L. Thompson, of Indianapolis; S. L. Ziegler, of Philadelphia, and closed by P. D. Keyser.

The paper of W. H. Wilder, of Chicago, on "Formalin as a Preservative Agent for Eye Specimens," was, in the absence of the author, read by title. Dr. F. C. Hotz exhibited the specimens, and made explanatory remarks. He was followed by H. V. Würdemann, of Milwaukee; H. M. Starkey, of Chicago; E. J. Bernstein, of Baltimore, and Geo. E. de Schweinitz, of Philadelphia.

The next paper was by H. V. Würdemann, of Milwaukee, on "The Infiltration Method of Anesthesia in Ophthalmic Practice," with demonstration. This was discussed by Gilbert E. Seaman, of Milwaukee; Geo. E. de Schweinitz, of Philadelphia; G. Edgar Dean, of Scranton; J. C. Dunlevy, of Sioux City; Flavel B. Tiffany, of Kansas City; A. C. Corr, of Carlinville, Ill., and closed by H. V. Würdemann. The technique of the injection was shown upon the arm of one of the ophthalmologists present, and a patient was introduced by Harry Friedenwald, of Baltimore, with sebaceous cysts on the forehead who was operated on under anesthesia by this method for purpose of demonstration.

THURSDAY, MAY 9—AFTERNOON SESSION.

Meeting called to order at 3:15 P.M. B. Alex. Randall, of Philadelphia, presented the report of the Committee on the Examination and Care of the Eyes during School Life. After reading the report, Dr. Randall read a paper on "The Importance of Noting Slight Choroiditic Changes, especially Conus." These were discussed by P. A. Callan, of New York; S. D. Risley, of Philadelphia; A. J. Erwin, of Mansfield; Frank Allport, of Minneapolis; Frank Fisher, of Philadelphia; R. A. Reeve, of Toronto; Dunbar Roy, of Atlanta; G. H. Price, of Nashville; Lucien Howe, of Buffalo; L. B. Ryan, of Galesburg; Leartus Connor, of Detroit; G. Edgar Dean, of Scranton; J. L. Thompson, of Indianapolis, and closed by B. Alex. Randall.

Dr. Mittendorf being absent, the next paper was read by H. Bert Ellis, of Los Angeles, Cal., "A Study of the Refraction of 1,000 Eyes." Dr. Southard, of San Francisco, being absent, this was followed by S. D. Risley, of Philadelphia, on "The Percentage of Symmetrical and Asymmetrical Meridians of the Cornea in Astigmatic Eyes." Dr. H. M. Starkey followed with "Latent Astigmatism"; L. J. Lautenbach, of Philadelphia, on "The General and Local Conditions that change Corneal Curvature." Discussion by Frank Fisher, of Philadelphia; Edward Jackson, of Philadelphia; A. C. Corr, of Carlinville, Ill.; P. A. Callan, of New York; H. M. Starkey, of Chicago, and L. J. Lautenbach, of Philadelphia.

The Executive Committee reported the subject for collective study by special committee for the next year, "Detachment of the Retina, its Etiology and Treatment." They further suggested to the Section as a topic for study and presentation, "Cases of Optic Nerve Atrophy of Obscure Origin." The chairman appointed on the first committee: R. L. Randolph, Chairman, 211 W. Madison Avenue, Baltimore, Md.; F. C. Hotz, 36 Washington Street, Chicago; E. E. Holt, 723 Congress Street, Portland, Maine; J. E. Weeks, 46 East 31st Street, New York; T. E. Murrell, 6th and Olive Streets, St. Louis, Mo.

On the second committee: H. V. Würdemann, chairman, 805 Grand Ave., Milwaukee; G. E. de Schweinitz, 1401 Locust Street, Philadelphia; H. Friedenwald, 922 Madison Avenue, Baltimore, Md.; C. W. Kollock, Charleston, S.C.; G. Dunbar Roy, 56½ Whitehall Street, Atlanta, Ga.

FRIDAY, MAY 10—MORNING SESSION.

Meeting called to order at 9:30 P.M. The only remaining paper of the program not having been read, whose author was present, was by A. C. Corr, of Carlinville, Ill., on "Anomalies in Ophthalmic Practice." Discussion by J. L. Thompson, of Indianapolis; H. V. Würdemann, of Milwaukee; R. L. Randall, of Baltimore, and closed by A. C. Corr, of Carlinville.

This completed the list of papers. The chairman congratulated the Section on the scientific work of the meeting, and especially as it was the largest gathering of ophthalmologists ever held in this country (one hundred and six having registered). The Section then adjourned to meet the following year.

H. V. WÜRDEMANN, Secretary.

SOCIETY NEWS.

The American Association of Gynecologists and Obstetricians.
—Dr. Franklin H. Martin delivered the following toast at the annual banquet of this Association:

Mr. President:—The name, birth, policy and success of your society possess inspiration for as many toasts. Its name reminds us of American gynecology. Its time of birth coincides very closely with the new birth of medicine. Its policy—genuine scientific work for our specialty—broad as our country in its membership, democratic as our republic in its constitution, commands respect. Its success so remarkable that those once its opponents halt and applaud, is only accounted for by its magnificent and representative membership. As President of the Chicago Gynecological Society, in a position to speak officially for the gynecologists of Chicago, I voice their sentiments when I say we are proud to have you honor our city with your presence. You honored your society by calling it American. In no place in America does the eagle scream louder or in more unmistakable tones than right here in Chicago.

Your society came into existence with the new birth in surgery; when surgery as a science began to predominate, and surgery as an art began to recede. In other words, with the renaissance of medicine. Moss-covered and absolute traditions you left behind. You got away from narrow provincialism and crossed the Alleghanies, the Rockies, and even annihilated the imaginary Canadian line which hitherto divided the Americans of the North from those of the South. In this, as Chicagoans, we appreciate you and embrace you.

Old foggyism was in its death throes before Chicago become a city. In medicine and surgery we are all renaissance. We have a code in Chicago broad enough even for your honorable secretary, which is indelibly impressed upon every one of our memories. It is: "Do unto others as you would that they should do to you, and the Lord help him who doesn't."

We know of but one country and, like you, we annex all competitors, and naturalize all foreigners. Like you, without prejudice we take that which is good from all lands, and without regard to traditions we reject that which is useless, and that which we finally possess is indelibly stamped with the American eagle and henceforth becomes our own.

It is such societies as yours, Mr. President, which will make us more and more proud of that name—American—which will reiterate the fact every year with abundant proof of its truth, that American gynecology and abdominal surgery has from the beginning of modern medicine led the world.

We must not forget, nor allow the fact to become obscured that anesthetics, without which gynecology would be impossible, were discovered and employed first by Morton of Boston.

We must not forget, nor allow foreign authors to forget, that the first ovariectomy was performed by Ephraim McDowell.

We must not forget nor fail to honor the fact that Gilman Kimball of Boston, proposed and executed the first abdominal hysterectomy for fibroids.

We must not forget that modern plastic gynecologic surgery was founded by Marion Sims.

We must not forget nor allow the fact to become obscured in literature, that the first modern vaginal hysterectomy was performed by Lane of San Francisco.

We can not forget, nor should we, that the removal of the uterine appendages for the establishment of an artificial menopause was deliberately planned and executed by Robert Battey, coincidentally with, but independently of two other great surgeons.

And finally, gentlemen, we have not forgotten nor will it be forgotten as long as abdominal surgery has a history, that the principles of modern intestinal surgery were founded by Nicholas Senn.

Gentlemen, for a young nation have we not the right to be proud of our achievements? Is there another nation, old or young, which can show so long a list of practical works which have been adopted as the most important legitimate life-saving procedures by the whole world? Take from gynecology and abdominal surgery those procedures initiated by Americans and our specialty would have no existence.

So, Mr. Chairman, we extend to you a Chicago welcome. The important work your society is doing can not help but maintain our specialty in the front rank of the medicine of the world.

And finally, let us as American gynecologists, in whatever society we work, cultivate a scientific conscience, so that we may interpret aright. Cultivate a laudable ambition so that we may work with enthusiasm—and most of all cultivate *patriotism* so that American achievements will have their full importance in our hearts.

Chicago Ophthalmological and Otological Society.—Regular meeting held May 14, 1895, at 155 Dearborn Street. There were ten members and visitors in attendance. Dr. Hotz in chair.

The minutes of the last meeting were read and approved.

Drs. W. R. Fringer and A. B. Hale were elected members.

Dr. Wilder said that the case of paresis of extrinsic muscles, reported by Dr. Gradle, was now improving under potass. iodid.

Dr. Coleman reported a case of gumma of the sclera. Woman, 26, whose symptoms began early in winter. V.O.S. = 20-200; marked conjunctival injection; iris discolored; no pupillary reaction; a gumma-like infiltration at upper and outer sclero-corneal margin extending into cornea. With atropin and potass. iodid no improvement took place and subconjunctival injections of corrosive sublimate were used. Under this treatment a cure rapidly took place.

Also a case of hemiopia. Woman, 37, confined last November; was unconscious for six weeks; fundus shows no retinitis; left homonymous hemiopia extending through macula; color fields for red and green much diminished; V. each eye 20-20; pupillary reaction slightly subnormal. Dr. Tilley thinks that such cases are due to a toxic agent, chiefly syphilis. He had a case very similar.

Dr. Tilley had a case of diplopia above and below horizontal line which disappeared in ten days. Patient had a tooth pulled a few days before and piece of jaw was broken off. Dr. Wood reported case and showed sections of intra-ocular tumor. Patient was over 40. No irritation, only slight increase of tension. Nature of tumor rather obscure but probably gliosarcoma.

Dr. Wilder thought it was a sarcoma.

Dr. Wood showed a combined red and blue gelatin mask for use before an electric furnace.

Dr. Hotz gave a short account of the proceedings of the Ophthalmological Section at Baltimore.

On motion the Society adjourned.

103 State Street. C. P. PINCKARD, Secretary.

NECROLOGY.

JOHN S. YOUNG, M.D., of Brooklyn, died September 23, aged 63 years. The cause of his decease was general peritonitis, lasting four days, supervening upon malignant disease of the gastro-hepatic omentum of a prolonged duration. Dr. Young was born in Brooklyn, educated at Fordham College, and a graduate from the College of Physicians and Surgeons, New York, in the class of 1854. He was for eight years connected with the Department of Health, as register of vital statistics or deputy commissioner, from which department his connection was severed about a year and a half ago. He was forty years closely identified with, and served as secretary for, the Kings County Medical Society nearly ten years. He also served that society in the capacity of vice-president. He was a member of the consulting staff of St. Mary's Maternity, and a member of several important social organizations. Dr. Young came of a family of physicians, several of his immediate progenitors having engaged in the practice of medicine. He leaves a widow and three sons, the eldest of them being a physician.

W. S. YOUNGBLOOD, M.D., of Groveton, Texas, October 6.
—D. B. WILLIAMS, M.D., of Louisville, October 6, aged 62.
—George W. STODDARD, M.D., of Ramsey, Ill., October 11, aged 33.
—T. M. FETTERMAN, M.D., of San Antonio, Texas, October 6, aged 53.

PUBLIC HEALTH.

Advice to Bicyclists.—Rocheblave gives to bicyclists the following good advice from a medical standpoint: 1, no one should ride until after an examination by a physician. This examination should be made both before and after a walk or run, for some cardiac lesions only manifest themselves after a state of fatigue. 2, ride no faster than 12 kilometers an hour. 3, as far as possible guard against the desire to ride any faster. It is very difficult not to give way to the "delirium of swiftmess." With a light machine on a good road an amateur may easily make 25 kilometers an hour. This is too much, for the pulse is increased to 150, even at 14 and 16 kilometers per hour.¹

Michigan State Board of Health.—The State Board of Health met in regular meeting, at Lansing, at 10:30 A.M., Friday, October 11. Hon. Frank Wells, president. Hon. A. V. McAlvay, Prof. Delos Fall, Dr. Samuel G. Milner, Dr. George H. Granger, and Secretary Henry B. Baker were present. The regular business of auditing the bills and accounts was transacted. Dr. Milner, of Grand Rapids, offered the following resolutions, which were adopted by the board:

Resolved, That hereafter the appointment of clerks in this department shall be in accordance with the principles of civil service, the service being classified if necessary, and appointments being made in each class by promotion for merit and length of service, or by examination, salaries to be graded according to class and term of service.

Resolved, That the President, Secretary and one other member appointed by the President, constitute a committee who shall present the details of a plan in accord with the principles above stated.

Dr. Milner was appointed the other member of the committee. Dr. Cattermole was granted a leave of absence until April, 1896. One other clerk has gone to the University. This made two vacancies in the office, and Mr. Thomas S. Ainge, of Detroit, and Sheldon B. Young, of Lapeer County, were appointed to clerkships in the office.

The Secretary presented the subject of reprinting some of the educational pamphlets which the office endeavors to distribute to the family and the neighbors of the person sick with a dangerous disease. Several members stated that they believed these pamphlets and leaflets were of great benefit in the education of the people; just how to restrict and prevent each of the dangerous diseases. The board were unanimously of opinion that these pamphlets of instructions should be reprinted in sufficient numbers to distribute wherever a communicable disease exists throughout the State. The board authorized the Secretary to print 20,000 copies of the pamphlet relating to the restriction and prevention of diphtheria; 10,000 of the one relating to the restriction of consumption, and 10,000 of the leaflet relating to the restriction of typhoid fever. The Secretary was directed to ascertain the best way to have the revised leaflets relative to diphtheria, typhoid fever and consumption translated for publication in the German and Holland languages.

Secretary Baker presented a statement of the smallpox and typhoid fever in Michigan during the past quarter, and the present outlook for those diseases. The Secretary's quarterly report of work in the office showed that more than the usual amount of work and considerable new and valuable work had been done. One of the most important lines of new work was in connection with a "blue letter" (official demand for reports, transmitting publications, giving information, etc.) and with a final report to be used in collecting information tending to show the results of efforts for the restriction of consumption. It is hoped that in consequence

of these papers much valuable information will be received at the office of the Secretary.

New work had also been done on a "final report" blank to be used in collecting information regarding the results of efforts in the restriction and prevention of smallpox in Michigan. It is hoped that, through this series of questions, much valuable information will be received.

An interesting letter from the Health Officer of Kalamazoo, was presented and read. The letter is of special interest because it shows that Michigan is not behind in the most advanced public health work; it read as follows: "In our present epidemic of diphtheria, which is clinically of a milder type than I have ever seen before, bacteriologic examination by a competent bacteriologist, who is paid by the city, is made in every doubtful case, especially so in the beginning when a strict diagnosis is hard to be made. In the larger proportion of cases, antitoxin treatment has been used with good result. To people who are unable to stand the expense, the city furnishes the antitoxin and the operator free of charge."

Secretary Baker presented reports from a few other cities, not in Michigan, generally favorable to the use of antitoxin for diphtheria, and relative to the bacteriologic examinations; one report was from Rochester, N. Y., which stated that through the bacteriologic tests, "many mild cases of diphtheria have been discovered which were formerly determined to be sore throat," and whereas such cases were formerly allowed to continue to spread diphtheria, they are now being restricted.

A plan was presented for obtaining, through reports from health officers, a sectional township map of Michigan, exhibiting the residences of consumptives, for use in studying the parts of the State where the disease is most prevalent, also for a study of the extent to which infected houses spread the disease, and the effects of disinfection of such houses. Such permanent records may throw light on the origin of future cases of consumption in the same townships.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Illinois: Chicago, September 1 to 30, 2 deaths.
Louisiana: New Orleans, October 10, 30 cases.
Michigan: September 28 to October 5, smallpox reported at Battle Creek, Bedford Township and Detroit.
New York: New York, October 5 to 12, 1 case.

SMALLPOX—FOREIGN.

Maunonillo (Cuba): August 1 to 31, 11 deaths.
Santos: September 7 to 14, 2 cases.
Wigan (Eng.): June 1 to October 1, 48 cases.
London (Eng.): September 21 to 28, 2 deaths.
Dublin: September 21 to 28, 2 cases, 2 deaths.
Madrid: September 20 to 27, 6 deaths.
Moscow: September 7 to 14, 1 case.
Nogales: September 28 to October 5, 1 case.
Prague: September 14 to 21, 4 cases.
Rotterdam: September 21 to 28, 3 cases.
St. Petersburg: September 7 to 14, 2 cases, 2 deaths.
Tuxpan: September 21 to 28, 2 deaths.
Warsaw: September 7 to 14, 1 death.

CHOLERA.

Hiogo: August 16 to 29, 1,266 cases, 927 deaths.
Osaka: August 16 to 29, 1,361 cases, 1,101 deaths.
Honolulu: August 9 to September 8, 58 cases, 44 deaths.
Singapore: August 19 to September 2, 22 cases, 11 deaths.
Tarnopol: September 10 to 15, 13 cases, 3 deaths.
Tarnopol Des't: September 11 to 15, 2 cases, 1 death.
Zbaraz: September 6 to 14, 2 cases, 1 death.
Proskurov and Letelschew Districts: August 21 to 31, 101 cases, 45 deaths.
Constantinople: September 10 to 20, cholera reported.
Mossoul: September 14, cholera reported.
Morocco: September 14, 11 cases, 12 deaths.
Bombay: September 3 to 10, 1 death.
Cognac: September 21 to 28, 1 death.
Yokohama: August 23 to September 6, 27 cases, 19 deaths.
Nagasaki: September 4 to 10, 20 cases, 16 deaths.

YELLOW FEVER.

Maunonillo: August 1 to 31, 23 deaths.
Acapulco: September 14 to 21, 1 case, 1 death.
San Juan, P. R.: September 1 to 21, 22 cases, 6 deaths.
Santiago de Cuba: September 21 to 28, 19 deaths.
Vera Cruz: September 26 to October 3, 4 deaths.

¹ L'Union Medicale, 1895, No. 32.

MISCELLANY.

Treatment of Typhoid Fever.—Dr. John Eliot Woodbridge, whose articles on typhoid fever have frequently appeared in the columns of the JOURNAL, has been in Chicago for the past two weeks, treating cases of typhoid fever in the hospitals of Chicago, and superintending the issue of his new book on the "Treatment of Typhoid Fever" which is now passing through the press.

Exemption from Taxation of Farms used for Hospital Purposes.—Farms bought and used for hospital purposes, as a part of the hospital plant, an open air sanitarium, and roaming ground for manageable and convalescent patients, very much as a playground might be used as an aid in the cure of sick children, the Supreme Court of Pennsylvania holds, in the case of Contributors to Pennsylvania Hospital v. Delaware County, decided July 18, 1895, are exempt from taxation. That they are also farmed for profit to reduce expenses, the court maintains, does not vary their position as part of the plant, though if there were any fair doubt of the good faith of such use, the case would be different. Property which is not used directly for the purposes and in the operation of the charity, but for profit, is not exempt; and the devotion of the profit to the support of the charity will not alter the result. It is, however, not material that such farms are separated from the main hospital building, and not used with it, nor that their use for hospital purposes is limited to the months of pleasant weather, in the summer and autumn.

Successful Ligature of the Innominate Artery.—A man was recently on exhibition in London whose innominate artery was tied by Mr. Coppinger, at the Mater Misericordiae Hospital in Dublin, in January, 1893. The operation was for the relief of aneurysm of the subclavian artery. He was exhibited shortly after the operation in Dublin and later at Newcastle-on-Tyne. The man is 59 years of age and is in excellent health. It is claimed for him that he is the only living example as yet exhibited in Europe of cure of subclavian aneurysm by innominate ligature.—*N. Y. Med. Record.*

There is one case to our knowledge walking the streets of St. Louis in perfect health whose innominate artery was successfully ligated in 1892 by Prof. Waldo Briggs, of the St. Louis College of Physicians and Surgeons.—*St. Louis Clinique.*

Concerning the Action of the Diphtheria Antitoxin on the Kidneys and on the Heart.—C. V. Kahliden (*Centralbl. für Allg. Path. u. Path. Anat.*, Band VI, Nos. 3 and 4) made the following experiments in order to determine whether or not the diphtheria antitoxin has any special effect upon the heart or upon the kidneys. He injected guinea pigs and rabbits with very large quantities of serum as compared with the body weight of the animals and then after one or more injections the animals were killed and the kidneys and the heart muscle examined microscopically, after fixing and hardening according to the most approved methods. There were no changes of any kind to be found, either in the kidneys or in the heart muscle. V. Kahliden is not prepared to say from the results of these experiments that the serum might not aggravate the morbid process often present in the kidneys of human diphtheric patients as the result of the elimination of the toxic products of the diphtheria bacillus, but direct anatomic evidence of such an effect is still lacking.

All Massachusetts Cities Must Have Boards of Health.—The former Massachusetts statute providing that in each city, except Boston, in which a majority of the voters shall have so voted according to law, there shall be a board of health, consisting of the city physician and two persons, not members of the city council, whose term of office shall be two years, has been superseded by a new enactment which provides that in each city, except Boston, there shall be appointed by the mayor, subject to confirmation or rejection by the board of aldermen, except where other provision is made in the city charter, a board of health, consisting of

three members, who shall hold office for the term of three years, one of whom shall be a doctor of medicine.

Liability of Boards of Trustees in North Dakota.—A law has been passed in North Dakota making any board of trustees, commissioners, directors, person or persons having the control or management of public institutions of the State, or having in any manner whatsoever the responsibility of disbursing or expending any money appropriated by the State, who, either directly or indirectly, expend or agree to expend, for the benefit of any institution or purpose, any amount in excess of the sum appropriated therefor, or who uses or transfers any appropriation to another purpose, conjointly and individually liable for all amounts so used or transferred, and forfeits his or their offices. However, when an emergency arises requiring it, the Governor, Secretary of State and State Auditor may be appealed to, as a commission with power to authorize the transfer of money from one fund to another fund, of the same institution or purpose, or to authorize money therefor to be drawn from the State treasury. Much the same end is sought to be reached in South Dakota by a somewhat different law.

Changes Involving Massachusetts Town Boards of Health.—Chapter 506, of the Acts of 1895, provides that every town in the commonwealth of Massachusetts may elect a board of health by ballot at the annual meeting of the town, or at a meeting legally warned for the purpose, consisting of three persons, to serve, one for the term of three years, one for the term of two years and one for the term of one year, beginning with the day following such town meeting or until their respective successors are chosen and qualified; and thereafter such town shall, at its annual town meeting, choose in the same manner one person who shall hold office for three years from the day following such town meeting or until another is chosen and qualified in his stead. If no such board is chosen, the selectmen shall constitute such board of health. So much of the Act of 1894 as provides that one member of the board of health shall be a physician, shall not apply to towns in which the selectmen constitute the board of health. Those persons chosen by ballot and declared elected as members of the board of health of any town at its annual, or any special, town meeting prior to the passage of this Act, shall constitute the legal board of said town, notwithstanding any informalities or defects in the proceedings.

Larvated Tuberculosis of the Tonsils.—Dieulafoy (*La Semaine Medicale*, 1895, p. 199) injected pieces of human tonsils into guinea pigs. Of sixty-one animals so treated, eight became tuberculous, i. e., 13 per cent. Of thirty-five animals inoculated with adenoid masses from the tonsils, seven became tuberculous, i. e., 20 per cent. From these results the author concludes that the various tonsils are the place of entrance for the tubercle bacilli in a considerable number of instances, and that the tuberculosis gradually spreads to the lymphatic vessels, the glands of the neck and then to the lungs. In order that tubercle bacilli may lodge in the tissue of the tonsils only a small lesion of the epithelium would be necessary, and such lesions are certainly present often enough.

Fat Embolism after forcible Flexion of Both Knee-Joints.—F. Colley (*Deutsche Zeitschrift f. Chir.*, Bd. 36) describes a very unique case of extensive fat embolism following *brusement forcé* of both knee joints without injury to the bones. The patient, a 24-year-old girl, died twenty-four hours after the operation. The fat embolism was very marked in the lungs, the brain, the kidneys, and especially in the heart muscle. In the heart there was a focal fatty degeneration of the muscular fibers around the capillaries that were filled with fat. This myocardial degeneration undoubtedly played a principal part in bringing about the fatal termination. The source of the fat embolism was, undoubtedly, the markedly fatty vasti muscles of the thigh, which were lacerated during the operation.

"Malignant" Lymphoma.—Fischer (*Deutsche Zeitschrift f. Chirurgie*, Bd. 36) describes two cases of malignant lymphoma with the post-mortem findings. In the first case there

were lymphomatous formations in the internal organs, but no tuberculosis or suppuration. Clinically, this case was marked by periodic attacks of fever lasting ten to twenty-one days with free intervals of about the same length. Fischer showed that this fever depended on infection with the staphylococcus pyogenes which was present in the blood and the lymphatic gland juice during the period of pyrexia, but absent in the intervals of normal temperature. Post-mortem, no microorganisms were found in the glands. In the second case there was an extensive lymphomatous growth in the neck, in the axillæ and in the inguinal regions with tuberculous ulcers of the intestine, tuberculosis of the bronchial glands and of the lungs, but the cervical lymph glands showed no bacilli, and no histologic changes characteristic of tuberculosis. Inoculation with pieces of the gland into the peritoneal cavity of pigs was not followed by the development of tuberculosis and, consequently, Fischer regards the tuberculous lesions in this case as the result of an infection independent of the lymphoma.

Football Casualties.—A serious casualty has already been reported as a file-leader for the series of football accidents in the season of 1895-96. An animated contest on a New Jersey field resulted in the laying-up of a junior player. He was tripped while running, and was fallen upon heavily by a number of other players; his ankle and two or three ribs were fractured. His ultimate recovery is expected. A dislocation of the femur was treated in Professor Hamilton's clinic, Chicago, October 12. The patient belonged to the team of one of the high schools on the West Side. A press dispatch reports the death of a football player from an accident received while playing at a western college.

The Index Medicus.—The following circular has been issued:

PHILADELPHIA, Oct. 1, 1895.

Dear Doctor:—The *Index Medicus*, as you doubtless know, has ceased to exist, because the number of subscribers was not sufficient to pay for its publication. Its value was so great that the undersigned, a self-constituted committee, have concluded to appeal to the literary workers of the medical profession to unite in reviving it. The nature of the *Index* is such that it can never obtain a large subscription list, but it is invaluable to those engaged in literary research. It will require about \$5,000 annually to publish it. The former editors are willing to take up the work again if 200 subscribers at \$25 per year can be obtained. We have each agreed to subscribe for a period of five years; will you not do likewise, and mail accompanying blank, duly signed, to the Secretary of the Committee? If the term seems too long, will you not fill in the blank for three or less years? The Committee also begs you to get as many of your friends as possible to subscribe, and to send to the Secretary the names of any persons, society or library likely to become a subscriber. Yours truly,

WILLIAM PEPPER,	J. WM. WHITE,
S. WEIR MITCHELL,	W. W. KEEN,
H. A. HARE,	GEO. M. GOULD,
DE F. WILLARD,	JOHN H. PACKARD,
J. C. WILSON,	E. LAPLACE,
H. C. WOOD,	

1627 Walnut Street. JOHN B. ROBERTS, Secretary.

Influence of Season on Insanity.—Dr. Forbes Winslow has furnished the New York *World* a popular article on insanity in women, in the course of which he discusses "the influence which the seasons exert in producing insanity in females." Analyzing the statistics of a large hospital for a period of twenty-two years, during which a total of nearly 5,000 patients—2,955 females and 2,019 males—were treated, it is shown that during the first quarter of the year—the months of January, February and March—the number of females received amounted to 649. In the second quarter of the year—April, May and June—842 were admitted. In the third quarter—July, August and September—798 was the number, and in the last quarter—October, November and December—the admission of insane women amounted to 668.

It is seen, therefore, that a much larger number of insane women were admitted during the second and third quarters—in spring and summer—than in any other period of the year. On the other hand, most cures were effected in the fourth quarter, while most deaths occurred in the first quarter of the year. On an analysis of each month taken individually, the greatest number of female curable lunatics were admitted in May and the smallest in January. Less females were discharged cured during the early part of the year than in any other part of it, and most deaths occurred in the months of January, February and March, and the least in April, May and June. From these data Dr. Winslow says: "We may rationally conclude that, as the temperature of the weather diminishes and the year draws to a close, so may we form a more favorable opinion respecting the prognosis in cases of insanity in women. On the other hand, seeing that insanity is so much more prevalent in summer than in winter, every exciting cause, whether physical or moral, ought to be carefully guarded against in the former season, especially in those women who are in any way liable to, or in whom has been developed any previous attack."

The Allen Medical Library.—In answer to a correspondent, we have to say that books and pamphlets intended for the Allen Medical Library should be sent in care of the Presbyterian Hospital, Chicago.

The library was donated about ten years since by the late Prof. J. Adams Allen, of Rush Medical College, and the Superintendent, Dr. Stehman, was designated as the Librarian. It has by reason of the additions to the original collection, grown to be a fairly comprehensive medical library, and is of considerable value. No printed catalogue has been issued.

Suppression of Urine After Operation—Saline Injection—Recovery.—Dr. Charles McBurney has reported to the New York Surgical Society a case of the above nature that was successfully treated by saline infusion. This case has been published in the August issue of the *Annals of Surgery*. The operation was for the removal of a large calculus from the right kidney, in a male patient aged 50 years. The saline infusion that appeared to reestablish the renal function was in quantity about one quart, and was injected into a vein in the arm. The following is a part of the report: "The operation of the kidney was attended with only moderate bleeding; no ligature and no packing was required for its control. In the course of the twenty-four hours next following the operation nausea began, and was soon followed by vomiting, headache, and symptoms of uremic intoxication. There was no voluntary discharge of urine, and only one-half ounce was obtained by catheter during the first twenty-four hours after the operation. The saline infusion, above referred to, was followed in the course of a few hours by the discharge of thirty-five ounces of urine. The patient thereafter steadily recovered. In the discussion of this case that followed, reference was made to a case of total suppression of urine after an operation for gangrenous hernia, in which striking improvement had followed similar treatment. It was also called to mind that Dr. Howship Dickinson had in the *British Medical Journal* called attention to the fact that patients could be aroused from diabetic coma in a few minutes by saline infusion.

Some Centenarians and Others.—Dr. Charles E. Rice, of Alliance, Ohio, held his second annual old folks' reception at his residence in that city on the 27th ult., at which were four centenarians—all women, by the way—and some eighty other guests whose ages ranged from 72 to 103 years. Mrs. Elizabeth Byers, aged 103, drove twenty-four miles in a buggy to attend the party, and brought and used the spinning-wheel that she has owned for eighty years. Mrs. Priscilla Spooner, the next in wealth of years, was born in Duxbury, Mass., Dec. 11, 1793, the daughter of Capt. Judah Delano. Mrs. Catherine Hoobler, born in Loudon County, Va., in 1794, is the great-great-grand aunt of Dr. Rice. Mrs. Letitia L. Walker was born near Shippensburg, Pa., in 1795. There were also present among the women one each aged 97, 95, 94

91, 88, 87, 84 and 83 years, and two each aged 89 and 86 years. The oldest man was 99, and there were one each aged 96, 94, 93, 91, 88, 87, 86, 84 and 82 years, two aged 92 years and three aged 90 years each. The aggregate ages of the sixteen women—83 to 103 years—was 1,475 years, being an average of 92.2 years each; the aggregate ages of the fifteen men—82 to 99—was 1,354 years, being an average of 90.3 years each. Obviously the New Woman is not enjoying a monopoly of superiority over masculinity. Elizabeth and William Ware, aged respectively 91 and 90 years, have been married more than sixty years and were the oldest married couple present, and the oldest physicians were Drs. Josiah Beebout, 92, and John P. Gruwell, 86 years. The oldest soldier was James R. Green, born in Bolton, England, in 1796, who addressed the students of Mount Union College in his ninety-ninth year, on the 18th of June last, the eightieth anniversary of the battle of Waterloo, in which he participated. Mrs. Nancy McKinley, aged 86, mother of ex-Gov. William McKinley, was also present.

Neuralgia Cured by Resection of the Eighth Cervical.—Mm Chipault and Demoulin report a very interesting cure of cervical neuralgia. A man of 38, otherwise in good condition, had for four years suffered from a continuous pain localized in the little finger and inner part of the hand, with exacerbations shooting along the inner border of the forearm. He had been submitted to all sorts of remedial measures without relief; among others, stretching the dorsal cutaneous branch of the ulnar and section of the same in the epitrochlear fossa. When he came under the author's observation examination showed that the hyperesthetic zone comprised the inner surface of the little finger with the corresponding part of the hand and two strips on the arm and forearm, one and one-half centimeters wide—one anterior, the other posterior. From the researches of one of the authors it is proved this is the exact area of cutaneous innervation from the eighth cervical. It was therefore decided to open the spinal canal. After resection of the vertebræ nothing abnormal was found in the spinal canal nor in the intervertebral foramina. The dura was then laid open and the posterior root of the right eighth cervical with the nerve above and below, was resected between the ganglion and the cord. These adjacent nerves were resected also, because physiology teaches that section of a single root is insufficient to anesthetize its territory. Two hours after the operation the zones of hyperesthesia and spontaneous pains had disappeared. The patient was able to use his hand for eating soup and for writing, which had been impossible for years on account of pain. Four months after the operation the recovery still persists with no consecutive trophic troubles. On the contrary, those remaining after the resection of the ulnar nerve have disappeared. Some interesting physiologic manifestations were noticed during and after the operation, among them—electrical stimulation of the posterior roots produced a manifest vaso-constriction in their territory. The resection of these three roots caused only a slight hyperesthesia of the arm, which disappeared in twenty-four hours.¹

Bacterial Examinations of the Throat in Fevers other than Diphtheria.—At the London Fever Hospital, Dr. J. O. Symes, an assistant medical officer, has for a year made examinations of the throat in all cases admitted to that hospital, wherein an exudate was seen in the fauces, and the summary of his finding is given in the London *Lancet* for August 24:

"Cultivations have also been made from time to time from throats presenting no abnormal appearances. As a rule, the cultures were taken upon admission, but some after a stay of from two to eight weeks in the wards. A sterilized swab of cotton wool upon a rod was passed lightly over the fauces and tubes of blood serum inoculated from this. The publication of a brief summary of the notes of the first 100 cases so examined may be of interest at the present time, in view of the increased attention paid to the bacteriology. Bacteriologic examinations were made of exudates from the throats of 68 patients suffering from scarlet fever; 52 were made on the day of admission, 8 during the first seven

days, and 8 at periods varying from the third to the eighth week. Of these cultivations 14 showed pure streptococci, 25 streptococci and cocci in groups, 2 cocci in groups, 1 coccii and the long variety of diphtheria bacillus, 9 coccii and the short variety of diphtheria bacillus, 14 coccii and other forms of bacilli and 3 showed various forms of bacilli only. The bacillus most frequently found was a short stout variety with a central non-staining portion. It was arranged in chains or groups, and liquefied serum in from three to six days."

The case of scarlet fever in which the long variety of diphtheria bacillus was found made a good recovery, and was not attended by any paralysis. In one of the short bacillus cases there was a paresis, also anesthesia of the palate. Certain cases, 8 in number, that were sent to the hospital, certified to as diphtheria, were not found to develop the Klebs-Löffler bacillus, assumed the characteristics of scarlet fever or tonsillitis; one case which had much faucial exudation proved to have a well-marked attack of typhoid fever. Fourteen cases of measles, some of which had exudate in throat, were cultivated. Colonies of the short bacillus were found in 7 cases. Pure cultures were not virulent to guinea pigs. The long variety was found in none of these cases. In 18 cases admitted as diphtheria, the long variety of bacillus was found in 10; in one case there were colonies of the long and short varieties. The short bacilli were demonstrated as present in the throat twelve weeks after admission. A pure culture of the latter was not virulent to the guinea pig. In one case the long bacilli were present in the sixth week, this being the longest period of the persistence of this variety that was noted by Dr. Symes.

Relations between Malignant Tumors and Traumatism.—Ziegler of Munich, assistant in Angerer's clinic, has published an interesting paper in which he seeks to determine if traumatism is one of the factors in the etiology of malignant growths. He divides his cases into: *a*, carcinomata and *b*, sarcomata. *A*, carcinomata: 328 cases were observed, 117 in males, 211 in females. In fifty-five cases there was a history of traumatism and in ninety-two cases a history of chronic irritation. As regards mammary carcinoma in females, which numbered 170 cases, 37 had a traumatic history. The following table gives the results of other investigations:

Estlander	59 cases, trauma	15
Snow	143 " "	32
Bihler	40 " "	8
Henry	146 " "	15
Rapok	89 " "	13
Sprengel	131 " "	19
S. Wolff	108 " "	10
Hörner	158 " "	14
Oldecop	250 " "	18
Winiwarter	170 " "	12
Schulthess	53 " "	2
Fischer	63 " "	1

The influence of traumatism on the development of carcinoma of the lips appears clear. Thus, of forty-four tumors occupying this region, forty-two were situated on the upper lip and only two on the lower; on the other hand, thirty-five occurred in men and only seven in women. Traumatism is more frequent in the upper than in the lower lip, and men are manifestly more exposed. In this respect the statistics of other authorities corroborate those of Ziegler. Concerning the influence of antecedent traumatism on other regions, it seems less clear for other parts of the head—buccal cavity, maxillary region, parotid, etc.; on the other hand, it seems that phimosis and the irritations resulting from it play a certain rôle in the development of carcinoma of the penis. Of nine carcinomas of the limbs, all developed under the apparent influence of a chronic state of irritation. In this connection the author recalls Volkmann's statistics—223 cases of carcinomatous tumors of the limbs, 98 of which developed as a result of a chronic inflammation of the skin, 32 from ancient fistulas, 11 in connection with congenital warts and 12 with acquired warts. *B*, Sarcomata: Of 171 cases of sarcomatous tumors, 81 occurred in men, 90 in women

¹ *L'Union Medicale*, 1895, No. 32.

There was a history of traumatism in thirty-five cases, and of chronic irritation in thirty-two cases. Thus, of 499 cases of carcinomatous and sarcomatous tumors, in 90 there was a history of antecedent traumatism, and in 124 of chronic irritation. Ziegler is of opinion that the results of his inquiries prove indisputably that traumatism is a factor in the etiology of malignant neoplasms.¹

Increase of Venereal Disease in the British Army.—In the *Lancet*, June 29, appears a statement concerning an apparent increase of venereal disease in the British army, due to the abolition of the acts known as the Contagious Diseases Acts. The *Lancet* takes for its text a communication which was read at a meeting of the Académie de Médecine in Paris on May 21 last by Dr. Commenge. The documents furnished in England by the Minister of War, said the speaker, have brought the gravity of the case into prominent relief. In 1892, out of 196,336 soldiers 52,155—that is to say, upward of a quarter of the entire British army—were admitted to hospital on account of venereal disease.

"In the opinion of the majority of army medical men this extraordinary development of the venereal diseases is with justice to be ascribed to the abolition of the Contagious Diseases Acts; and even the late Dr. Graham Balfour, who was for a time opposed to the regulation of prostitution, changed his views on this point. It will be interesting to draw a comparison, continued Dr. Commenge, between the existing state of affairs in England, where prostitution is free, and that obtaining in France, where, happily, some proscriptive measures still remain in force. In 1875, the year that venereal diseases were most prevalent in the French army, the number of cases was equal to 74.5 per 1,000 of strength; during the same year in England the proportion was 139.4 per 1,000. The highest rate in the British army is referable to the year 1885, and amounts to 274.4 per 1,000; in the French army that year the numbers yield 52.1 per 1,000 only. When we examine the returns in order to ascertain the prevalence of syphilis, the following are the results: in the French army the worst year for syphilis was 1875, when the proportion of cases was 11.3 per 1,000 of strength. In the British army during the same year it was 28.8 per 1,000, and in 1887, when the highest ratio was reached, it was 46.6 per 1,000. In France during the latter year the syphilitic rate was only 8.9 per 1,000. Dr. Commenge has, moreover, made a study of the sanitary condition of the Russian army, where venereal affections maintain about the same level that they do in the French army, save that syphilis is slightly more prevalent. Needless to say, prostitution in Russia is under the control of the authorities. The relative prevalence of venereal disease in the three armies is shown in the subjoined table, the figures giving the cases per 1,000 of strength:

	England.	France.	Russia.
1889	217.1	15.8	40.7
1890	212.4	43.8	43.0
1891	197.1	43.7	41.5
1892	201.1	44.0	44.6

"The following table shows the comparative prevalence of syphilis alone:

	England.	France.	Russia.
1889	35.7	9.1	12.9
1890	37.3	9.1	13.4
1891	32.2	8.9	12.2
1892	33.8	9.2	13.7

"Dr. Commenge next extended his investigations in order to determine the sick rate in the several divisions of the French army, and found that the incidence of venereal disease was largely influenced by the presence or absence of clandestine prostitution in the various garrison towns. Paris, Algeria, and 'the Midi' were notorious centers of illicit intercourse, and it was in these districts that the venereal rate invariably attained its maximum. Dr. Commenge brought forward a formidable array of facts and figures in support of his thesis, which was pronounced to be an eminently interesting and instructive work. His conclusions are three in number: 1, venereal diseases are always far more numerous in countries where there is free trade in prostitution than in those where regulations are in force; 2, the regulation of prostitution serves to attenuate the virulence of the venereal diseases and to hinder their progress; 3, the results now adduced are in accordance with the resolutions of the Académie de Médecine voted in 1888, when the attention of the authorities was drawn to the dangers of prostitution and to the necessity for safeguarding the public health."

¹ La Médecine Internationale, 1895, No. 7.

Philadelphia Notes.

Dr. THOMAS J. MAYS on the 9th inst. read a paper before the County Medical Society "On the Local Application of Ice in Acute Pneumonia," which was the second collective report upon this subject presented by him to this Society. In June, 1894, he had given the statistics of 50 cases and the present paper brings up the total to 195 cases. Among this number there were seven deaths—four male, three female, a mortality rate of 3.58 per cent. The cases ranged from three weeks to 75 years of age. Sex was noted in 143 cases, of which 67 were males and 76 females, which is contrary to the general observation. There were 108 cases of single, and 31 cases of double pneumonia (or about 30 per cent.); these furnished three out of the seven deaths (over 40 per cent.). The results of the ice treatment were very obvious: 1, in relieving pain; 2, reducing pyrexia; 3, alleviating symptoms; 4, shortening the course of the disease and hastening the day of the crisis; 5, lowering mortality rate; and 6, increasing the patient's comfort. The results of the ice bag treatment, as compared with other methods, were pronounced to be infinitely more satisfactory than the latter. In more than 15 per cent. of the cases, the crisis appeared on the second day, and in 53 per cent., it occurred on the fifth day. The symptoms of pneumonia are regarded by Dr. Mays as expressions of a disorder of the nervous system through the vasomotor nerves. In this connection, Hughlings Jackson's remark that he regarded acute pneumonia "as a form of herpes zoster of the pneumogastric nerves" was quoted, as well as Fernet's statement, that "so-called fibrinous pneumonia is a herpes of the lungs." In addition to the application of the ice bag (almost constantly, or with brief remissions) Dr. Mays gives strychnin to sustain the heat and pulmonary innervation; digitalis, morphin and brandy, and resorts to oxygen inhalations, strapping of chest in case of pleuritic pains and an ice bag to head to diminish restlessness.

Dr. M. V. Ball at the same meeting reported "A Case of Acute Cocain Poisoning." A woman, 35 years of age, swallowed 25 ccm. of a 5 per cent. solution, equal to about 1¼ gm. (18½ grains) of the alkaloid. Intoxication, restlessness and delirium of a maniacal character rapidly supervened. The mouth and throat were dry, the pupils dilated, the teeth gritted in a tetanoid manner, and she talked incessantly. Pulse 140, temperature normal, no general anesthesia. Morphin hypodermically, black coffee, and afterward strychnin were given by the mouth, also alcoholic stimulants. Two hours after onset of symptoms, the patient was quieter, pulse stronger but still rapid. On attempting to walk, legs were found to be almost useless, the symptoms gradually passed off. The fact that the patient had been accustomed to using cocain for a painful disease of the rectum, may have had something to do with the recovery. On a previous occasion she had, by mistake, taken a poisonous quantity of the alkaloid in a dry state, followed by active delirium, and recovery under the free use of morphin.

Dr. HARRISON ALLEN, at the October meeting of the Laryngological and Otological Section of the College of Physicians, made some remarks upon the anatomy of the temporal bone. He doubted the propriety of the ordinary division into squamous, petrous and mastoid portions and said that the latter portion has a smaller extent and a less consequence than is usually stated in the text-books. The squamous portion extends behind the auditory opening and occupies the anterior third of the so-called mastoid portion. Thus we have (in relation to the auditory canal), a pre-squamous, and a post-squamous, the post-squamous containing the large air-cells and frequently contains all that are in this region having the mastoid portion dense, like the remaining part of the petrosal division. A line of suture can usually be traced on the outer surface of the mastoid, which divides it in front from the post-squamous portion. For the portion surrounding the internal ear, Dr. Allen proposes the name of peri-otic so as to make it uniform with the nomenclature of comparative anatomy. The upper portion of the peri-otic portion, on its external surface presents some irregular markings produced by blood vessels, and for this locality the name "serpiginous portion" of the peri-otic temporal bone is proposed. One point of interest from a clinical standpoint is that operators are requested to examine their cases closely and to state whether the abscess or operation in this region is entirely anterior or posterior to the squamos-peri-otic suture, in the interest of accuracy of definition.

Dr. OSCAR H. ALLIS, at the Academy of Surgery meeting

on the 7th inst., reported a case of gastro-enterostomy for malignant disease, in which a Murphy's button was retained in the stomach for sixteen months and was found there at the autopsy, it having occasioned no special symptoms during life.

THE MEDICAL CLUB tendered a reception to Prof. Wm. H. Welch, of the Johns Hopkins University, on the 16th inst., at the Hotel Bellevue, which was largely attended by the leading members of the profession of this city and vicinity.

PROF. J. M. DaCOSTA has returned from Europe entirely recovered from the effects of former illness and now in excellent health. The eighth edition of his work on "Diagnosis" has just been issued. He resumes his clinical lectures at the Pennsylvania Hospital on November 1.

THE RUSH HOSPITAL FOR CONSUMPTIVES has removed to 33d Street, above Lancaster Avenue, the new hospital being opened with a high tea by the Woman's Board. The site was purchased some time ago, and is admirably suited for the purpose, being on high ground and with abundant open spaces around it. It will be extended as funds are accumulated, one wing to be built at a time.

Society Notes.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—The annual meeting of this Society was held Monday evening, October 7. The following officers were elected for the ensuing year: President, Ernest T. Tappey; Vice-President, Chas. W. Hitchcock; Secretary, Willis S. Anderson; Treasurer, Anderson P. Biddle. After the business session the retiring President, Dr. Eugene Smith, tendered a reception to the members.

AT THE first annual meeting of the Utah State Medical Society the following officers were elected: President, Walter R. Pike, Provo; First Vice-President, G. W. Perkins, Ogden; Second Vice-President, J. S. Richards, of Salt Lake; Secretary, J. N. Harrison, Salt Lake.—The annual meeting of the Cedar Valley Medical Society was held October 8, at Waterloo, Iowa. The following officers were elected for the ensuing year: President, Amos G. Shellito, Independence; Vice-President, J. F. Cole, Oelwein; Secretary, W. B. Small, Waterloo. The next meeting will be held in Dubuque.—The regular semi-annual meeting of the Upper Cumberland Medical Society was held at Cookeville October 2. The semi-annual election of officers resulted as follows: President, J. L. Jones, New Middleton; Vice-President, J. F. Dyer, Cookeville; Secretary, W. J. Breeding, Sparta; Treasurer, L. R. McClain, Cookeville.—The regular quarterly meeting of the Clinton County Medical Society was held at Clinton, Iowa, October 1.—The Miami Medical Association held its sixty-sixth annual session at Lockland, Ohio, October 8. Papers were read by Drs. R. T. Trimble, New Vienna; Arthur L. Knight, Madisonville; J. M. Scholler, E. G. Zinke, R. B. Hall, W. H. Taylor, J. J. Bonar, J. C. Oliver and B. P. Goode, Cincinnati; Percy M. Ashburn, Batavia, and B. H. Blair, Lebanon.—The Northwestern Wisconsin Medical Association held its quarterly meeting at Wausau, Wis., October 8.—The Eastern Kansas Medical Society met in Topeka, October 8.

Louisville Notes.

ACADEMY OF MEDICINE.—The regular meeting of this society was held in their rooms Monday, October 14. Dr. R. A. Bates read the paper of the evening on "Hypertrophic Cirrhosis of the Liver." The discussion was opened by Drs. J. B. Marvin, F. C. Wilson, and John Barbour.

PHYSICIAN'S WITNESS FEES.—Judge Toney, in the Law and Equity Court, decided a disputed point which is of interest to all physicians. In a damage suit, Dr. B. F. Atchison was summoned as a witness for the plaintiff. He was not present when the case was called and the plaintiff refused to go into the trial without him, requesting an attachment returnable forthwith. The court refused to issue the attachment, and the plaintiff then had the case dismissed without prejudice. Judge Toney said the plaintiff had not agreed to pay the physician's fees and expenses, and therefore could not force him to appear in court, although he had been subpoenaed. He said the law on this subject is an old one, although it had never been enforced. To compel the attendance of a physician it is first necessary for the party desiring his evidence to pay his fees and costs, and Judge Toney said that he would compel no physician to attend his court under any other circumstances.

WITHERSPOON.—Central Kentucky has sustained a great loss by the death of one of the most prominent younger phy-

sicians of that section. Dr. John T. Witherspoon has been ill for several weeks of typhoid fever, at his home in Lawrenceburg, in the heart of the blue grass section; his illness assumed a grave aspect a few days ago and he died October 11. He was in his twenty-fifth year, was graduated from the University of Louisville, in 1892, and was the son of Louis Witherspoon, President of the Anderson Deposit Bank. He was prominent in local masonry, by which order he was buried.

St. Louis Notes.

THE ST. LOUIS MEDICAL SOCIETY.—At the meeting of October 12, the discussion of the application of the toxin of erysipelas in the treatment of sarcoma, was the feature of the evening, the subject having been introduced by Dr. George Halley of Kansas City.

THE ST. LOUIS CHILDREN'S HOSPITAL.—A bequest of \$6,000 made by the late Robert A. Barnes to this institution, is now about to come into the hands of the hospital authorities as a result of an amicable suit. A change in the name of the institution and the death of the trustee named in the will of Mr. Barnes were the cause of delay in the delivery of the funds.

THE REBEKAH HOSPITAL TRAINING SCHOOL FOR NURSES will hold its second Commencement October 22.

DIPHTHERIA.—The teachers in the public schools are now required to send home all children manifesting any symptoms of sore throat. The energetic efforts of the Board of Health to restrict the spread of diphtheria are thus receiving coöperation, and success seems more and more assured.

MARION-SIMS COLLEGE OF MEDICINE.—The dental department of this college has opened its second year with forty-two students.

THE WOMAN'S MEDICAL COLLEGE has begun the college year with greatly increased facilities. The new regulations of the State Board of Health caused the rejection of eight applicants for admission, but this has had no effect on the prosperity of the college.

DR. CHARLES FINLEY HERSMAN died October 11, of nephritis. At the time of his death he was professor of clinical medicine in the Missouri Medical College. Dr. Hersman was justly esteemed one of the most brilliant and promising of the younger members of the profession of St. Louis. His advancement had been rapid and was due entirely to his learning and practical attainments. His career, characterized throughout by the greatest modesty, is the more remarkable from the fact that he was but too well aware that he was suffering with an incurable chronic malady which would certainly prevent the fruition of his labors. He had undertaken a large increase of clinical work which probably had some influence in hastening his death. He will be sadly missed by his colleagues in the faculty.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 4, 1895, to October 10, 1895.

PROMOTION.

Major William E. Waters, Surgeon, to be Deputy Surgeon-General with rank of Lieutenant-Colonel, Oct. 1, 1895, vice Billings, retired.
Capt. Louis S. Tesson, Asst. Surgeon, to be Surgeon with the rank of Major, Sept. 26, 1895, vice Matthews, retired.
Capt. Edwin F. Gardner, Asst. Surgeon, to be Surgeon with the rank of Major, Oct. 1, 1895, vice Waters, promoted.

LETTERS RECEIVED.

Anderson, W. S., Detroit, Mich.
Bernd & Co. Henry, St. Louis, Mo.; Brown, Francis H., Boston, Mass.
Cook, S. E., Lincoln, Neb.; Chatterton, W. W. A., Lake City, Iowa.
Davis, John L., Cincinnati, Ohio.
Girard, A. C., Fort Sheridan, Ill.; Greene, F. C., Chicago, Ill.
Hektoen, L. W., Chicago, Ill.; Hall, Geo. W., Chicago, Ill.; Holmes, Bayard, Chicago, Ill.; Heneel, Emil, New York City, N. Y.
Instant Out Off Co., Fort Huron, Mich.
Jackson, Edward, Denver, Colo.; Jones, Rising City, Neb.
Kane, Evan O'Neill, Kane, Pa.; Kingsley, B. F., San Antonio, Texas;
Keating, John W., Ann Arbor, Mich.
Lord & Thomas, Chicago, Ill.
McDill, J. R., (2) Milwaukee, Wis.; Merck & Co., New York City, N. Y.;
Millard, P. H., Minneapolis, Minn.
Peterson, Fred K., New York City, N. Y.
Roberts, John B., Philadelphia, Pa.
Spencer, Geo. A., Haverhill, Mass.; Stuart, J. H., Minneapolis, Minn.
Woodbridge, John Elliot, Chicago, Ill.; Whitford, Wm., Chicago, Ill.;
Watkins, W. W., Moscow, Idaho.
U. S. Newspaper and Magazine Subscription Co., Clayton, Mich.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, OCTOBER 26, 1895.

No. 17.

ADDRESS.

INTRODUCTORY ADDRESS.

Delivered September 30, at the College Building, Georgetown University, District of Columbia.

BY GEORGE M. STERNBERG, M.D.

SURGEON-GENERAL U. S. ARMY.
WASHINGTON, D. C.

Ladies and Gentlemen:—The Faculty of the Medical Department of Georgetown University has decided upon a new departure in medical teaching in the District of Columbia, and by their invitation I am here to deliver an address upon an occasion which they very properly consider to be one of unusual interest to the medical profession and to the citizens generally in this great and rapidly growing capital city. Heretofore the courses of instruction have been so arranged that students who are occupied, during the official hours, in the various government offices located in this city could take advantage of them. This has no doubt made it possible for many industrious and deserving men to obtain the degree of Doctor of Medicine who would otherwise have been unable to do so. And I presume that a fair proportion of those who have pursued their medical studies under these circumstances have become successful practitioners of medicine, while others have been satisfied with the title of Doctor, and have, wisely perhaps, held on to the salaried position which enabled them to secure their medical degree. While this system has no doubt been advantageous to many worthy young men, and has supplied the ranks of the profession with a certain number of well-qualified practitioners who have risen to prominence in their chosen profession, it is generally admitted that it does not give the best possible results. There is something to be said, however, for the class of men who have taken advantage of it. The fact that they have been able to secure a government position may be taken as evidence that their English education is better than that of very many of those who obtain a medical degree elsewhere, and their industry is made evident by the fact that they are able to pass creditable examinations at the end of their course, although the best part of each day is, or should be, spent in the more or less exacting duties for which they receive a salary from the government.

My experience as a member of Army Medical Examining Boards leads me to the conclusion that very many of those who receive degrees from medical colleges, in all parts of the country, would utterly fail to pass the civil service examination required of clerks in the government service. The mistakes in orthography, grammar and literary style made by a considerable number of the candidates for admission to the Medical Corps of the Army are lamentable and sometimes amusing. It is said that a Navy examining board on one occasion rejected a candidate for

spelling Philadelphia with a small f. Certainly no amount of medical knowledge, at the present day, will enable an illiterate man to maintain the respect and confidence of educated people. The man with a defective medical education may impose upon his non-professional fellow citizens, and if he has an agreeable address and an elastic conscience may become a successful practitioner—if success is to be measured by the number of his patients and the extent of his income. But a defective English education is something that reveals itself, sooner or later, to the educated classes, among whom a physician with a reasonable degree of ambition and self-esteem would naturally hope to practice.

A recent editorial in a leading medical journal (*The Medical News*) refers to the importance of correct English orthography as follows: "There can be no question that men have shown ability to do good intellectual and social work of undoubted value to civilization who could not spell ten words correctly. But, and here's the rub, that day is either past or should be past. It is by every one admitted, and by none more fully than by the combined good physician and poor speller, that without the preliminary education, evidenced at least by correct spelling of one's native language, the modern physician is now and henceforth not only handicapped, but utterly outclassed in the race of life. It is not that knowledge of spelling will make one the better physician, but the lack of that knowledge certainly guarantees other lacks that squarely debar from the higher education essential at this day. It has been said that without money, or a certain amount of it, one can not get what money alone can not buy, and it is much the same with preliminary education."

The editor appends to his article a list of 120 misspelled words which he says, "is culled with exact spelling from the papers of those examined by the Board of Medical Examiners representing the State Medical Society of Pennsylvania." I select a few examples from the list given: Apatite, Assleep, Alsow, Boath, Fatial (facial) Hedacke, Jerms, Ulser (ulcer), Sudent (sudden), Skinn (skin), Sower (sour). Comment is unnecessary, but we may remark that the examiner who furnished the list referred to, to the editor of the *Medical News*, says that "some of these gentlemen were graduated this year by medical colleges in Philadelphia."

This illiteracy of graduates in medicine is not limited to any section of the United States, and a presidential address recently delivered by a distinguished English physician indicates that the evil is not limited to this country. W. Mitchell Banks, M. D., F. R. C. S., in his address as President of the Lancashire and Cheshire Branch of the British Medical Association, has discussed the subject of "Overcrowding in the Medical Profession and its Remedy." His remarks are so pertinent, and apply so well to condi-

tions existing in this country, that I shall take the liberty of quoting at some length from his address:

"Many circumstances have contributed to this overcrowding. In former days a man of good family and social rank, but whose fortune was not very great while his children were numerous, could often find places for a son or two in the Church or in the Army, through the influence of powerful friends. But the days of interest are gone, and these avenues are closed now. As for the bar, the numbers of the briefless seem ever on the increase, while legal proceedings are actually diminishing in number. In business, the quiet old trading days are done, and there is nothing but hurry and conflict and cheating and risk. So that the merchant sees in medicine, a comfortable sphere of life, where a living can usually be made by any sober and industrious man. Thus the great medical schools have been pouring out a deluge of young practitioners, which has overwhelmed the land."

After speaking of the demoralizing effects of the overcrowding of the profession, among those who are pushed to the wall on account of educational or social disadvantages, and of the ignoble methods often resorted to by graduates in medicine in order to keep the wolf from the door, Dr. Banks proceeds to speak of the remedy for this condition of affairs, as follows:

"The finest thing that has been done for the profession for many a long year was the enforcement of the five years' curriculum, and its effect in diminishing the numbers at some of the gigantic doctor factories has already been quite pronounced.

"Well, then, you ask, what is my remedy? My remedy consists simply in stiffening up the entrance examinations. I hold that there ought to be a rough sieve supplied at the very beginning, and that all who can not get through this sieve should be cast on one side. As things stand at present, any man who gets through an entrance examination will ultimately get a qualification of some kind, which enables him to put "Doctor" on his door-plate, with just as much effect as a graduate in honors of the London University. You can not hinder him from this by any amount of scientific or professional examinations. He will rub through these, bit by bit. Any teacher of experience will tell you how futile it is to attempt to turn back a man who has once passed an entrance examination, if that man is determined to go on. Beside, it seems to me unfair to allow an inferior man to enter upon a course of professional studies for which he is obviously unfitted. He ought not to be allowed to get so far. He should be turned back at the very commencement, and not encouraged to throw away years on unavailing work.

"I have said that I consider the subjects of a medical education and the examinations therein to be amply sufficient if they are only properly kept up to the mark by due inspection. But I do not admit this with regard to the entrance examinations. These vary in the most remarkable manner, both as to subjects and the severity of examinations. I have not been teaching students for nearly thirty years without knowing what I am talking about, and I say that there are in the profession at this moment, an enormous number of men whose general education is of the lowest type, and who never could have got into it if the entrance examinations had been of a proper standard. Ask any examiner of experience what he

thinks of the English of the papers he has to read, and he will tell you that it is often lamentable—spelling, punctuation and composition being simply set at naught.

"Again, some six years ago, the Secretary of War sent a letter to the General Medical Council, complaining of the want of knowledge of their own language shown by candidates for places in the Army medical service. I heard this letter read, and I never felt so ashamed of my profession in my life. It seemed to me a most ignominious thing for us, that even soldiers should point the finger of scorn at us in the matters of general education."

Without doubt the remedy proposed by Dr. Banks should be applied for the relief of a similar condition of affairs in our own country. Uneducated men should not be admitted to our medical colleges as candidates for the degree of Doctor of Medicine. The graduate who is deficient in knowledge of medicine may make good this deficiency before he is overburdened with practice, and if he has made no mistake in selecting his vocation will not fail to do so. But the man whose early education has been neglected rarely overcomes this defect.

As to the extent of the requirements at the examination for entering upon the study of medicine, I am not disposed to be as exacting as some would be. A sound English education, such as may be obtained at the higher schools in our principal cities, and a sufficient knowledge of Latin for correct prescription writing, is all that we demand of candidates for the Medical Corps of the Army and, in my judgment, is all that should be required of the young man who desires to enter upon the study of medicine. Certainly, this is not asking too much, in view of the fact that a considerable proportion of the recent graduates of medical colleges in this country are rejected by Army and Navy examining boards on account of their deficient knowledge of English grammar and orthography. Steps have already been taken in some of the States to remedy this deplorable condition of affairs, by means of legislation regulating the entrance examinations. In New York these examinations are now made under the direction of the Regents of the State University. It is evidently a step in advance to make them independent of the colleges, and uniform as to standard.

I must not dwell longer upon this topic, the importance of which no one will be inclined to deny, and will proceed to consider the reasons which have induced the Faculty of the Medical Department of Georgetown University to make a change in the hours devoted to instruction, and to extend the course of instruction to four terms of seven months each.

In the Announcement for the present year the reasons for this change are stated as follows:

"The demands of modern medical education are such that the faculty has found it necessary to extend the hours of instruction so that more time may be given to practical work in laboratories and hospitals."

Here we have a recognition of the fact that the graduate in medicine requires something which he can not get from medical books or lectures. No doubt a bright man, by consuming the "midnight oil," might be able to pass a creditable examination at the end of a three years' course of evening lectures; but "the demands of modern medical education" call

for something more than this, viz., for "practical work in laboratories and hospitals."

The student obtains his practical knowledge of anatomy in the dissecting room, and his skill and success as a surgeon depend largely upon the extent and precision of this practical knowledge. This has long been recognized, and the candidate for graduation has been obliged to present evidence that he has done a certain amount of work in the dissecting room. But it is only recently that our leading medical colleges have required a practical knowledge of chemistry, physiology, pathology and *materia medica* such as can only be obtained in the laboratory.

The requirements for graduation of the Medical Department of the University of Georgetown are stated as follows:

"The candidate must be of good moral character and at least 21 years of age. He must have studied medicine not less than four years, during which he must have attended four full courses of instruction, delivered in some recognized medical school, the last of which shall have been delivered in this institution. He must have attended at least two courses of practical anatomy, laboratory courses in physiology, chemistry, histology, pathology and bacteriology, and the clinical courses of instruction."

The laboratory work required is an essential part of a medical education, not only on account of the practical character of the knowledge acquired, but because of the special training in scientific methods and the development of a spirit of scientific investigation which results from such training.

The great obstacle to the advancement of medical science in the past has been respect for authority and the acceptance of theories and supposed facts without submitting them to the test of experimental verification.

The humoral pathology which Galen (born A. D. 130), developed from the previous teachings of Hippocrates, controlled medical thought and influenced medical practice for fifteen hundred years. But we have been emancipated from the trammels of theory and superstition, and the medicine of to-day is largely based upon exact observation and experimental demonstration. In other words, we may now properly speak of medical science—for, while our knowledge in many directions is far from being complete, it is founded upon a scientific basis of observation and experiment and is being rapidly extended by scientific methods.

Scientific medicine, as taught in our medical colleges, includes all that is known of human anatomy and physiology, of pathology and clinical medicine, of the natural history of disease, and the influence of physical, moral and chemic agencies upon the human body in health and disease, of the action of drugs and their preparation for therapeutic purposes. And the scientific physician is one who possesses a large share of this knowledge and has the faculty of applying it for the cure of his patients—without the natural aptitude and acquired skill necessary for applying his knowledge a man might be scientific, but could not properly be called a scientific *physician*. His degree makes him a Doctor of Medicine, but not necessarily a physician; "A person skilled in physic or the art of healing." (Webster.)

The scientific physician uses water of different degrees of temperature for the relief of various ailments, but he is not a hydropath; he makes use of

electrical currents of different degrees of tension and potency for the treatment of such ailments as experience shows to be benefited by electrical treatment, but he is not an electropath; he uses alkalies to neutralize acids and cold baths to reduce febrile heat, but he is not an allopath; he rubs a frozen nose with snow and gives atropia in opium poisoning, but he is not a homeopath. In short, he disclaims being any kind of a path.¹ And in his name I protest against his being called an "old school" doctor. If there is anything newer in medicine than the recent important additions to our knowledge of the causes of disease, and to the means of diagnosis and methods of treatment which have been made within the ranks of the profession during the past fifteen or twenty years I have not heard of it. It is somewhat embarrassing for a recent graduate, who has been working hard for four years to acquire a knowledge of medicine in all its branches, to be asked by a well-meaning friend whether he is an old school doctor. He should answer that he belongs to the new school of scientific medicine. One of the leading features in this new school of medicine is the scientific spirit which asks in regard to everything, "Is it so?" and declines to accept an affirmative answer until an experimental demonstration of the fact has been made. In the absence of such demonstration the scientific physician says: "It may be so," "It does not appear probable," or "I don't know whether it is so or not." This unwillingness to assert that a thing is true in the absence of proof is a result of the kind of training which scientific men receive in laboratories, where everything is put to the test of experiment. No doubt the physician who is thoroughly imbued with this scientific spirit is, to a certain extent, at a disadvantage when he begins to practice his profession. To say "I don't know" requires considerable courage, especially on the part of a young doctor when the questioner expects to receive information and is willing to pay for it. The unthinking and unscientific are very ready to believe that not knowing is due to ignorance on the part of the individual, when, in reality, it is the brief statement by a well-informed man that the matter referred to has not been determined and that no one can give the desired information. Under the same circumstances an ignoramus or a charlatan, instead of confessing ignorance, would perhaps gain great credit by a positive assertion with reference to a matter of which he could not possibly know anything. But science teaches that a confession of ignorance is the first step toward the attainment of knowledge. When the anxious mother says: "Doctor, is it diphtheria?" and receives the answer, "I don't know; there is a somewhat suspicious deposit upon the tonsils and I will at once make a microscopic examination and a culture which will enable me to determine the matter within twenty-four hours," she will probably not be as well satisfied with her medical attend-

¹ There have been several recent additions to the list of 'paths. We have osteopaths, biopaths and vitapaths, etc. In a western city, in June last, a coroner's investigation resulted in the finding that the death of a certain individual was due to the effects of drugs ignorantly administered by one Campbell, who claimed to be a professor in a "Vitapathic" college. In imposing sentence Judge Dustin said:

"Men who knowingly go into a sick room and prevent anything being done for a dying man, by silly incantations and laying on of hands are responsible for his death and ought to be on a par with a murderer in the eyes of the law. God help the dying man who relies upon you or any of the so-called graduates of this quackery. You speak of vitapathy being of a higher power than medicine, and you say you ordain ministers at the same time you matriculate vitapathic physicians. Your methods are an insult to intelligence; their practice is a criminal abuse of ignorance and your college a disgrace to civilization."

ant when she receives the assurance, after such an examination, that "it is not diphtheria," as she would have been with the non-scientific doctor who claims to recognize diphtheria at a glance, announces his diagnosis at once and "cures" the patient within a day or two. The latter has earned the mother's lasting gratitude and she will not fail to recommend him to her friends as competent to cure any ailment to which humanity is liable. But our scientific doctor will make his way in the end. He will enjoy the confidence of his fellow-practitioners and his patients will learn after a time that when he says he knows a certain thing he really knows it, and when he says he don't know, he will do his best to find out, if the question can be solved by reference to the medical works in his library, or by an experimental investigation which it is practicable for him to make personally, or which can be made for him in a laboratory devoted to scientific research. He does not make a snap judgment but waits until all the evidence is in. It is evident that the opinion of a man of this type is of value. His diagnosis, his prognosis and his advice as to treatment are based upon a careful investigation of the case in hand, a full knowledge of the literature relating to similar cases, and a precise appreciation of the indications to be met by the treatment prescribed.

The conservatism which makes the scientific physician willing to confess ignorance is a very different conservatism from that of the pretentious charlatan and quack who gives an emphatic denial to facts that are well established, upon evidence with which he is not familiar or which his intellect is not capable of appreciating. I have protested against calling the graduates of our leading medical colleges "old school doctors," but it must be admitted that there are still some very old school doctors among the former graduates of regular medical colleges. In the ranks of the medical profession, as elsewhere, there are men who have been left behind in the rapid development of our knowledge, and who protest against the acceptance of facts which have been established by the most unimpeachable experimental evidence. By such protest they simply reveal their own ignorance. But as their opinions are often stated in good and forcible English, other persons, equally ignorant of the evidence, frequently accept them, or quote the old saying: "When doctors disagree who shall decide."

As examples of this conservatism of ignorance, I submit the following quotations from two recently published papers, having the names of regular graduates in medicine attached to them. In a report to a State medical society signed by a reputable physician, among other conclusions formulated, I find the following:

"2. That the etiology of infectious diseases is as yet *sub judice*, and that therapeutic methods based upon the assumption that infectious diseases are caused by specific microorganisms are unscientific."

Another medical writer concludes a popular magazine article as follows:

"We are brought, therefore, to this conclusion inevitably: the germ theory is an assumption of causes, of the existence of which we have no evidence, to account for effects which they by no means explain."

The training which the medical student of the present day receives in the laboratory is essential for other reasons than because of the scientific spirit which is developed by personal verification of the

facts which are recorded in his text-books of chemistry, histology, bacteriology, etc. Not only does this personal verification impress the facts upon his memory, but he obtains that technical skill in the use of instruments and methods which can only be acquired by practice. In the chemic laboratory he learns to detect poisons, to determine the nature of impurities in water or air, to examine urine, etc. His practical course in histology makes him familiar with the use of the microscope and with the minute anatomy of healthy tissues. In the pathologic laboratory he learns to recognize the results of different morbid processes and the presence of parasitic microorganisms in the blood or tissues, to distinguish between malignant and innocent growths, etc. By cultivating the principal pathogenic bacteria, and examining them under the microscope after treatment with various staining agents, he becomes familiar with their biologic and morphologic characters and is able to recognize them wherever they may be encountered. In short, he obtains a practical knowledge of many things which it is essential for him to know, in order that he may be a skillful physician. The knowledge to be obtained from books, which enables the student to pass a creditable examination, does not make him a chemist, a pathologist, a skillful diagnostician, a surgeon or a physician, any more than the knowledge to be obtained by reading books on agriculture makes a man a farmer, or than the study of books on navigation would enable a man without practical experience to take command of a trans-Atlantic steamer. It is in recognition of this fact that the Medical Faculty of the University of Georgetown has, as already stated, decided to extend the hours of instruction "so that more time may be given to practical work in laboratories and hospitals." Every physician of experience will approve of this decision. It is true, that but few of the prominent physicians of the present day enjoyed such advantages as it is proposed to give to their successors. It is also true, that a majority of these prominent physicians were very imperfectly prepared for the duties and responsibilities of a general practitioner when they received their medical degree. This fact has long been recognized within the ranks of the profession, and it is for this reason that hospital appointments have been so eagerly sought by those having a proper professional ambition. In the hospital, the young doctor learns to apply his knowledge and to meet emergencies with composure and professional skill. His books have taught him what to look for, what to listen for and what to feel for, but practice alone can give him the trained eye, the trained ear and the *tactus eruditus* of the accomplished physician.

In the "Circular of Information" already referred to, I find the following announcement:

"A laboratory course in bacteriology will be given, which will continue over one-half of the session. This will consist of bacteriologic technique, and the study and diagnosis of diseases which are caused by microorganisms.

"The student will also be given opportunities to observe and investigate special problems in clinical diagnosis, disinfection, etc.

"The laboratory course is obligatory."

I am especially pleased with the last clause of the quotation just read. "The laboratory course is obligatory." And I trust that this applies to all of the laboratory courses. For I am convinced that these

constitute an essential part of the practical training of the scientific physician. It is in the laboratory that the student acquires deftness in delicate manipulations required in his chemic, histologic and bacteriologic studies; here he learns to measure with accuracy, to appreciate the slight differences in color reaction, in form or in structure, upon which he must often depend for the recognition of toxic agents, pathogenic germs or abnormal growths; his eye becomes trained to recognize the malarial plasmodium, the tubercle bacillus and other microorganisms which are only revealed to us by the highest powers of the microscope, under proper illumination, and in skillfully mounted preparations; and it is here that conditions are most favorable for the development of that spirit of doubt and inquiry which is so essential for the progress of scientific medicine. Where there is no doubt, there will be no investigation. The farmer who accepts the traditional belief that certain seed must be planted in the light of the moon, in order to obtain the best results would consider it a waste of time to make a comparative experiment. But it is by means of comparative experiments that we arrive at definite conclusions in the laboratory, and the great diversity of opinions with reference to the curative action of drugs is largely due to a failure to apply the same methods in practice. This failure has been partly due to want of appreciation of the necessity for a control experiment in judging of the results supposed to follow a certain course of treatment, and partly to the difficulty of making such a control experiment in clinical medicine. The unscientific mind jumps at conclusions that are entirely unjustified by the facts. The warts upon the child's hand are rubbed with a piece of meat which is thrown over the left shoulder, etc., and they subsequently disappear; a horse chestnut or a potato is carried in the pocket for years and the individual does not suffer from rheumatism during the entire time. The child has a high fever at bed time, the mother gives it a sugar pill and the next morning the fever has entirely disappeared, and so on, *ad infinitum*. *Post hoc ergo propter hoc*. But the man of science asks, What would have happened if the warts had not been rubbed with meat, or saliva, or whatever may have been the particular fetich employed? Would the man have had rheumatism if he had left the horse chestnut on the tree or the potato in the ground? Would the child's fever have disappeared if the mother had failed to give it the sugar pill? To determine this, a comparative experiment is evidently required. Take the case of the child, for example. To determine whether the disappearance of the fever was in fact due to the administration of the sugar pill, we should have another exactly similar case—a child of the same age, under similar conditions and suffering from an elevation of temperature due to the same cause. One child should have the pill and the other should have nothing. Even then, the result would not be conclusive. Science demands that the experiment should be repeated several times. There are so many chances that the conditions may not, after all, have been exactly identical. No truly scientific man would venture to announce a fact as established upon the basis of a single successful experiment. And, having in view the fallibility of human judgment, the tendency to draw conclusions favorable to the prejudices or desires of the individual, and the frequency with which erroneous conclusions

are published upon what appears to be a substantial experimental basis, science demands verification of reported results by two or more independent investigators before finally accepting these results as demonstrated facts. All this is so far away from the ordinary methods of arriving at conclusions that the conservatism of the scientific physician meets with little sympathy on the part of the general public. The man with a horse chestnut in his pocket is not only convinced by his individual experience that this is a sovereign cure for rheumatism, but he is apt to resent your non-acceptance of his experiment as conclusive. We, on the other hand, know that medical literature abounds in instances of the ultimate failure of therapeutic agents and methods of treatment which have for a time been lauded as specific and have been indorsed by prominent physicians. We are therefore becoming more and more exacting in our demands as regards proof, and, as a result, medical science is making rapid progress. How great this progress has been is not fully appreciated by the non-medical public.

While we justly pride ourselves upon the rapid development of our knowledge during the last half of the present century we must not forget that, in some directions, the foundations of scientific medicine were substantially laid by the illustrious physicians of the past. The time at my disposal will not permit me to give an extended review of the development of medical knowledge, but a brief reference to some of the more important events which have marked this progress will perhaps be useful, as showing the extent of the field and the advantages which the physician of to-day has over his predecessors.

Hippocrates and his illustrious successors Celsus, Galen and others, were certainly the peers of modern physicians in their powers of observation, and we are indebted to them for a mass of recorded facts relating to disease which have been verified and added to by subsequent observers. But observation, in the absence of the instruments and methods of modern science, goes but a short distance in the direction of unveiling truth, and often leads to erroneous conclusions. Observation led the ancient philosophers to believe that the sun goes around the earth and that water and air are elements. The experimental methods of modern science have revealed to us the constant presence of three elementary gases in the atmosphere, one of which is also a constituent of water, while one—argon—has only just been revealed to us by the researches of Professor Ramsey and Lord Rayleigh. One of the first lessons to be learned by the student of medicine is not to trust implicitly to the evidence of his senses. This is the fundamental error of ignorant persons and the foundation of demonology, and superstitions of all kinds. The eye tells us that water from the well is perfectly pure, but the microscope shows us that it swarms with living organisms. The touch tells us that the patient has a high fever, but the clinical thermometer says, no—the sensation received was due to the comparatively low temperature of our own hand at the time of making the observation, etc., etc.

The anatomic knowledge of "the father of medicine" was very imperfect, because it was not obtained by the dissection of the human body. The Greek physicians Herophilus and Erasistratus, of the Alexandrian school of medicine, who lived about 300 B. C., are believed to have been the first to study

anatomy in this way, and from that time our knowledge in this essential department of medicine has steadily increased until, at present, it is perhaps more nearly complete than in any other branch. The medical student of to-day is expected not only to acquire an accurate knowledge of anatomy in the dissecting room, but he must study the minute anatomy of the tissues by means of the microscope and the methods of investigation which he will learn in the histologic laboratory. He is also expected to have at least an outline knowledge of comparative anatomy, a branch of scientific research which dates back to the time of Aristotle (384 B. C.), and which has been greatly developed during the present century. Our knowledge of minute anatomy has been largely acquired during the past sixty years; as a result of the improvements in the compound microscope made about 1830. The perfecting of this invaluable instrument of research has also led to vast additions to our knowledge in the department of general biology, of which it is important that the medical student should possess at least an outline. A knowledge of the structure and development of lower organisms is justly regarded as a proper introduction to the study of human anatomy and physiology. Embryology, a branch of science which may almost be said to have had its birth in the present century, must not be neglected by the student of medicine. It is true that Galen made observations upon the development of the incubated egg, and that Harvey, in the seventeenth century, made some important observations in the same line of investigation, but the minute and accurate knowledge of the present day depends upon the comparatively recent improvements in the compound microscope just referred to.

Progress in physiology, as in other branches of medical science, has resulted from the application of the experimental method to the problems to be solved. Galen made an important addition to human knowledge when he demonstrated that urine is secreted by the kidneys, a fact which, apparent as it seems to us to be, had not previously been recognized. It was nearly fifteen hundred years later that Harvey (1628) demonstrated the circulation of the blood, a discovery which is justly considered one of the most notable events in the history of medicine. The subsequent explanation of the process of respiration by Lavoisier (1783), the experiments upon gastric digestion by Beaumont (1834), and the discovery of the function of the vasomotor nervous system by Claude Bernard, opened the way to a fertile field of research which is still being vigorously prosecuted in physiologic laboratories; and the results attained constitute an essential part of a medical education. The progress of our knowledge of physiology has necessarily been secondary to the advancement of chemistry. Indeed, physics and chemistry constitute the foundation of medical science. We therefore place Priestley's discovery of oxygen (1783) among the epoch-making events in the history of medicine. It is due to chemistry that we are able to use the active principles of various drugs of demonstrated value, instead of the crude material—leaf, root, or bark; and the chemists have recently made many valuable additions to the list of approved therapeutic agents—principally from the series of coal-tar products.

The importance of carefully studying the results of morbid processes in the post-mortem room and in the pathologic laboratory is now generally recognized,

and the medical student will find that since Morgagni (1682-1771) led the way in the study of morbid anatomy, an enormous amount of work has been done in this field of investigation. He will be required to make himself familiar not only with the facts developed, but with the methods of research and the microscopic and gross appearances of tissues which have undergone the changes due to disease. Important as these studies are, the results obtained, from a practical point of view, are eclipsed by the brilliant discoveries which have been made during the past twenty years with reference to the etiology of infectious diseases, which to a considerable extent have been prosecuted in laboratories devoted to pathologic research. These discoveries, like others heretofore referred to, depend primarily upon the improvements which have been made in the compound microscope, especially in high power objectives and means of illumination; and upon methods of research devised by the pioneers in this field of investigation, among whom the names of the French chemist Pasteur, and the German physician Koch are preëminent.

The development of our knowledge relating to the bacteria dates from the controversy relating to spontaneous generation, which was finally settled by the experimental demonstration made by Pasteur (1860), that no development of microorganisms occur in organic infusions which have been sterilized by boiling; and that fermentation and putrefaction depend upon the introduction of living germs into such infusions. The distinguished French physician Davaine, first demonstrated the etiologic relation of a microorganism of this class to a specific infectious disease. The anthrax bacillus had been seen in the blood of animals dying from this disease by Pollender in 1849 and by Davaine himself in 1851, but it was not until 1863 that the last named observer felt himself justified in asserting, as a result of inoculation experiments, that the bacillus was the essential etiologic factor in the production of anthrax.

In 1873 the German physician Obermeyer, discovered the spirillum of relapsing fever in the blood of patients suffering from that disease. The typhoid bacillus was discovered by Eberth and independently by Koch in 1880. The same year the present speaker discovered the pathogenic micrococcus which is now recognized as the cause of croupous pneumonia. In 1882 Koch published his discovery of the tubercle bacillus. The glanders bacillus was discovered by Löffler and Schütz in 1882; the bacillus of diphtheria by Löffler in 1884; the bacillus of tetanus by Nicolaier in the same year. It was also in this eventful year that Koch published the discovery of the cholera spirillum. Since these important discoveries our knowledge of the pathogenic bacteria has rapidly increased, and it is now demonstrated that erysipelas, septicemia, puerperal fever, wound infections, boils and abscesses, peritonitis, pleurisy, etc., are due to general or local infection with germs of this class.

Evidently the medical student of the present day must be made familiar with these recent additions to our knowledge of disease, and his acquaintance with these microscopic foes of the human race should be of that practical character which can only be obtained in the laboratory.

I have already occupied so much time that I can refer but briefly to the advancement in clinical medicine, which depends largely upon additions to our

knowledge already referred to. The use of the stethoscope, the clinical thermometer, the laryngoscope, the ophthalmoscope and other aids to diagnosis has introduced certainty in place of uncertainty, science in place of guesswork. Our knowledge of the pathogenic bacteria tells us not only where to find them, but how to destroy them when they are accessible to the action of physical or chemical agents. This knowledge has undoubtedly resulted in the saving of thousands of valuable lives. This has been accomplished by means of antiseptic or aseptic methods in surgical and obstetrical practice and by the intelligent use of disinfectants for the destruction of infectious material wherever it may be found. As a result of such procedures we have during recent years escaped any devastating epidemic of cholera or yellow fever, although the first mentioned disease has twice been introduced into the harbor of our principal seaport, and yellow fever prevails annually in the cities of Havana and Vera Cruz, with which we have close commercial relations.

The medical student is expected to prepare himself for continuing the work of his predecessors in preventive medicine, although this work has a constant tendency to diminish the demand for his services. To the credit of our profession be it said that this selfish point of view has never controlled its action, and it is largely to the efforts of physicians that existing laws and regulations have been enacted for the prevention of the extension of infectious diseases, the maintenance of a pure water supply for towns and cities, and the general sanitary supervision exercised by local and State boards of health.

The most notable additions to our therapeutic resources are the antitoxins of diphtheria and tetanus, and the use of thyroid extract for the cure of myxedema. But I can not dwell upon the possibilities in the way of specific medication which are suggested by these recent achievements of scientific medicine. Certainly I have said enough to indicate to the young man who contemplates entering upon the study of medicine that his best energies will be needed to master all the important details in the various branches to which reference has been made; and to justify the Medical Faculty of the University of Georgetown in extending the hours for instruction and in requiring that students shall take the practical laboratory courses which have been arranged for, as announced in the recent Circular of Information already referred to.

Having attempted to give you some idea of the present status of scientific medicine, I desire briefly to call your attention to certain matters which are extremely discouraging for the truly scientific physician although he seldom refers to them, and, perhaps wisely, trusts to time and the diffusion of knowledge to remedy the evils to which I shall refer:

Hand in hand with the progress of medical science we see an army of pseudo-scientific quacks who trade upon the imperfect knowledge of the masses, and by plausibly written advertisements convince many, even of the educated classes, that their particular method of treatment is based upon the latest scientific discoveries. A Priestley discovers oxygen; the physiologists show that this gas is essential to life and that the maintenance of a full degree of vital activity depends upon the possession of healthy lungs of ample capacity and the respiration of pure air; the scientific physician discovers defects in the respira-

tory apparatus, and under certain circumstances prescribes oxygen for the relief of symptoms resulting from a deficient supply of this life-sustaining gas. But the pseudo-scientist extols oxygen as a cure-all for pulmonary complaints, or invents an apparatus which may be held in the hand or carried in the pocket by which oxygen will be absorbed in some mysterious way, and without difficulty obtains numerous certificates as to the marvelous cures effected by his method. A Franklin draws lightning from the clouds, a Galvani shows that an electrical current may be developed by the contact of metals and that such a current causes muscular contraction; and innumerable patient investigators add to our knowledge of electricity. The scientific physician avails himself of this potent agent for the treatment of certain ailments in which it appears to be indicated, but admits that he meets with many disappointments in his clinical experiments. The pseudo-scientific quack writes, or has written, advertisements in which fact and fiction are so commingled that even educated persons may be deceived, and having aroused interest in the alleged therapeutic value of this mysterious agent, offers his electric belt, or finger-ring made of two metals, or pocket battery as a sure cure for certain specified ailments, or, if less modest and more certain of the credulity of the public, as a cure for all of the diseases to which man is subject.

Again, a Pasteur proves that the disease of sheep and cattle known as anthrax is due to a microscopic organism found in the blood, an Obermeyer discovers a different microorganism in the blood of relapsing fever patients, and numerous patient workers in laboratories rapidly add to our knowledge of pathogenic bacteria. Then comes the man with the microbe killer. He tells you that all diseases are due to germs in the blood and that his fluid kills them without fail. Science has demonstrated that comparatively few of the infectious diseases of man are due to the presence of pathogenic bacteria in the blood, and that the microbe killer has but very little germicidal value; but a credulous public accepts the interested statements which appear to have a scientific basis, and swallows the microbe killer with impunity if not with benefit. And so it goes. Science establishes the value of the thyroid extract for the cure of myxedema, and immediately the public are called upon to swallow extracts of brain for cerebral trouble, of heart for cardiac disease, etc. Even the Chinese pulse-doctors obtain a large clientèle on the Pacific coast. Their solemn looks and pretentious claims impose upon the ignorant and it is said that even educated people not infrequently consult them. It is true that in China, as elsewhere, there are two classes of physicians. Those who are educated and who are familiar with the medical classics of their country, and the itinerant quacks who are not only ignorant but unprincipled. No doubt the regular practitioner in China believes in his own pseudo-science. According to a recent author:¹ "The learned Chinese doctor is not ignorant in the sense that he has not studied, as from early youth he has been subjected to a degree of cramming and of learning by rote, such as would discourage and wear out the less patient and less toiling Caucasian. He has been obliged to learn stacks of sacred precepts taken from their most ancient sages, and the admixture of intricate and bewildering astronomy, meteorologic signs, and the

¹ Dr. P. C. Remondino, of San Diego, Cal.

endless physical complication of concurrent signs, appearances and detached disturbances that he has been compelled to learn by heart is simply appalling. Anatomy and physiology cut no figure in these studies and they are considered unnecessary, as disease is a matter depending on good or bad vapors, and is of either divine or diabolical origin. In spite of their most elaborate treatises upon the pulse, from which they profess to be able to perform the most skillful diagnoses, they are even unacquainted with the existence of the circulation."

The time at my disposal will only admit of a brief reference to the Chinese theories relating to disease and its treatment. As was the custom among the more enlightened occidental nations, until a comparatively recent period, their prescriptions often contain twenty or more ingredients, apparently given with a vague idea that one out of the number may prove to be the right remedy. These ingredients are obtained from all imaginable sources and include all kinds of nastiness, in the way of excretions, desiccated animal tissues, etc. With them, the color of a medicine is an essential character; red medicines being suitable for diseases of the heart, white for pulmonary complaints, black for diseases of the kidneys, green for those of the liver, and yellow for those of the stomach. In the use of remedies from the vegetable kingdom, the leaves and branches are most appropriate for diseases of the extremities, the bark should be used for skin diseases, the pith for derangements of internal parts of the body, etc.

In conclusion, I desire to emphasize the fact that learning does not enable a man to distinguish between science and pseudo-science. The learned disciples of Confucius in the Orient, and classical scholars of the pre-scientific epoch in occidental countries, failed to distinguish between the facts of astronomy and the fancies of astrology. And, at the present day, eminence as a classical scholar, or as a theologian, or as a jurist, or as a metaphysician, in the absence of a knowledge of the methods and results of modern scientific investigation, does not enable a man to distinguish between science and pseudo-science in medical practice. This kind of learning is therefore not essential for the physician; but, as we insisted at the outset, he should not enter upon the study of medicine without having, at least, a thorough knowledge of his own language and of those branches of study pursued in the high schools of our large cities; we now add that a reading knowledge of the French and German will be very desirable if he wishes to keep entirely *au courant* with the progress of medical science.

The Angels of the Ambulance.—Mrs. Margaret Sangster has contributed to *Harper's Weekly* the following stanzas concerning the young medical "angels" of our cities ambulances:

"I never see in our bustling town,
Where the midsummer sun pours fiercely down,
The swift onrush of the ambulance
But I think of the blessed countenance
Of One who walked by lane and field,
And with voice and look the suffering healed.
Still, where the city's woes are thick,
The dear Christ-spirit heals the sick,
And yet He lives in the hearts of men,
And sends His angels with speed again
Wherever the weary plod and fall,
His care and tenderness over all.

"And the angels carry lint and lance,
And drive in the city's ambulance:
Are bluff of speech and deft of hand,
And quick with accents of command,
And the wind of their coming clears the way
For a breath of heaven in the darkest day."

ORIGINAL ARTICLES.

WHAT THE PATIENT EXPECTS, AND WHAT WE ARE ABLE TO DO, IN CHRONIC CATARRH OF THE TYMPANUM OR MIDDLE EAR, WITH DEAFNESS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY LAURENCE TURNBULL, M.D., PH.G.

Aural Surgeon to the Jefferson Medical College Hospital; President of the Sub-Section of Otology of the British Medical Association, and the Section on Laryngology and Otology of the AMERICAN MEDICAL ASSOCIATION; Emeritus Physician to the Department of Otology of the Howard Hospital; Member and one of the Committees of the International Congress of Otology.

PHILADELPHIA.

In the treatment of all chronic diseases of from six months' to as many years' duration, the prognosis, or what we are able to do, depends upon many factors. The first, as a rule, is the duration; the second is if the case is functional; the third, if organic, it is incurable. This not only applies to the ears but to the lungs, liver, kidneys, eyes and brain.

Can we improve them? We can, if the disease is functional and not organic. When the patient with organic disease of the lungs applies, not for a cure, but for relief, we frequently are able to diminish the cough and expectoration, build up the general health, and by changing the habits and climate, improve the case. So also with the liver, kidneys and brain. In the case of the eye, sometimes by a skillful and delicate treatment or an operation we are able to give one-sixth, one-eighth, one-fourth or even one-half the amount of vision, by which, with the assistance of glasses properly fitted, the patient is able to make his way alone, and even to read and work. This slight improvement is almost always accepted with cheerfulness and even gratitude. The most unreasonable of all patients to be treated, both in public and private, are the deaf. They come to the aural surgeon and expect a cure, not relief—and the general public and the quack encourage them in this demand. Many of them come with varying deafness, from *nil*, to hearing the ordinary watch close to the ear, and when by prolonged treatment, they are able to hear from ten to twelve inches, or more, also one person's conversation, or, by the aid of the trumpet, ordinary conversation, they are never thankful, but state that So-and-So was cured of deafness, not knowing that in our list of diseases of the ear causing deafness there are hundreds of cases from cerumen or ear wax, resting on the drum membrane, or a slight catarrh in the nose, throat or Eustachian tube, to disease involving the internal ear, auditory nerve or brain. There are also a number of inherited diseases of the ear and those contracted by impure habits, which cause most profound deafness never to be cured when of long duration. Then there is accompanying these forms of deafness, constant and persistent noises termed tinnitus aurium, or ringing sound, which as a rule is absolutely incurable after months of careful treatment. This tormenting, distressing condition which is only a symptom of a deeper form of the diseased ear, causes great unhappiness in the individual. This class of patients is of a very jealous disposition, ready to quarrel even with their best friends; they also imagine without cause that persons are talking about them, stating something wrong because they do not hear. With the assistance of certain medicines, and true desire on their

part, these sounds may be ameliorated, and if the patient is willing to aid the physician, not permitting the mind to dwell upon them, great comfort may be received. If, instead of this effort on their own behalf, and a willingness to follow the counsel of their friends, and aural surgeon, they become morbid and irritable, keeping by themselves, avoiding all pleasant company and amusements which could be had by the aid of the hearing trumpet, or still better, hearing with their eyes, these noises will sometimes become unbearable and a form of insanity ensues, and in some very rare cases in an insane moment of desperation they commit suicide. That is the reason why they should avoid the causes which increase it. This is no fancy sketch, but sober truth. No wonder the aural surgeon is pleased to be able by various operations to endeavor to relieve them from this dreadful form of disease, as well as aural vertigo, in which the patient is liable to fall forward, or sometimes backward at the risk of life.

ILLUSTRATIVE CASES.

These cases will be selected mostly from our own observations, and one from our colleague, Dr. MacCuen Smith; the histories being brought up to the month of May, 1895:

Case 1.—M. K., a lady of refinement and education, aged 40, having met with reverses had to resort to a manufacturing establishment for a living. She suffered for years with chronic aural catarrh (dry) never having had any discharge, with chronic rhinitis and progressive deafness, which entirely unfitted her for performing her duties. In spite of the usual treatment for years, she was so deaf that she was desirous of an operation, hoping thereby to obtain relief. She was taken to Jefferson Medical College Hospital Feb. 6, 1891. For twenty-four hours she was placed under very limited diet, with gentle purgatives and kept at rest in bed. On the morning of the operation she had a very light breakfast. (The urine had been tested for albumin and a careful examination made of the heart, both of which were found in normal condition.) The chief surgical resident administered the anesthetic, ether, of which she took a considerable quantity without going under its influence. Finding this to be the case, chloroform was administered with care and the ether withdrawn. This agent acted very promptly, but on examination of her pulse it had ceased to beat. The chloroform was withdrawn and efforts were made at resuscitation, with artificial respiration, with depression of the head and elevation of the lower extremities; after a time the pulse returned and the operation of removal of the ossicles was successfully performed. She had some vomiting which was not excessive, as she had taken internally a few doses of solution of cocaine, and sulphate of strychnin. The parts were cleaned with iodoform cotton, and the ear carefully packed and not disturbed for twenty-four hours, then the cotton was replaced. The ear was covered with a large mass of absorbent cotton, and a bandage applied. No food was given until the stomach was quiet, and all noises were avoided, as even walking across the room was painful to her.

The blood was carefully mopped up, and soon the ear became dry. No wash of any kind was used, and in the course of one week she was allowed to sit up and permitted to go home, though she continued coming to the writer's office to have the ear dressed. The membrane which had been removed was soon restored by pseudo membrane and was prevented from adhering to the promontory by keeping the Eustachian tube free, by the use of Politzer's douche, and the vapor of ether.

The restoration of her hearing was most successful for general conversation at about five feet. She was able to resume her daily duties, putting up medical preparations, and to receiving orders even in a moderately loud voice, and heard an 18-36 inch watch about half the normal distance. It is now three years since the operation and the patient has been exposed to all sorts of weather, having to travel at least a mile to her work at the establishment through one of the coldest winters of many seasons. She only came a few times to the office to have removed some slight accumulations of a light color, and to have her nose and

pharynx cleansed with antiseptic sprays and the Eustachian tube kept open.

Case 2.—*Operation for the Relief of Deafness and Vertigo.*—M. H. F., aged 45; a lady of wealth and refinement, had been deaf ever since she was very young, and she stated this was the result of scarification of the tympanic membrane by the physician who first had her case in charge. She had suffered with a diseased throat, with a deviation of the septum very high, and enlarged glands. She takes cold easily and suddenly, the swelling of the throat and nose being very great, followed by intense deafness. She had been under the treatment of several laryngologists, electricians and aurists, but only with temporary benefit.

On examination there was found in the right ear, thickening of the membrana tympani, the handle attached to the promontory, and the whole malleus twisted on its axis; Eustachian tubes patulous; H. D. watch pressed on contact. Tuning fork full C; auditory nerve normal; bone conduction good. Excessive tinnitus and vertigo. The left ear was in similar condition. The operation was performed, chloroform and ether being used, Feb. 5, 1892. The malleo-incudal joint was firmly ankylosed. The membrana tympani, the malleus and the incus were removed. The operation was attended with some difficulty on account of the hemorrhage. Hearing was improved after the operation; and the tinnitus had decreased.

June, 1893, hearing continued; a new membrane had formed and the hearing in that ear had become defective after a time. The membrane was incised but the hearing was not what was desired, and a few months later the other ear was operated upon, when she was able to hear ordinary conversation, to give orders, and to attend to shopping and all outdoor work. She could then hear her own watch four inches off, and even a clock in the opposite room.

One of the most distressing symptoms which this patient suffered from, was intense vertigo so that she would fall back without notice, and she was afraid all the time that this would happen on the stairs. The operation relieved the vertigo, but did not entirely the roaring tinnitus, which was caused in part from mucus in the orifice of the Eustachian tubes and from the diseased nose, in spite of careful treatment.

In a note received October, 1894, two years and a half after the operation, she wrote: "I can get about very well in the stores. I have not the least trouble and always understand what is said, for those who are not deaf raise the voice on account of the street noises so that I have little difficulty to understand all that is said, but when it is quiet, there is my trouble."

Even when writing this, she was suffering from an acute nose and throat catarrh, for she adds: "I wish I had some of those benzoate of soda tablets which I took before, when my breath, nose and throat were out of order; they acted well with my stomach." (The same catarrhal condition.)

The great improvement which followed the operation on the left ear she stated continued, but the right side filled up at times so as to require the application to the nose and throat of a spray and exhaustor, and even the galvanic current, which for the time caused a slight return of the dizziness, but which soon passed away with improvement of hearing.

This patient stated in another note, that her hearing always improved when she could breathe salt air, and that the tinnitus and deafness were brought on by constant worry. This the doctor can not always prevent, but can aid in change, and removal of the cause. We feel, as physicians, we can do much to ameliorate the condition of the nervous system. In another place she writes: "Your patient still hopes for a better time coming," and again, "Your patient is not of an unhappy disposition, but under ordinary circumstances would be bright and happy."

These peculiar physiologic and psychologic matters have, as aural surgeons and physicians know,

much to do with both deafness and the peculiar noises which are heard by certain classes of nervous or neurotic patients, and we must be physicians of the mind as well as of the body.

Case 3.—A Case of great Relief to Tinnitus Aurium.—H. M., aged 24, a student of medicine, has been a sufferer with chronic middle ear catarrh and tinnitus aurium with, first, acute and subsequent chronic rhinitis. He was in the office and studied with a distinguished throat and ear specialist, and was treated with great care, still his suffering was so great that it interfered with his studies. His nervous system was very impressionable to all kinds of drugs, and he had employed every means of relief, even to the freezing by ether and rhigolene over the mastoid, etc. He made up his mind to have an operation performed. He was not willing to go to bed, but was operated on in a laryngological chair at the Jefferson Medical College Hospital, August, 1893. The local anesthetic was a 10 per cent. ointment of cocain which had been applied to the drum membrane the night before, and early morning of the operation. The malleus was removed with a portion of the membrane, so that access was had to the incus and stapes. Mobilization was then employed, and after a few days when the parts were healed he experienced considerable relief from the noises. He did not desire any other operation as his hearing was not very defective on that side.

DR. MACCUEEN SMITH'S CASE OF OPERATION FOR DEAFNESS, PAIN AND VERTIGO.

Mrs. H. G., aged 42 years; N. J., twelve years ago was treated for severe tinnitus in both ears for a continuous period of two years, which, however, failed to be improved; at times the noises were more intense. At the expiration of these two years, the hearing (which had been gradually growing dull) suddenly became much worse. Accompanying this unexpected impairment of hearing was an attack of vertigo that has continued at intervals ever since, about seven years. The hearing power in this time has become greatly impaired. For the past four years she has suffered periodic pain in the right ear, sometimes being very acute, and it would last for one or two days. It is needless to say that this patient consulted various authorities, but no permanent benefit was derived. In June, 1892, when she consulted us, the membrana tympani was found, R. E., chronically inflamed and firmly adherent to the promontory; could hear only loud conversation at fourteen inches; watch and fork were audible only on contact; bone conduction was normal. Has never had any discharge. On account of the increasing tinnitus, vertigo and pain, the patient refused any line of treatment except operative, and we could see no good reason why we should extend any hope for relief by following in a line of non-operative treatment that had failed in the hands of several competent physicians.

June 6 we excised the membrana tympani, malleus and incus, and packed the cavity with iodoform gauze. In three days this packing was renewed, at which time the pain was entirely relieved; the hearing was improved somewhat, although the vertigo continued. Two weeks after the operation the hearing was markedly benefited, the pain did not return, and the vertigo somewhat improved. In this condition she left the hospital, and I did not see her again for three months. Reports her health very good, hearing about two-thirds normal, pain and vertigo both relieved. Have seen the patient at intervals for two and a half years after the operation, and the above improved condition has continued uninterruptedly.

These three cases, with the one by Dr. Smith, which could have been increased by many others, cover the good results of the operations in *pain, deafness, vertigo and tinnitus aurium*.

255 South 17th Street.

WHAT ARE THE CURATIVE EFFECTS OF PNEUMO- AND PHONO-MASSAGE ON THE MIDDLE AND INTERNAL EAR?

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY LOUIS J. LAUTENBACH, M.D., PH.D.

PHILADELPHIA.

This paper which I have the pleasure of presenting to you, is but an effort to explain the results achieved by my method of employing ear massage. I first presented the subject of ear massage to the Pennsylvania Medical Society in May, 1894, and in two subsequent communications to the Philadelphia Medical Society, one in May, the other in September of the same year, still further outlined the method and its results.

Recalling for a moment the method and its use, you will remember that I employ it always through the external meatus by means of double or single ear tubes fitting tightly in the canal, and that I use either pneumo-phono or mixed massage. By pneumo-massage I mean the massage occasioned by the impact of a column of air thrown inwardly on the drum-head, or, where this is perforated or not present, into the middle ear, or else by the suction effect of a partial vacuum being created within the ear tubes—these air movements being unaccompanied by sound. Phono-massage refers to the carrying of sound of various pitches and volumes through the meatus to the drum-head and middle ear. By mixed massage, I refer to the carrying of the two kinds, phono and pneumo at the same time. Practically, pneumo-massage is always, to a greater or less extent, accompanied by some phono-massage, from the fact that the mechanical appliances producing it are always more or less noisy. My experience with these methods has been extensive and on the whole successful. Their relative value in each individual case is as yet not perfectly clear to me, but each it will be found has its special sphere of usefulness.

When we consider how difficult and inaccessible to treatment is the ear, we can but acknowledge that forms of treatment so easily applied as these; if found to exert any influence on this organ, must prove exceedingly valuable.

We will first consider the influence of pneumo-massage on the various ear structures, premising our remarks with the assertion that to a degree the phono-massage has a like effect, in addition to a direct action which it exerts on the ear nerves. By the application of pneumo-massage by my vacuum method, we occasion an outward motion of the drum-head, with a swing of the handle of the malleus and an outward movement of the entire chain of ossicles with a withdrawal of the stirrup from its close application to the oval window. By reason of this withdrawal, there is occasioned a movement of the labyrinthine fluids; in addition to this, the attenuation of the air of the middle ear exerts an outward drawing effect on the membrane of the round window, which in turn causes a disturbance of the labyrinthine fluids immediately within it. By this motion of the fluids the otoliths are thrown into action and excessive pressure within the semicircular canals and cochlea is temporarily overcome. In consequence of this, the pressure on the nerves is relieved and they

The *Lancet-Clinic*, of Cincinnati, calls on the Ohio doctors to defeat at the next election all of those candidates for reelection to the Legislature who refuse to vote for a medical bill, and those who voted against it. We agree with our contemporary that it is quite time medical men understood everywhere the value of organization and the necessity for standing solidly together in those matters in which they have a common interest. The reason why the politicians have paid little attention to the profession is because the profession have paid no attention to the politicians. A sound thrashing occasionally would secure wholesome respect.

are given time to recuperate; at the same time the circulation is stimulated, and because of this general activity, effete products are removed and morbid changes controlled. The middle ear and all its various structures including the Eustachian tube are affected by the massage and participate in the renewal of these active circulatory changes.

Phono-massage occasions all the changes above mentioned, but in a minor degree only. However, in addition, it affects the ear nerve's function by sending a repeated or a continuous message over it—this latter method of using a continuous sound to stimulate a diseased ear nerve, I now rarely employ. The phono-massage resembles pneumo-massage in causing a to-and-fro movement of the ear-conducting apparatus, but the number of movements per minute is very great, depending upon the pitch of the sound, and the amplitude of motion is exceedingly small as compared with that produced by pneumo-massage. While this form affects the middle and internal ears, it affects also the auditory nerve, and if the sounds be not too long continued the effect on the nerve is apt to be good and a stimulation is produced, but if long continued or following too quickly, one wave upon another as in the use of high notes, or when too loud, the effect is apt to be harmful by exhausting the nerve substance or by tiring the nerve's central ganglion. The method which I most frequently employ—a combination of mild and regular pneumo-massage with mild phono-massage—affects the structures as above mentioned, and has, in my hands, proved the most advantageous. Under its influence you can observe the drum-head bulge outwardly, its circulation increase, and the hearing faculties improve, while often headaches and full, heavy and giddy feelings caused by pressure upon the labyrinth or from morbid ossicular adhesion or constriction of the blood vessels disappear. At the same time, the ear nerves begin to regain their full functional activity and there is a marked improvement in the hearing as tested by bone as well as by aerial conduction.

The results obtained by these methods on the internal ear have far exceeded my anticipations. Having been taught the hopelessness of the treatment of diseases of the internal ear, it has been a subject of great surprise and pleasure to find that by such methods even cases of extreme disease of this structure could be improved. I have now quite a number of patients who belong to the class ordinarily known as that of the deaf and dumb, where, by the most accurate and careful ear testing of which I have any knowledge—the phonographic method—not the slightest positive evidence could be obtained of the faintest trace of hearing. One of these cases, a boy aged sixteen months, after his third treatment could hear the sound made by turning the knob of the door, not seeing it opened. Another, a girl of 4 years, in whom I could not demonstrate the least vestige of hearing, has developed not only the power of hearing certain sounds, such as the creak of a spigot, the bark of a dog, the noise of a door knob's motion, but has in addition developed the power of imitating some sounds. When her father, in playing the violin, strikes the A string, she invariably imitates it, even when the instrument is not in sight. She also repeats the A note as it issues from an organ and when sung. This peculiarity of the ear becoming awakened first to certain tones, is most frequently explained on the supposition that the terminal ends

of the nerves are in communication with its individual vibrating fiber, each fiber responding to but one tone and independent of each other as the keys of a piano, but that of these fibers, one or more as the case may be, is the most active, free and healthy and therefore the sooner responds to treatment. It can also be explained on the telephone theory of the production of the sensation of hearing. In the ordinary telephone we find that by increasing the external resistance we can blot out certain tones, and that by shortening the length of the wire or increasing its cross section, that these tones gradually appear more distinctly as the resistance is diminished. Applying the same thought to the ear, the remedial effect of the treatment is to relieve the nerve of its external resistance, the inefficient conducting apparatus, and that although the labyrinth participates early in the improvement, yet certain notes being more easily perceived by the cerebral center—just as the telephone translates some sounds better than others—are the first to appear as conscious impressions of hearing, while others take a much longer treatment to develop, appearing only when the external resistance is much diminished or at a minimum. My belief as to the favorable effect is, simply, that in many cases of deafness occasioned, probably, by the want of the functional activity of the internal ear structures, the ear fluid becomes more or less irregular in density, and of a somewhat unyielding consistency—the fluid being less liquid and because of gravity it becomes more dense along the lower borders, by reason of the natural attraction of the solid tissues for the more dense particles, it becomes more consistent in approximation to all the surrounding membranes. In consequence of this, adhesions more or less firm appear and bind the somewhat thickened fluid particles to the otoliths and membranous linings, the semicircular canals and the cochlea. This process is probably twofold; not only as a consequence of disease, but also the result of an increased pressure exerted on the fluid by the forcing inward of the stapes and membrane of the round window. Undoubtedly in some cases, the fibroplastic changes occurring in the middle ear extend early to the internal ear and produce an effect there precisely as portrayed above. These pressure changes and those brought about by functional inactivity, as well as those produced by the extension of fibroplastic inflammation, all tend to thicken the labyrinthine fluids, to vary the density of different parts—increasing all parts in immediate approximation with the lining membrane—and also by their effect on the nerve, dull its sensibility, and by affecting the blood vessel supply reduce the normal nutrition.

The massage properly applied relieves the pressure on the internal ear, causes an active disturbance and circulation of the labyrinthine fluids, stimulates the peripheral ends, as well as the body of the auditory nerve, and improves the blood circulation.

So confident am I now in regard to the treatment of labyrinthine disease, that whenever I can find good bone conduction I feel that there is no insuperable obstacle in the way of improving the hearing. I consider that if the nerve center, the nerve itself, and the nerve terminals be intact, that there is often not only hope, but fair reason for believing that the treatment will be successful even when the other structures are involved. The problem is, so to treat the ear as to allow external sounds to, in some

manner, reach the terminal endings. As indicated before, massage applied as outlined here, also exerts an effect on the Eustachian tube. The constant to-and-fro motion of the ear membrane and of the middle ear contents forces down into the closed Eustachian tube a column of air which acts as a wedge and, while each motion of this column is imperceptible, it will be found by experience that few indeed will be the cases of such closure which do not succumb in time to this treatment.

The method is one so easily applied, so devoid of pain and discomfort, so rational as to its application, and promises so much in fields which have up to the present been practically inaccessible, that I feel sure that if used fairly and impartially it will commend itself more and more as we grow experienced in its use. I believe ear disease will lose much of its stubbornness and the treatment much of its unsatisfactoriness as this method is developed. I do not believe that my method is by any means perfect, but hope that with the aid of other workers in this field of medicine, we may in a few years be able to present such a system of ear therapeutics founded upon a rational mechanical basis as will serve to relieve thousands who by our present methods are incurable.

DISCUSSION.

DR. F. T. ROGERS, Providence, R. I.—said that his experience in the use of phono and pneumo-massage prompted him to add his testimony to the inefficiency of the treatment. He had used it for several years, making as critical a study of each case as he was able, and he had not seen improvement in over 1 or 2 per cent., while in a larger percentage there was actual impairment of hearing. In perhaps 6 or 8 per cent. there was partial relief of tinnitus. The theory of aural massage is a fascinating one, but we should not forget that in carrying it to a greater degree we are advising as a therapeutic measure a procedure which causes boiler-maker's deafness. It is a method of treatment which by most aurists has been used only to be condemned, and Dr. Lautenbach is to be congratulated upon obtaining results which have not been verified by published reports of others.

DR. J. S. A. NICHOLS, of New York—stated that his experience with pneumo-massage had been disappointing, and it had been rather extensive. It was true that improvement took place, but in the vast majority of instances it was only temporary, and the patient returned after a time with tinnitus and hearing unimproved. In one class of cases, massage was certainly contra-indicated—those where there had been a suppuration with a subsequent cicatricial membrane. In regard to the removal of the ossicles the sum and substance of all the discussions seems to be that the improvement in hearing was not permanent, but when healing took place the hearing was as bad or worse than formerly.

DR. ALDERTON, Brooklyn—Reported a case of removal of hammer and incus in a young lady, the subject of chronic suppuration, in which the suppuration was cured and the whisper advanced from two feet to twenty-two feet. This improvement has kept up and the patient has been under observation for three years. The Doctor deprecated the operation of ossiculectomy in cases of chronic catarrhal otitis media, but recommended it very highly in cases of chronic suppuration of the middle ear, where the tuning fork reactions, etc., showed the internal ear to be in normal or good condition, and where the hearing has been so reduced as to warrant the supposition that operative interference can not make the hearing worse and must, if anything, make it better.

THE SURGICAL TREATMENT OF CHRONIC SUPPURATING OTITIS MEDIA.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. H. BRYAN, M.D.

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It is not my purpose in this short communication to go extensively into the subject of the management of cases of chronic suppurating otitis media, but only to emphasize a form of treatment that has of late received a decided impetus, and which in many cases offers us the only rational treatment for this obstinate affection, one that is considered so unsatisfactory by many that we, who have these cases to treat, are consoled and sympathized with for being willing to devote so much time in the treatment of affections, the final issue of which is so uncertain.

Much depends upon the seat of the inflammation, whether it is in the epitympanic or in the lower tympanic cavity, they being characterized by somewhat different symptoms. In suppurative inflammations affecting the epitympanic cavity or attic, the perforations are situated in the membrana flaccida or the membrane of Shrapnell, and they are situated either anterior or posterior to the short process of the malleus. Perforations situated in the membrana always mean caries of the ossicles, which may also be associated with caries of the surrounding walls of the middle ear. Owing to the high situation of these perforations, drainage is not readily obtained, and a radical operation here is therefore more frequently called for than in those cases where the inflammation is confined to the lower tympanic cavity, in which case the perforation is generally situated in the anterior or posterior inferior quadrant of the membrana tensa, and permits of much freer drainage. While caries is frequently the cause of the prolonged suppuration in this form of abscess, it is not so generally present as in those cases where the inflammation is confined to the attic. In nearly all cases of prolonged suppuration of the middle ear, the ossicles will generally be found to be in a more or less state of caries. The bonelet most frequently found diseased is the incus, then the malleus, and finally the stapes which has the power of resisting attack longer than the others. With the exception of its head it is rarely affected.

If after giving the patient a fair trial of all the well-known methods of instilling and insufflating antiseptic medicaments into the middle ear the suppuration still continues, then it is our duty to resort to more radical measures which consist in removing the necrotic membrane with its carious ossicles. The aurist must decide for himself when he has exhausted the milder measures before subjecting the patient to an operation. I believe in many cases the sooner it is done the better, as it is our duty to arrest the suppuration in this cavity as soon as possible; by so doing we not only preserve the hearing, but prevent the serious sequelae of this affection that so frequently result disastrously to the patient's life.

The operation for the removal of the membrana tympani and the ossicles removes all septic material from the middle ear, permits of freer drainage, and enables us to apply the antiseptic lotions directly to the inflamed mucous membrane of this cavity.

The duration of suppuration after the excision of the diseased membrane varies in different cases, but

depends to some extent upon the length of time the abscess has existed, and the depth to which the carious process has extended into the surrounding bony walls. In the case I have to report, the discharge ceased at the end of a week, and at the expiration of three weeks after the operation the drum membrane had been almost entirely reproduced; only a small opening remained in the upper part of the membrane about where the short process would be if present.

While in many cases of partial destruction of the membrane it reproduces itself with great rapidity, still such a rapid redevelopment after total excision as in this case is unusual. The cessation of suppuration can be explained by the fact that caries was limited to the ossicles and the most superficial cells of the attic.

The benefits to be derived from this operation are well illustrated in the report of the following interesting case:

Miss ——— consulted me Sept. 1, 1894, giving the following history: she stated that her general health has always been excellent until the present time; when about 10 years of age she suffered from an abscess in the left ear, the discharge from which continued for about six months, and when this ceased she was quite deaf. Since that time she has had frequent inflammation in the left ear, accompanied by pain, when she caught cold; but not going into the suppurative stage until the present attack which commenced about August 1 of the present year. At this time she was not in very good general health. This attack began with severe pain in left ear accompanied by nausea and giddiness, but there was no discharge until seen by me September 1, when pus was observed for the first time. On examination, there was found to be a diffuse inflammation of the external auditory canal due to furuncles, with a small quantity of pus exuding from the canal. She complained of intense pain both in the external auditory canal and in the deeper parts of the ear, radiating in front and at the back of the auricle over the mastoid region. There was some swelling in front of the auricle just above the tragus, but there was no pain or tenderness over the mastoid region. The swelling in the external auditory canal was freely lanced and hot fomentations applied. This was not followed by much relief as to the pain which seemed to increase and it was accompanied by nausea, vertigo, double vision and vomiting. Although the swelling in the canal subsided somewhat after the scarification there was still too much tumefaction in the deeper part of the meatus for the membrana tympani to be visible. The next day, however, after the continuous applications of hot fomentations there was a profuse discharge, followed by great relief as to pain and the other threatening symptoms. With the appearance of the pus secretion the swelling in the canal continued to subside, and a polyp about the size of a large pea was observed blocking up the canal. This was removed with the snare October 5, and it was found to spring from the middle ear, projecting through a perforation in the membrana Shrapnelli, just posterior to the short process of the malleus. The removal of the polyp was followed by a free discharge of thick caseous pus. Two days after the removal of this growth I removed a large cholesteatomatous mass from around the perforation which was pressing against the drum. This was followed by marked relief as to the pressure symptoms which up to

this time were still very marked. The membrane was deeply swollen and congested, especially in the region of Shrapnell's membrane in which the perforation was confined.

The secretion of pus continued quite profuse and caseous in character for about a week or ten days after the removal of the polyp, but under the continued use of hydrogen dioxid it gradually diminished in quantity, and became more fluid in character. On mopping out the canal with a cotton-tipped probe, rough bone was detected around the margins of the perforation which had increased somewhat in size since the subsidence of the inflammation. The naked probe failed to reveal any rough bone. After treating the ear locally for six weeks with antiseptic lotions with no material change in the flow of pus, it was deemed advisable to remove the necrotic membrana tympani and the ossicles which were believed to be the seat of the caries.

November 9. Before the patient was sent to the hospital the hearing distance was as follows: watch heard only on contact, whisper voice not heard, loud isolated words were heard with difficulty at five feet; tuning fork, bone conduction longer and louder than air conduction.

November 15. The patient was admitted to the Garfield Hospital, and on the same day under chloroform anesthesia the necrotic membrane and ossicles were removed according to the usual well recognized method. Owing to the adhesions that had formed between the drum membrane and the walls of the middle ear, and the profuse hemorrhage, its removal was attended with some difficulty. The hemorrhage was finally checked with a 4 per cent. solution of cocain. There was only a small portion of the incus found, the remainder having disappeared, and the head of the malleus was honeycombed by the carious process. The stapes, as far as could be ascertained, was in good condition and was left in position. After the removal of all diseased tissue from the middle ear, the canal was mopped out with a solution of bichlorid of mercury (1 to 6000) and the canal lightly tamponed with sterilized cotton.

November 16. During the night there was considerable pain which passed off toward morning, and also some nausea and vertigo. The discharge during the night was sufficient to necessitate changing the tampon twice.

The ear was cleansed daily, iodoform and boric acid insufflated, and the canal tamponed.

November 21. She was well enough to leave the hospital, and came to my office for treatment. There was very little discharge present, not enough to moisten the tampon. The giddiness still remains, but to a much less degree; complains of a tremulousness and difficulty in getting a deep inspiration. Hearing distance for isolated words, conversational tone, sixteen feet; watch heard at one inch; Galton whistle heard sixteen feet and over.

November 27. No discharge, giddiness has entirely disappeared. The drum has been reproduced to more than two-thirds of its full extent.

December 5. Owing to a severe cold which the patient contracted, there has been a slight discharge of mucus through the small opening in the membrane, which gradually passed off under the local applications of salicylic acid, gr. xx to alcohol 3i.

May 8. There has been no return of inflammation and the patient is enjoying comfort with a compara-

tively serviceable ear; the hearing distance for the watch being two inches, and for the voice, conversation tones, about five feet.

This operation offers many advantages to the patient when the caries is confined to the middle ear cavity and the superficial cells of the attic, but when the trouble is more deeply situated, as in the deeper parts of the attic and antrum, then the more radical operation of Schwartze, Von Stache, or some modification of these must be resorted to.

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DISCUSSION OF DR. TURNBULL, LAUTENBACH AND BRYAN'S PAPERS.

DR. H. V. WURDEMANN, of Milwaukee, Wis., in opening the discussion said, the discussion of subjects such as dealt with in the papers of our colleagues, Drs. Turnbull and Lautenbach, is apt to resolve itself into an experience meeting. I can only corroborate the frank statements of the former gentleman as to the prognosis to be given to patients regarding the results to be achieved by treatment, in fact, on the acceptance of every patient for treatment of chronic aural catarrh, I give a brief clinical lecture on the natural history of this disease and tell what may be expected, judging from the percentages of cures or of cases in which relief is given from previous experience of myself and others. It seems to me, however, the results of treatment by the various forms of massage are better than those given by Dr. Turnbull. My experience has been that fully one-half the cases that apply within a year after the beginning of tinnitus are practically cured by a course of treatment. Others are greatly relieved and fully 75 per cent. of all cases in all stages acquire benefit by simple treatment. However, these cases should receive continuous treatment for a sufficient length of time to remove nasal and pharyngeal congestion or catarrh and to secure patency of the Eustachian tubes. The patients are warned that it will be necessary for them to return in the spring and fall of each year for a few visits when this has been obtained, after a dozen or twenty-five treatments. Such that do are benefited and their disease held in check in the greater majority of even the worst cases. I have patients now under treatment who have been under my care for six years, and who hear as well or better than they did when they began with me, even though the disease, before the inception of the treatment, had been progressing. We can not rely upon one form of treatment to the neglect of others. There are several kinds of massage, *i. e.*, with the Siegel "otoscope," the Luca spring probe, and direct massage with a cotton-tipped probe applied to the short process of the malleus, and internal massage made after the method I described one year ago before this Section at the San Francisco meeting. (See JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 13, 1894). By this method the administration of vapors of various natures is combined with vibratory massage of the Eustachian tube and lining of the middle ear, the drum-head and ossicles by intra-tympanic massage through the catheter. Attention to the nose and throat has been made in all these cases; in our lake climate there is a class of cases coming under the head of "apex catarrh" as described by Howard Straight, of Cleveland, in which there is congestion of the apices of the lungs and slight chronic bronchitis in connection with the catarrhal trouble of the upper air passage. These are greatly benefited by the administration of creosote in moderate doses. I find that nitro-glycerin in some cases has a marked influence on diminishing tinnitus and vertigo, and is worthy of trial. In regard to "phono-massage," as described by Dr. Lautenbach, would say that my experience has been limited and on account of the disagreeable effect of the sounds of the vibrometer in some cases the patient has absolutely refused to go on with the treatment after one sitting. The middle ear catarrh is certainly amenable to mechanical treatment in the majority of cases in which the labyrinth has not been involved. In the latter cases I am skeptical as to the results to be obtained by any form of treatment and I am sure these cases will always prove to be incurable. A certain proportion of cases where the middle ear is alone involved or where there is but little sclerosis of the labyrinth after due trial for sufficient length of time, *i. e.*, for several months of simple treatment by pneumo-massage and vapors, together with attention to the upper air passages, are subjects for operation. I have had a number of beneficial results from operations on this class of cases. There have been several

dismal failures, one of which I reported to this Section at the Detroit meeting. (See JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 22, 1892), in which my subject was made stone deaf by the operation. In another, I failed to extract even the malleus, which on account of the bleeding and narrowness of the canal was dislocated into the attic and could not be removed. I can not ascribe this to want of experience for I have done this operation over sixty times, the greater majority of the cases, however, being in chronic suppuration of the middle ear. I wish to call attention to the difficulty of the operation and to the necessity for proper knowledge of the anatomic relations of the parts. In many cases the operation is done chiefly by the sense of touch, on account of profuse bleeding, which is especially noticeable when the patient is under ether anesthesia.

DR. S. MACCUEEN SMITH, of Philadelphia—The treatment and care of patients suffering from a chronic non-suppurative inflammation of the middle ear has long been a perplexing subject, and upon which the literature has been very voluminous; however, the methods of treatment as advocated by various authors and authorities have been so contradictory in their application, and vary so markedly in the apparent results obtained by different investigators, that we find a majority of the medical profession of to-day just about as skeptical of the benefit to be derived from treating this class of cases as they were in former years. Nevertheless, within the past few years some notable advances have been made in the way of treating the large and increasing number of our population afflicted with a chronic catarrh of the tympanum.

From the paper just read by Dr. Turnbull, we must all be impressed with his earnest effort to show that considerable has been accomplished in the way of operative interference in this class of cases. Within the past few years I have excised the membrana tympani, malleus and incus, one or all, in a large number of patients, and I must say that my experience thus far as to the benefit derived therefrom has been on the whole quite disappointing. This large series of operations was undertaken purely as an experimental matter with a hope that I might be able to contribute some practical information on a subject that has its pro's and con's ardently advocated in almost every medical meeting the world over. To an extent at least, I think I have succeeded in establishing a few facts, although sufficient time has not yet elapsed to enable me to make positive assertions. After operations of this character almost every case will be greatly improved in hearing, but this as a rule steadily decreases until the patient is in about the condition he was before the operation. Some cases have been reported in which the hearing power was considerably reduced below the point it recorded before operation, but my experience does not bear this out. In a few of my cases the improvement in hearing has continued over a period of three years or more, and I have every reason to believe this improvement will be permanent.

I am familiar with two of the cases quoted by Dr. Turnbull, and am sorry that more of my patients did not receive similar benefit. Not long since, a patient upon whom Dr. Burnett operated (the wife of a physician) came under my notice and I was much impressed not only with the great improvement in hearing she had maintained for a period of two years, I think, but also her entire freedom from tinnitus and vertigo. In conclusion, I would say that I believe the operation under consideration is capable of giving good results when proper cases are selected for its application. That inasmuch as the percentage of patients are so very small, in which the hearing is materially benefited, we are not often justified in advising the operation when deafness alone is the only indication for interference. However, I believe the operation to be a sound surgical procedure when it has for its object the relief of severe tinnitus and staggering aural vertigo, of course after other recognized methods of treatment have failed to give relief.

I wish to say that I have never seen any alarming symptoms or complications accompany or follow this operation. As regards the efficiency of pneumo-massage, as advocated by Dr. Lautenbach in these non-suppurative cases, my experience has been rather limited, but judging from the results of several of my professional friends, who have had extended opportunities for observation, I am inclined to believe this method of treatment to be a good adjunct to the general line of treatment, of more or less value, but like most agents, quite limited in its usefulness.

MR. CHAIRMAN, in answer to the note sent you by one of my hearers, in which the question was asked: "Can you see the stapes in every case, and in what percentage of cases

can it be removed?" I would say that my experience with the stapes is limited to but one case, and in this its removal or partial removal was entirely accidental, and as the patient suffered from severe vertigo for several weeks afterward, I would not care to have a repetition of the accident, much less voluntarily remove it. I have been always been opposed to any interference with the stapes, and believe that those who formerly advocated its excision have now entirely abandoned such radical measures.

Dr. ALDERTON, Brooklyn—Dr. Alderton's experience in the removal of the ossicles for the treatment of chronic catarrhal otitis media, both for the relief of deafness and of tinnitus, has been such as not to warrant him in advising the operation of ossiculectomy in such cases. He recalled one case in which the operation was done under rigid antiseptics in which the hearing for the whisper was advanced from one foot to sixteen feet +, and yet considerable post-operative irritation manifested itself, suppuration taking place with more or less periostitic pain. When these symptoms subsided the membrana tympani was gradually reformed with return of hearing to the condition previous to the operation, with, in addition, a feeling of great stuffiness in the ear. Three several times was the reformed membrana tympani excised with similar results, the patient then being advised to rest content, as the danger of causing mastoid inflammation seemed to increase with each attempt. The whisper remained about the same as before the operation, and the feeling of stuffiness in the ear very marked and unpleasant. In thinking over the case, were the operator to interfere once more he would by Hartman's chiseling instrument remove the upper and posterior segments of the amplus tympanicus in the hope of preventing the regeneration of the membrana tympani and so maintaining the improvement in the hearing.

Alderton, in cases of chronic suppuration strongly advises the removal of the ossicles in all cases that have not yielded within a period of three to six months to systematic treatment, and in which the nerve has been found by the tuning fork and Galton tests, to be in a normal or nearly normal condition, the hearing being much impaired, but counsels that caution be exercised in those cases in which the hearing is only moderately or very little impaired, since in these cases it is perfectly possible to have worse hearing after than before the operation. It then becomes a question as to which the patient most wishes, or which is most necessary to him—the integrity of his hearing or the cure of the suppuration, and as we can not promise a cure of the suppuration, invariably, in these cases, it is wrong to hazard the amount of hearing he still retains. In appropriate cases coming out of the above indications great improvement can be hoped for. In one case, Alderton removed the hammer and incus in a young girl for O.M.P.C. the whisper being improved from two feet to between twenty and thirty feet, the suppuration at the same time being cured, and this improvement has been maintained for over two and one-half years.

In answer to a question by Dr. Fulton, Dr. Alderton thought that failure to get the incus in O.M.C.C., though unavoidable in a certain proportion of the cases, was due to the removal of the hammer before first disarticulating the incudo-stapedial joint. He advised, first, making a flat of the posterior quadrant of the membrana tympani, the inferior border remaining the attached border, thus exposing the incudo-stapedial joint usually, then cutting the stapedius and the articulation. The tensor tympani and the anterior and posterior folds should now be severed, the patient's head elevated, the malleus extracted, when usually the incus will come into view, or may be reached with a Hewit or Weber hook, or the incus may be removed before extraction of the malleus. Plugging and cocaine should be used to control the hemorrhage, ether anesthesia being used.

In answer to a question of Dr. Würdemann, Dr. Alderton uses McKay's or Hartman's forceps for the extraction of the malleus. The McKay is used in all cases of narrow or tortuous canal. Also, though he has occasionally been successful in its use, he does not think that cocaine anesthesia is sufficient in most cases of O.N.C.C., though more apt to be so in case of O.N.F.C.

Dr. Alderton's experience in the use of phono and pneumo-massage has been rather unhappy, as he has not only failed to benefit his patients, but has often produced unpleasant symptoms, as vertigo, tinnitus, etc.

Dr. LAUTENBACH—In regard to Dr. Würdemann's results from massage he has as he stated, employed it through the Eustachian tube with indifferent results. He has probably used it for a very limited period at each sitting, from a fraction of a minute to a minute only. When used for such short

periods good results are obtained only in the mildest cases. Massage to be effective must be used at varying pressures from 50 to 200 motions per minute, and must be continued for from five minutes in mild cases to as much as one to two hours in old, resisting, adhesive troubles. As for Doctor's deaf and dumb brother, it would be most interesting to know whether he hears or feels the sounds spoken of. If he hears them I am sure some improvement awaits the proper employment of massage as all of my deaf and dumb patients treated by me within the past year (six in number) show some improvement in hearing.

Dr. Turnbull in his paper gives us some cases operated upon in whom the watch hearing distance varied from five to seven inches—these patients were suffering with tinnitus and vertigo; unless these last two symptoms were most severe—so severe as to materially interfere with the patient's ability to earn a livelihood or to so discomfort him as to render life a burden, suggesting suicidal thoughts—I would not consider myself justified in performing an operation and risk the loss of an amount of hearing which is rarely present after an ossicular operation. A case interesting in this connection is that of Mrs. Hunter, who after two examinations by an ear specialist was told that in order to relieve the tinnitus and vertigo nothing else but an operation would suffice. When she came to me, in addition to the above symptoms, she showed a marked degree of deafness, being able to hear the watch only on contact. As the result of phono-pneumo massage the vertigo completely disappeared, the tinnitus only appearing in a mild form when she had a head cold; the hearing in the one ear is watch thirty-eight inches, the other thirty-six inches. Is it conceivable that this result could have been obtained by an operation? Is it not more likely that even though the vertigo and tinnitus had disappeared, the deafness would have remained? Had massage failed in this case, the ear instead of being injured by the delay, would have been rather improved by it, as the mobility of the joints being increased, the operation can be more thoroughly and carefully done.

Dr. Turnbull has remarked that he has not known of a case of mastoid disease following or caused by the operation. I recall a case of a young woman Miss Ida F., of Brownsville, Tenn., upon whom I operated on one ear about April 1893, and the other ear November, 1893, the extreme constant, uncontrollable tinnitus indicating the operations. She left Philadelphia and went to Louisville, Ky., about the middle of December, 1893, apparently in perfect health. Shortly after Jan. 1, 1894, I heard that she had developed some ear disease, and later on I received a letter from Dr. Cheatham of Louisville, informing me that she had developed a mastoiditis appearing first in the ear operated upon last, which later affected the other ear. Despite prompt opening of the mastoid cells and thorough cleansing and antiseptics, the patient died. While I can not be sure there was the slightest direct connection between the ossicular operations and the mastoiditis, I yet have a strong belief that the operation predisposed to the inflammation as it deranged the structures so as to render them more susceptible to deleterious influences.

Dr. Rogers is quite correct in his assumption that massage may do harm. Many of the instruments are crude and unscientifically constructed. In this paper I have but spoken of the results obtained from the various machines of my own construction. I know of a prominent specialist who has completely abandoned massage methods because of the bad results he obtained from the vibrometer. He assures me that in one case he is positive that he produced a hemorrhage into the labyrinth, with total loss of hearing, by the use of this instrument.

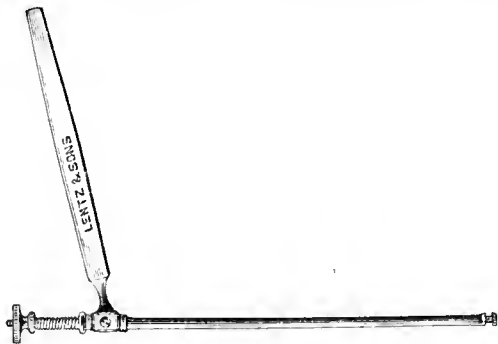
In reply to Dr. Nichols' criticism that he can not see how the influences that occasion boiler maker's deafness can be curative in thickened and plastic middle ear conditions, I will say that in the one case the noises are continuous, loud and oppressive, and act as irritants, whereas in phono and pneumo massage, the therapeutics depends upon the regularity of a mild stimulation of the ear structures and its nerve sufficient to gradually break up adhesions and restore the normal circulations, but not enough to result in the throwing out of plastic secretions.

Dr. Alderton has called attention to a class of cases in which ear massage gives the best of results. I refer to cases of old suppurative disease. If the perforation be filled up by cicatricial tissue or if the perforation be present, the effect of massage treatment results almost invariably in a marked improvement in hearing—the improvement being more easily brought about and greater in degree than is present in an intact drum head with an equal degree of

deafness—the reason for the greater improvement being the fact that the massage exerts its influence directly on the labyrinth through the oval and round windows without the intervention of the drum head and ossicles. Where the drum head has healed over, the cicatricial tissue allows of a greater to and fro motion within the middle ear without the intervention of the ossicles.

Dr. Alderton has criticised the proposition that an increase in the circulation of the middle ear results in curative influences. The diseased ear with an increase in the quantity of fibrous and plastic tissues can be compared to a dislocated shoulder joint. After the joint has been replaced it is kept quiet for a long time, and when the ligaments are healed the joint is still. Effusions have occurred in the muscles and tissues about the joint; the circulation is impeded. To cause absorption of these effete and inflammatory products the joint is carefully exercised and the muscles kneaded. In time the circulation is restored and inflammatory products removed, the muscles and joint resuming their normal functions. So with the ear; the inflammatory deposits as well as the deposits occasioned by disuse, calcareous and others, are present in an ear in which the functional action and circulation are below normal. By increasing the functional activity artificially, we restore the circulation and remove the deleterious deposits in just the same manner as the masseur cleaned out the shoulder joint.

Drs. Alderton and Fulton have both called attention to the difficulty of performing ossicular operations, and of the liability of losing the incus high up in the attic. Dr. Würdemann I believe, has told us of a case in which the malleus slipped up so as to elude removal. The danger is an ever present one unless we have some way of firmly holding the malleus and then of opening the incudo-stapedial joint and then raising the handle of the malleus outwardly and upward, while the detachment of the malleus and incus is ac-



complished. I succeed in doing this by a forceps I devised some two years ago, and which I believe is being used by Dr. Cheatham of Louisville, Ky. It consists of a rod with a toothed end presenting against a corresponding toothed end of an inclosing tube, the distance between the toothed ends being regulated by a nut overcoming the pressure of a spiral spring, the action of this spring being to keep the toothed blades apart. After the drum membrane is detached, the forceps is inserted and the handle caught firmly as high up as possible, when the nut is screwed down sufficiently tight to hold the handle of the malleus, and yet not so much as to crush it. Now having the malleus under control by cutting the tensor muscle and then drawing the forceps slightly outward, raising it at the same time, the incudo-stapedial joint is readily reached and these bones disarticulated—the incus and malleus attachment can then be cut and these bones removed. I always use general anesthesia for these operations, never depending on a local anesthetic.

That the method does influence the labyrinthine structures would seem to be proved by the fact of the very favorable results obtained in perforation cases. In order to prove the proposition more thoroughly, I will quote the case of a deaf and dumb girl, Miss E. G., 12 years old who has not been able to hear at all since she had a severe attack of scarlet fever when two or three years old. She has been examined by Dr. Burnett who pronounced it a case of labyrinthine disease, of a hopeless nature. By the aid of phono-pneumo massage she has been made to hear and even to distinguish many voice sounds and is also able to speak with her family and friends. She has developed to such an extent that she is now a pupil in one of the public schools of Philadelphia. Again, as a proof of the influence on the labyrinth of such treatment, I recall a girl, Miss A. G. H., of Camden, aged 24, who in 1885 fell down a hatchway striking the right side of her head. She

was unconscious for four or five hours and since her fall has not heard in the right ear. In the belief that some of the ossicles had been broken or detached, in March, 1888, I removed the malleus incus, and as these seemed in good position the stapes as well. The operation had no effect on the hearing, the tinnitus being but slightly diminished—no hearing in the right ear whatever. In 1890 she consulted Dr. Knapp of New York, who pronounced the case hopeless. In 1894 she returned to me. By all tests—phonographic tests with all varieties of sounds—the hearing remained negative. There is a secondary membrane present. I have been treating her by phono and pneumo massage since then with the result that she hears the watch on contact, and sometimes when just removed from the ear.

As before said, I consider this method as offering a new path by which we can accomplish often good results for hearing as well as tinnitus and vertigo, and it does it by putting the ear in a more healthy and natural condition—that it affects not only the drum head and ossicular chain, but the labyrinth and auditory nerves as well; and that this treatment does not in any way interfere with operative measures should they later be deemed necessary.

EVISCERATION OF THE EYEBALL.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY L. WEBSTER FOX, M.D.

PHILADELPHIA.

This operation must not be confounded with abscission, although both are somewhat similar in character. The latter operation has been abandoned by the majority of ophthalmic surgeons on account of its risks.

Evisceration first consists in excising the cornea and thoroughly removing the contents of the globe, and replacing the vitreous with a glass globe.

Abscission of the cornea, as suggested by the older Critchett, was, probably, the best of this dangerous operation. In it, no attempt was made toward emptying the contents of the globe.

We are indebted to three English surgeons for bringing evisceration prominently before the notice of the profession practically. Mules, of Manchester, first operation was performed in October, 1884. Brnd-nell Carter, who modified the abscission operation of Critchett some years ago, is now one of evisceration's most ardent advocates, while Bickerton, of Liverpool, performs it preferably to enucleation.

Frolich was the first surgeon to perform the evisceration. This he carried out in 1881 and named it "excochleation." Muldon and Graefe carried on their observations in 1884. Dubanton followed next with a series of experiments.

I shall not review the literature on the subject, as it has been done by my friend Dr. G. Oram Ring, in a very recent article¹ on this subject. My remarks shall be limited to my personal experience with some cases.

Case 1.—In 1885 I performed the operation twice in the Germantown Hospital, but the reaction was so great, including tremendous swelling of the orbital tissue and eyelids, great pain, and an elevation of temperature (105° in one patient, 105.5° in a second) I felt that discretion was the better practice and removed both glass globes, later on removing the small stumps of the atrophied eyeballs. During the summer of 1893, while in Liverpool, Mr. Bickerton brought to my notice three patients upon whom he had recently operated. The cosmetic effect was so beautiful that I again became deeply interested and gathered renewed courage at his success. I also had the opportunity of witnessing the operation at the Liverpool Infirmary by Mr. Bickerton, and also the after treatment. To see a skilled operator carrying out the technique of an operation is infinitely better than to follow

¹ "Evisceration of the Eyeball" reported in University Medical Magazine, April, 1895.

the details of a written description, be it ever so clear and concise.

Case 2.—The third² patient upon whom I performed this operation, June 29, 1894, at the Medico-Chirurgical Hospital, was a young Assiniboine Indian from Montana, now at the Carlisle Indian School. He was brought to the hospital by Dr. Montezuma to have the eyeballs enucleated on account of pain and much discomfort. As near as we could get at the history of the loss of the eye, it was this: about three years previously, while on the plains, an inflammation of the left eye took place which gradually progressed to an ulceration of the cornea, and finally, to complete destruction of this part of the eye. Instead of removing the eyeball, a Mules' operation was performed, under ether. The details of the operation were carried out without complication and the patient put to bed.

The orbit was examined after twenty-four hours—no inward symptoms were present, excepting a slight swelling of the upper eyelid. Toward evening the eyeball became somewhat painful, and the patient did not rest well during the night. Temperature 102° F.; the next day temperature fell to 99° F. More swelling of the eyelids appeared, with considerable chemosis of the conjunctiva, but no discharge of pus. Chloral and a bromid were given to quiet the pain, and hot fomentations were applied to the eyelids. On the third day the conjunctiva became very edematous and protruded between the eyelids; otherwise the patient's condition was about the same as before. The internal treatment at this time was hydrarg. bichlor., gr. 1-32; potass. bromidi, gr.x, three times daily. To the protruding conjunctiva, pressure bandages were applied, which restricted the protrusion. The temperature fluctuated about the 99 degree line until July 7, when it fell to normal, and the various inflammatory conditions subsided. At the end of the week I removed the stitches from the conjunctiva. The sclerotic swelling did not subside for ten days, when the pain disappeared, and at no time during his residence at the hospital did it return.

The operation was entirely successful, affording a beautiful support for the artificial eye, which was adjusted July 18. The artificial eye stood out full and prominent with almost perfect movement—a decided improvement over the old operation of enucleation.

Case 3.—Operation performed Oct. 26, 1894, on a young woman, a patient of Dr. Frutchey. She had been wearing an artificial eye over the blind eye for several years. The result was that she had symptoms of sympathetic irritation, and pain in the partially atrophied eyeball. The operation was carried out in detail as above described. Upon removing the cicatricial cornea, I found the scleral cavity filled with a bony mass, round and shaped exactly like a small acorn. This growth of bone was also a very important factor in the causation of pain. The bone was growing larger and the sclerotic coat was restricting its growth, hence the pain. The bone was removed without difficulty and given to Professor Laplace for microscopic examination. The patient had no untoward symptoms; the temperature ran up to 101 the first day after the operation, and on the third to one degree above the normal line, but no visible change followed—the patient leaving the hospital in twelve days. In this case there was no reaction, no swelling of the eyelids, and the conjunctiva but very slightly chemotic. The artificial eye stands out on a level with its neighbor. The movement is perfect, falling but little short of normal.

Case 4.—A young woman, aged 22, admitted to the hospital on account of an irritable left eye, staphyloma of the cornea; eye useless. On account of the repulsive appearance of the eyeball, the patient desired its removal, so as to replace it with an artificial eye. The operation was performed under the same antiseptic precautions with little or no reaction, no swelling of the eyelids and only a suspicion of edema of the eyelids. Owing to a difficulty in matching the right in color, the artificial eye is not quite large enough. The movement is exceedingly good.

Case 5.—Male, age 33. In September, 1884, was struck in the left eye by a brass spring, puncturing the sclerotic, from which exuded a bead of vitreous. When brought to the hospital the vitreous was snipped off and the scleral wound was closed by stitching over it the conjunctiva. The eye became involved in a general uveitis, with a result of a total loss of vision and slight shrinking of the eyeball. I examined this patient about once a year and during the ten years no inflammatory change took place in the eyeball. The hyperopia was fully corrected in the right eye and glasses worn. On Jan. 13, 1892, the following note was made in my

case-book: the sclerotic scar visible, through the conjunctiva no perception of light, total posterior synechia, lens catarrhus, no perception of light. Tension—1, eyeball manifestly shrunken, no pain nor irritation. On Dec. 26, 1894, the patient came to see me on account of considerable congestion of the left eye, and slight pain on pressure. The result of the examination revealed sympathetic irritation. The patient was placed on active mercurial treatment, which reduced the active symptoms; both eyes became perfectly quiet. Having had this warning, I advised the evisceration operation, which was performed Feb. 2, 1895, at the Medico-Chirurgical Hospital. The operation was witnessed by Drs. Risley and Carpenter, two members of the Association. The case made a very good recovery, with little or no reaction, the only defect is a slight gaping of the conjunctiva and sclera, owing to the central stitches of both conjunctiva and sclera giving way and allowing the glass globe to be visible—the patient is, however, wearing an artificial eye, and no inconvenience has become manifest up to the present writing.

Case 6.—Child, female, age 11. Staphyloma of the cornea of the left eye, due to an ulcer of the cornea three years previously; since then the cornea has developed into a very large staphyloma. The operation was performed May 3, 1895. At the present writing the patient is doing well. The details of the operation are carried out under ether. The eye is thoroughly irrigated with a lotion, which I call formula 1 to designate it from almost the same formula for sterilizing instruments. The eyelids are separated with the ophthalmostat. The conjunctiva is dissected from its corneo-scleral attachment back to about the equator of the eyeball, the muscle not being interfered with; then the cornea is excised—this is best done with a large Beer's knife, as in performing a flap operation for cataract. The lower half of the cornea is removed with curved scissors and the contents of the globe are taken out with a small scoop, devised for the purpose. Great care is necessary to remove the ciliary body and choroid and the head of the optic nerve, leaving the clean white sclera. Mr. Carter has devised a rubber bulb which is inserted into the scleral cavity, and inflated with air to produce pressure on the central artery to prevent hemorrhage. As this application has not been a success with me, I pack the scleral cavity with sterilized cotton. After waiting a few minutes this is removed, and the contents of the scleral cavity again thoroughly irrigated with a hot antiseptic fluid. A sterilized glass globe which is best suited to the case, is then inserted with a specially devised instrument; the sclera is split vertically so that the edges may be drawn together and held by fine stitches of catgut, completely hiding the glass ball. The orbit is again thoroughly irrigated with the hot solution and the socket packed with sterilized cotton, over which is bound a sterilized bandage, and the patient put to bed.

Formula 1. Irrigating fluid.

Hydrarg. bichlor	gr. 1-50	003
Zinci sulpho-carbolatis	grs. xxx	1 80
Aq. menth. pip	ʒ iv	16
Aq. camph.		
Aq. destil. āā	ʒ iv	128
℞ Sol. ft.		

The same formula is used for instruments less the hydrarg.

In Case 5, instead of using black silk to suture the sclerotic coat, sterilized catgut is used. Whether the knot became untied or whether absorption took place too rapidly, causing gaping of the wound and thus allowing the glass ball to press upon the conjunctival suture and cause it to tear, I am unable to say, but from whatever cause the glass ball is visible. The patient is now wearing an artificial eye without any inconvenience.

When the operation is performed under strict antiseptic precautions very little or no reaction follows, and the results, as Mr. Mules states, "are not as disturbing to the normal relation of the parts outside of the sclera" as enucleation. Dubanton and Graefe arrive at these conclusions: "That the procedure equaled in value enucleation in sympathetic disease, was safer as regards danger of purulent meningitis, can be performed in panophthalmitis, and that, when-

² Reported in Codex Medicus, Philadelphia, November, 1894.

ever done, a better stump is always secured." If we have in evisceration a method equally as safe as in enucleation, we certainly have in addition the advantage of giving better support to an artificial eye, getting rid of the sinister stare, the enophthalmia and the more perimetric rotation, with no disagreeable mucopurulent discharge so common after enucleation.

1804 Walnut Street.

DISCUSSION.

DR. S. D. RISLEY, Philadelphia, Pa.—My attention was favorably called to the Mules' operation by Mr. Carter, of London, and I have since performed it in one case with very satisfactory results. I regard the advantages of this operation to be:

1. Improved cosmetic results as compared to enucleation. (He exhibited a photograph to illustrate this in which it was scarcely possible to detect the artificial eye.)

2. The patient is much more comfortable after this procedure than after extirpation, for the reason that the tears flow off in a natural way and he is not disturbed by the collection of muco-purulent discharge in the orbit or behind the artificial eye as is usually the case after excision.

The disadvantages are: (a), the operation is a much more difficult one and should be done only with careful attention to asepsis and antisepsis. Its satisfactory performance is greatly aided by the ingenious instrument devised by Mr. Mules for the artificial vitreous, and the inflated bulb devised by Mr. Carter for arresting the hemorrhage within the scleral cup. (Instruments were exhibited by Dr. Risley.) (b), a second drawback is the considerable suffering which the patient must undergo for several days in most cases. There was marked edema of lids and chemosis of conjunctiva in my case, with slow pulse and temperature of 99.5 to 101 degrees for four days. This was treated with continuous application of cold compresses and lead water and laudanum. The chemotic conjunctiva was frequently cut, to allow discharge of accumulated fluid. After the fourth day, edema rapidly subsided. The swelling could not be regarded as an inflammatory reaction, but was probably due to cutting off the anastomatic circulation by the extirpation of the retina and choroid. (c), it is distinctly open to question whether in cases of imminent secondary panophthalmitis the procedure is as certain a prophylactic measure as excision, since volumes of the infectious microorganisms might thus be outside the sclera in the lymph channels. (d), in one case in which I had proposed the Mules' operation but did an excision instead, I found the foreign body which had penetrated the ball, lying near the optic nerve on the outside of the sclera, to which it was still adherent. I could but congratulate myself that excision instead of evisceration had been performed.

DR. G. ORAM RING, Philadelphia, Pa.—While the first published case of evisceration was by Fröhlich in 1881, Mr. Henry Powers claims to have seen Hancock perform a number of such operations before that time. I have published recently the history of the case of a child 10 years of age upon whom I operated and inserted a glass sphere. The reaction was very slight and there was no swelling of the lids; temperature 99.4 on the second day after the operation, falling to normal on the third and there remaining. The case was one of increasing antero-staphyloma in which eserin and pressure bandage had accomplished nothing. The tissues of the face surrounding the eye will, I think, develop much more satisfactorily when such an operation is performed on a young child than after enucleation. The cosmetic effect is unquestionable. Referring to Dr. Hotz's case of sympathetic neuritis following evisceration, and to the two published cases of sympathetic ophthalmia of Dr. Cross following the performance of the Mules' operation, I believe, with Mr. Carter, that as there had not been primary union of the scleral edges, the irritation was not chargeable to the insertion of the artificial vitreous. Should there happen to be extensive infiltration into the deep tissues of the orbit compelling deep incision, evisceration with or without glass globes would, as claimed by Dr. Noyes, distinctly hinder the satisfactory progress of the case. The perimetric measurements of my case were very gratifying. Inward rotation 20 degrees; outward nearly 40.

DR. F. C. HORZ, Chicago, Ill.—One of the gentlemen has referred to my paper on "Sympathetic Ophthalmia following Evisceration," in which paper I spoke of the better cosmetic results claimed for evisceration and showed by measurements that as far as rotation was concerned, I was not in favor of evisceration. I have continued these meas-

urements since, but regret to say that I have not had opportunity to measure the artificial eye set upon an artificial vitreous. I am not yet satisfied that the results of rotation are any better by this method. As to the cosmetic effects. After examining these photographs I do not see that the sinking condition of the upper lid is much better than after enucleation. The only point in favor of an artificial vitreous after evisceration is the fact that the socket is full and consequently there is no irritation from tears, so troublesome after enucleation.

DR. E. OLIVER BELT, Washington, D. C.—I want to ask if anybody here has had any experience in inserting the glass globe into the capsule of Tenon after operation? It seems to me that there you would get rid of the disturbing secretion and have the advantage of a full orbit. Perhaps the only thing that would not be as good as evisceration would be the movements of the eyeball.

DR. H. GIFFORD, Omaha, Neb.—In regard to the movements of an artificial eye after evisceration, I have made some investigations, and while I confess I have been disappointed in some cases, I have found decidedly superior rotation, and this increasing directly with the size of the stump upon which the artificial eye was set. When placed upon an atrophic ball, I found it so much better that there was no comparison whatever, and hence can not coincide with Dr. Hotz on that point. Now there is one other point, about the danger of sympathetic ophthalmia after evisceration that was mentioned by Dr. Risley. You possibly leave germs in the lymph channels about the eyeball. I doubt very much whether a few germs in this locality would make the difference you might suppose, upon superficial examination. One germ does not make a sympathetic ophthalmia. I think the toxins play a more important part in the development of the trouble. A point which may account for sympathetic trouble following evisceration is, that no matter how carefully you do it, you may leave some pigmentary cells or fragments of the retina attached to the optic nerve. I have experimented upon a considerable number of rabbits and upon examining them, been surprised to find quite a long piece of retina remaining attached.

DR. L. J. LAUTENBACH, Philadelphia, Pa.—Considering only the mechanical appliances used, the glass balls are compressed spheroids with a surface more or less flattened, and on this there is a small depression. It is evident if it is desired to preserve the most perfect muscular motion, that the greatest circumference must correspond to the equator of the eyeball and the flattened surface must be anterior; on account of the inner surface of the artificial eye being flattened, the opposite more curved surface fitting accurately at the nerve entrance of the eviscerated ball. Now the instrument here shown does not accurately so place the ball. If it does not, the ball may yet adapt itself in proper position or be placed there by the operator. This suggests an instrument constructed to hold the ball by a vacuum method until it is inserted. It consists of a rubber ball attached to a tube which opens out with a sort of lip of soft rubber of a size sufficiently large to adapt itself to about one-third the area of the glass sphere. To serve as a handle or support, the lip is made rigid by a backing of brass which extends over the rubber tube as well. By extracting the air in the bulb and placing the glass ball in proper position in the cup, the ball being firmly held is easily placed in position with its flat side forward. If necessary an expanding speculum could readily be devised to hold the sclera open while the ball is being placed in position. Another point which suggests itself to me is the thinness of the glass of which these balls are made. This piece which I hold in my hand is about one-eighth of an inch in thickness. It is evident that in putting in an artificial vitreous we can at least use a weight of material equal to that of a normal vitreous, and could therefore use glass of one-fortieth or even one-tenth inch in thickness. The danger of breaking by blows would be lessened, as well as that arising from the attrition of the two glass surfaces, even though the stitched sclera lies between them.

DR. R. C. HODGES, Houston, Texas.—It strikes me, from my understanding of the technique of Mules' operation, that Dr. Lautenbach has his diagram reversed.

DA. L. WEBSTER FOX, Philadelphia, Pa.—I think Dr. Lautenbach does not quite comprehend the operation from his remarks upon the instrument. The ball is covered by the sclerotic just as a baseball is inclosed within leather. The cases I have examined show it to be one hard body with the sclerotic surrounding it and the conjunctiva in front. As to the breaking of these balls, the Indian boy of whom I spoke, received a hard blow and the eye was broken but not the glass ball. No ordinary blow would break one I am sure.

HISTOLOGIC AND BACTERIOLOGIC NOTES ON THREE CASES OF PENETRATING WOUND OF THE EYEBALL, AND SOME OBSERVATIONS ON CERTAIN BACILLI FOUND IN A CASE OF POST-OPERATIVE PAN-OPTHALMITIS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In spite of numerous investigations, the exact nature of sympathetic ophthalmitis is not known, nor is the path of the morbid changes which precede the inflammation certainly ascertained, although the older hypotheses have largely been abandoned since 1881, and the disease ascribed to microbic origin. Three more or less distinct theories exist:

1. The "Nerve-Irritation Theory" which, in a modified form, has been maintained by Schmidt-Rimpler thus: irritation of the ciliary nerves in the injured eye by means of disturbance in the circulation and nutrition, contrived in a reflex manner, is solely responsible for the disposition to sympathetic inflammation in the other eye. The longer the changes have existed and the more widespread they are, the better prepared is the soil for action of the inflammation-producing injurious agents, which may be microbic or chemic in nature.

2. The "Migration Theory," the chief advocate of which is Deutschmann,¹ who thus states it: sympathetic inflammation is a process of microphytic origin, progressing in the continuity of tissue from one eye to another, through the optic nerve apparatus; exceptionally a pure chemic process in the first eye may pass by the same route to the second.

3. The Theory of Infection, which is inclined to accept microbic influence as the most reasonable explanation of the characteristics of sympathetic inflammation, but which is not committed to the character of the microorganisms, the methods by which they enter the circulation, or the path along which they travel.

Perhaps a fourth belief ought to be mentioned, viz., that it is not the microorganisms but their metabolic products passing through the lymph streams which are responsible for the disease.

If the ciliary nerve idea is disregarded (and there seems the least evidence in its favor, although it is not disproved), Deutschmann's migration theory is the most attractive. Unfortunately, however, a number of researches by the most competent observers, notably Gifford, Mazza, Randolph, Limbourg, Levy and Greeff have failed to confirm his views,² and there seems little doubt that in the present state of our knowledge, rabbits, as Greeff asserts are useless in this class of experiments, and probably other animals as well (dogs and guinea pigs). Even if germs are conceded as the cause of the morbid process, it would be practically impossible, as Schirmer points out, accurately to determine the route, unless we could recognize them with the microscope and examine the entire cranial cavity and contents of both

orbits in a recent case of sympathetic ophthalmitis in man.

At present we must be content with the somewhat indefinite "theory of infection."

To the cases of penetrating wound of the eyeball, causing the conditions usually seen in connection with sympathetic ophthalmitis, I desire to add three observations, bearing upon this subject:

Case 1.—Traumatic irido-cyclitis, with retained foreign body in the left eye; sympathetic serious iritis of the right eye. History: H. A., a man, aged 29; eleven weeks before admission to the Jefferson Medical College Hospital, was injured by a piece of steel striking the left eye, and was sent for treatment by Dr. Hollenbach, of Shamokin.

The injury consisted of a large cut through the upper ciliary region, which healed with a puckered cicatrix; the iris was inflamed and bound down to the capsule of the lens, and the anterior chamber shallow; the eye was sightless, slightly shrunken, soft to the touch and tender on pressure.

There was moderate congestion of the right eyeball, the circumcorneal zone being tinted with a finer injection of pink hue; faint haze in the lower half of the cornea; few dots of exudate on its posterior layers, and one soft posterior synechia. Vision was normal, the field of vision uncontracted and the optic nerve intensely hyperemic. These symptoms continued to increase in spite of early treatment, until the full development of serious cyclitis was attained. The excitor was enucleated and the usual treatment for iritis continued.³

Anatomic examination: the eyeball, beginning to assume a quadrate shape, was opened and the retina was found detached, the ciliary body thickened, the vitreous puriform, and a piece of steel, 12 millimeters in length and 3 millimeters in width, was discovered lying in the long axis of the eyeball, stretching between the posterior surface of the lens and a point near the optic nerve entrance, entangled in the meshes of the detached retina and disorganized vitreous.

Microscopically, the following lesions are present: the wound of entrance in the upper part of the cornea is closed with young scar tissue (connective tissue and lymphoid cells), covered on the corneal end by epithelium and pierced in its upper part with large blood vessels. Passing backward, this plug of tissue divides the iris into two portions, respectively attached on either side, and terminates in a mass of tissue composed of round cells, spindle-cells, leucocytes, pigment granules and blood corpuscles held in a matrix of organizing and organized elements (connective tissue), which passes through the length of the globe and ends in the sclera just above the entrance of the optic nerve. In the center of this mass is a groove, marking the position occupied by the foreign body.

The iris is infiltrated with young cells, the ciliary body shows plastic cyclitis, with foci of denser infiltration near the ciliary processes and in the choroid (somewhat broken and detached) the same infiltration is sparsely present; but scattered through it, especially in the neighborhood of large blood vessels, are numerous circumscribed collections of densely stained round cells.

From the head of the optic nerve proceeds an outgrowth composed of the remains of the detached retina and connective tissue containing numerous round cells. In the papilla itself and the nerve, darkly stained nuclei are more numerous than in the normal condition, but this is not a marked feature.

The ciliary nerves, as they pass through the sclera posteriorly, are much infiltrated with young cells lying within the nerves and surrounding them; also with many pigment granules from the choroid.

Summary: Adherent corneal cicatrix; plastic cyclitis, with infiltration of the choroid (malignant uveitis); inflammatory exudate in the vitreous; slight papillitis and neuritis of the ciliary nerves.

Bacteriologic examination: the specimen was not examined for bacteria by culture method; but microscopically in suitably stained section microorganisms are not to be found.

Case 2.—Lacerated wound in the upper ciliary region; irido-cyclitis and cataractous lens of left eye; sympathetic uveitis of right eye; marked constitutional disturbance. History: G. W. W., a man, aged 57; nine weeks before admission to the Jefferson Medical College Hospital, was struck in the left eye by a fragment of stone, causing a wound in the upper part of

¹ Ophthalmia Migratoria, Hamburg und Leipzig, 1889; also Beiträge zur Augenheilkunde, X, Heft, 1893.

² The accuracy of these is again asserted by Deutschmann in a recent critical review of the subject, "Beiträge," loc. cit.

³ The ultimate result was cure in a month, and more than a year after the inflammation the eye was entirely normal.

the cornea, and came under the care of Dr. G. H. Woods, of Pine Grove Mills.

The patient was refractory, and in spite of his physicians' advice, exposed himself to inclement weather. Severe iritis followed, which under Dr. Wood's treatment subsided in about two weeks. Then a relapse occurred, associated with several styes upon the upper and lower lid, vision rapidly failed, and in the fourth week after the accident the right eye began to show signs of inflammation and disturbance of vision. From the very first, the patient suffered from violent headache and began to lose flesh. The urine contained a trace of albumin. Slight derangement of intellect was noted eight weeks after the accident.

When he came under my care in the Jefferson College Hospital, the following notes were made: V. of O. D. equals qualitative light perception; pupil semi-dilated from use of atropin; a ring of pigment on capsule of lens; iris thickened and discolored; numerous dots on posterior layer of cornea; lens partially opaque, and vitreous full of dark opacities. V. of O. S. equals light perception; T. slightly minus; marked ciliary injection; lens cataractous; anterior chamber deep; wound in the upper part of the cornea, extending up and in through the ciliary region for 1 centimeter, and iris prolapsed into the wound and adherent to its margins.

The patient had suffered much pain and had lost forty pounds in two months. He was demented and suffering with various hallucinations; there was almost complete anorexia. He was emaciated; the skin was harsh and dry; the tongue heavily furred; the bowels obstinately constipated, and the urine contained a trace of albumin.

The left eye was enucleated, after consultation with Dr. W. Thomson, and the patient put upon mercurial inunctions, potassium bromid, and hyoscin at night to control talkative delirium. The general condition vastly improved, but practically no change for the better had occurred in the right eye when he left the hospital, six weeks later.

Bacteriologic examination: Dr. D. Braden Kyle very kindly attended the operation, and as soon as the eye was removed he inoculated, with the usual precautions, serum and glycerin gelatin agar tubes, 1 from the divided end of the optic nerve; 2, from the intervaginal space of the nerve. These tubes remained sterile, with one exception, in which a growth of cocci appeared, no doubt due to accidental contamination, as other tubes inoculated from the same place failed to show any growth. Suitably stained and serially cut sections were entirely free from microorganisms.⁴

Histologic examination: the cornea and the superficial epithelium are intact, except at the upper corneo-scleral junction where there is a purulent infiltration of the superficial layers. The neighborhood of the wound is infiltrated with young cells and wandered-in pigment granules.

The iris is swollen to twice its normal size and infiltrated with small round cells, a similar infiltration affecting the ciliary body and processes, in the former structure collected here and there into dense foci. Scattered throughout these tissues are many pigment granules and branched pigment cells.

From here, the process may be traced to the choroid, throughout which there is a diffuse collection of round cells (purulent infiltration). For the most part the lamina vitrea is intact.

The retina is detached and although not free from change, as it exhibits scattered areas of infiltration, it is generally of better constitution than would seem likely from the extensive lesions existing elsewhere.

The vitreous, where it remains, is a mass of leucocytes.

The papilla is swollen, and contains extensive infiltration of leucocytes and darkly stained small round cells. Similar cells surround the distended blood vessels and the increased number of nuclei can be traced along the nerve, the process, however, growing less distinct as it departs from the scleral opening. In the intersheath may be found inflammatory material.

The ciliary nerves as they pass through the sclera are inflamed, and their sheaths contain many inflammatory corpuscles.

Summary: corneo-scleral wound containing much uveal pigment; malignant uveitis, the choroid exhibiting an early stage of purulent infiltration; papillitis and infiltration of the optic nerve and its sheath; neuritis of the ciliary nerves.

Case 3.—Penetrating wound through the upper ciliary region with retained foreign body (piece of steel) in the vitreous; beginning purulent irido-cyclitis on the fourth day after injury; no signs of trouble in the opposite eye. History: S. M., a man,

aged 25, was admitted to the Jefferson Medical College Hospital on account of an injury to the left eye caused by a piece of steel striking the organ. There was a lacerated wound in the upper ciliary region, the lens was partially dislocated and beginning to become cataractous, and there was a slight gray infiltration of the wound. The eyeball was collapsed from loss of vitreous and slightly tender to the touch, careful palpation revealing a spot of induration in the upper portion marking the probable situation of the foreign body.

Many attempts had been made by his fellow workmen to extract the foreign body, or what they supposed to be the foreign body, which was probably some fragments of uveal pigment, and the wound was no doubt thoroughly infected before the patient presented himself for treatment. Two days later he gave consent to enucleation, the first signs of purulent iritis being already present. Therefore the eye was removed on the third day after injury.

The right eye was normal in all respects and showed no signs of sympathetic irritation.

Bacteriologic examination: Dr. D. Braden Kyle very kindly consented to be present at the operation, and under proper precautions inoculations into serum and agar tubes were made from: 1, the divided end of the optic nerve; 2, from the intervaginal space of the nerve; 3, from the interior of the vitreous; 4, from the area surrounding the wound of entrance; and 5, from the foreign body. Dr. Kyle reports as a possibility, that the material from the sheath of the nerve may have come in contact with the nerve itself during the act of inoculation, although precautions were taken to prevent this. He also states that the interior of the eye was exposed a little longer than is proper to insure the absence of infection from without.

Growths appeared in all the tubes, which proved to be staphylococcus cereus albus and staphylococcus pyogenes citreus. In one tube, inoculated from the interior of the eye, in addition to the germs already enumerated, the bacillus pyocyaneus was found. Suitably stained sections made by Dr. Gray, of Washington, exhibit here and there cocci in the purulent areas. None, however, are to be found in the optic nerves or the intersheath.

Anatomic examination: when the eyeball was opened, the foreign body was found lying in the upper portion, partly imbedded in the ciliary region and extending backward through the whole length of the eyeball. The vitreous was purulent, and there was a collection of pus on the surface of the iris and ciliary body.

Microscopically, the following lesions are present: the remains of the lens fibers are swollen and opaque and between them lie numerous round cells (inflammatory material). The lenticular remnants are attached to the margin of the iris.

This structure is infiltrated with young cells—leucocytes and red blood corpuscles. A similar infiltration is present in the ciliary body and the connective stroma of the ciliary processes; in the latter tissue the infiltrating cells being chiefly situated at the inner layers toward the choroid.

The vitreous is purulent, being represented by masses of pus corpuscles and leucocytes.

The choroid does not exhibit general infiltration, but in the inner layers of the chorio-capillaris are dense foci of round cells.

The retina, detached and broken, exhibits in a beautiful manner, disseminated infiltration with red blood corpuscles in its inner and outer molecular layers. In places the fiber and ganglion layers are not distinguishable and are infiltrated with pus corpuscles similar to those in the adjacent vitreous.

The surface of the papilla is slightly infiltrated and there is some increase of nuclei and round cells in the nerve itself. The intersheath is free from exudate.

The ciliary nerves, as they pass through the posterior portion of the sclera, do not appear to be involved.

Summary: acute irido-cyclitis (hemorrhagic and purulent), with inflammatory exudate in the lens; beginning purulent choroiditis; hemorrhage into the retina; slight secondary papillitis.

Remarks: the following points seem worthy of emphasis:

1. The *Absence of Microorganisms* in the two cases which caused sympathetic ophthalmitis, (Case 1 and Case 2), the exciting eyes presenting perfect types of the lesions which are capable of originating this disease.

⁴ Dr. Wm. Gray writes in regard to these sections: "The technique was carefully guarded by a control stain on other tissues."

Experience in this line of research has differed widely. Deutschmann, for example, has rarely failed to find organisms in an eye enucleated to avoid sympathetic affection of the fellow eye, while Randolph⁵ has examined a score of such eyes and has succeeded only once in detecting microorganisms. He quotes Ohlmann's examination of thirty eyes enucleated under similar circumstances, bacteriologic investigation being negative in all of them. Greeff⁶ has carefully investigated fourteen cases of resection of the optic nerve, the period between the injury and the operation ranging from three weeks to three months. In each instance the operation was resorted to for fear of an outbreak of sympathetic ophthalmitis. No organisms were found in either the optic nerve or its sheaths. Similar results have been reported by other observers. On the other hand, C. E. Finlay,⁷ in a careful examination of the material furnished by Dr. Knapp's laboratory, had nine positive results from the interior of the eyeball and two from the intervaginal space, in a total of nineteen cases.

Two of the cases now reported are another addition to the negative list, and have value from this standpoint, as well as from the fact that all of the details have been carefully observed from the beginning to the end.

In the third case, sufficient time had not elapsed to produce the signs of sympathetic trouble, although the microscopic lesions of the injured eye indicate that such a condition would have occurred had preventive enucleation not been performed. It is a positive result in so far as finding the germs of suppuration is concerned, both in sections and in cultures made from the tissues immediately after the operation. But this is exactly the result to be expected; the organisms were present, precisely as they would have been in any other active suppurative process. Furthermore, proof is lacking (Greeff, Schirmer) that the germs of suppuration are the active agents in the production of sympathetic ophthalmitis, although it is just these germs that have been most often found; hence the positive nature of the examination loses its distinction.

2. The *Neuritis of the Ciliary Nerves*, especially in the first case. A similar condition has been found in a number of instances—Finlay⁸ ten times out of twenty-five cases and Berger, whom he quotes, nine times out of fourteen cases. Brailey⁹ sums up his examination of the conditions of the ciliary nerves in sympathetic disease as follows: inflammation of the ciliary nerves is not an essential factor in its production. Indeed, it is doubtful whether it can ever be a cause, since it is not infrequently entirely absent, both in the exciting and the sympathetically affected eye and may be present in cases of retinochoroiditis, which neither have produced, nor, judging from their microscopic characters, are likely to produce sympathetic disease.

3. The *Constitutional Disturbance in Case 2*—headache, fever, delirium, emaciation—almost a typhoid state. One of the chief objections to the theory that the metabolic products of the organisms, and not the organisms themselves, set up the inflammation, is the absence of febrile manifestations, which should be

present if toxalbumins are at the basis of this trouble. Greeff¹⁰ refers to this point particularly, and largely on its account can not reconcile himself with this idea. He quotes Pflüger as having seen a case of sympathetic ophthalmitis with violent headache and fever—an isolated instance which he does not regard of value. In the present case, observed for a long period of time, constitutional disturbance was a marked feature, and there seems no other cause except the injury to the eye. It is not improbable that careful investigation of the temperature, pulse and respiration in cases of sympathetic ophthalmitis would reveal analogous conditions more frequently than the records seem to indicate.

Certain Bacilli Found in a Case of Post-Operative Panophthalmitis.—D. S., a man, aged 55, was admitted to the Jefferson Medical College Hospital, Oct. 1, 1894, on account of complete cataract of the left eye and beginning cataract of the right, the vision of the latter being 6-9, with large flocculi forming in the periphery of the lens. The light field of the left eye was slightly defective upon the nasal side and the central perception not as acute as might be desired. The iris reactions, however, were prompt, and the anterior chamber of normal depth. The tension was a trifle below the average resistance. Extraction was performed, with the usual antiseptic precautions, on October 5, but before the knife was half across the anterior chamber the patient became absolutely unruly. The section was quickly completed and the lens delivered, but owing to the spasmodic contraction of the recti muscles, together with the squeezing of the lids together, a large quantity of semi-fluid vitreous was lost. The patient, perfectly uncontrolled, twice swept the margin of his upper lid through the incision.

On the second day a gray infiltration of the edge of the wound was visible, and in spite of the most active treatment, proliferation of the vitreous occurred, the eyeball becoming intensely hard and a thick whitish mass appearing between the lips of the wound and in the anterior chamber. Twelve days later evisceration was performed and the thick purulent mass from the center of the eye was placed in a carefully-stoppered, sterilized bottle for bacteriologic examination. The lower half of the cornea, which had remained clear, was similarly treated.

Bacteriologic examination: Dr. D. Braden Kyle kindly undertook the bacteriologic examination and isolated a rod-like bacillus, uniform in size, slightly rounded at the ends, which stains easily with any of the anilin dyes, but better with methyl blue. There was also a coccus present, which upon isolation proved to be the staphylococcus pyogenes citreus.

In order to investigate the matter still further, cultures were sent to Dr. E. A. de Schweinitz, of the Bio-Chemic Laboratory of Washington, for his opinion, and he returned the following report: "The bacilli are from three to five times as long as broad, often growing in chains, or several of them are joined together. They grow on beef broth, and after twenty four hours a pedicle is formed on the surface. They also grow on gelatin, but do not liquefy it, and form a white film on agar. They do not produce gas in the fermentation tube. They slowly coagulate milk, and grow on potato, forming a thick, yellowish reticulated layer. They liquefy blood serum slowly."

⁵ Archives of Ophthalmology, vol. xxi, p. 373.

⁶ Archives of Ophthalmology, vol. xxii, p. 298.

⁷ Archives of Ophthalmology, vol. xxi, p. 457.

⁸ Loc. cit.

⁹ Transactions of the Ophthalmological Society of the United Kingdom, vol. v.

¹⁰ Loc. cit.

In order to test the pathogenic character of this bacillus, injections of an emulsion of the surface growth on agar in beef broth were injected into rabbits' eyes by Dr. de Schweinitz, in Washington, and by Dr. Kyle and myself in Philadelphia, with entirely negative results, no more irritation being produced than would be expected from the slight wound of entrance. When, on the other hand, a mixed culture was employed, namely, one containing the cocci, reaction was prompt and the ordinary phenomena of suppuration appeared.

Bacilli have been found in panophthalmitis in a number of examinations, in some cases being associated directly with the development of disease from the pathogenic standpoint.

Dr. S. Poplawski,¹¹ in an investigation of the etiology of inflammation of the eye after injury, examined twelve eyeballs with beginning panophthalmitis and found bacilli in eight of them, always in the vitreous in the neighborhood of the foreign body. There were two forms; a small slender form with no disposition to chain formation, and a large long form.

In Finlay's group of cases¹² in one instance a bacillus was cultivated both from the intervaginal space and from the interior of the vitreous. The patient suffered from panophthalmitis incipiens as the result of a perforating wound in the ciliary region. The following is the description which Dr. Finlay gives of this growth: "The bacillus was about 7 m. long, being rather slender. In cover-glass preparations, made from the growth in gelatin, they were arranged in zoogloic masses. The bacillus was cultivated in gelatin, agar and potatoes. In gelatin it developed with the utmost readiness, liquefying it with extreme rapidity almost as soon as it made its appearance; when planted in second and third generations the gelatin would be totally liquid in twenty-four hours. In a partially anærobic culture (made by pouring a layer of sterilized oil on the surface of the gelatin after making the puncture), the liquefaction took place much slower, not beginning for months, the growth being somewhat peculiar; from the central stem four peculiar processes were given out, which were arranged crosswise; however, the growth was totally liquefied. In agar, the bacillus thrived both in its interior and on its surface; in the latter situation it had a peculiar white waxy appearance. On potatoes the growth at first was yellowish, but ultimately acquired a chocolate-brown color, resembling somewhat that of the glanders bacillus." The pathogenicity of this bacillus was established by inoculation into the vitreous of a rabbit.

Professor Haab has also found a peculiar bacillus in panophthalmitis to which he attributes a specific character.

An interesting case is reported by Randolph¹³ in a boy aged 6, following a penetrating wound of the ciliary region made with a piece of wire. Inoculation and control experiments proved that the organism which caused the inflammation was the bacillus coli communis, which entered either with the foreign body, or, later, through the wound.

The present bacillus can not be classed with those of pathogenic character, as experimentation proved its innocuousness. The possibility of contamination with pathogenic cocci must be carefully guarded

against in these examinations before ascribing the suppuration to the bacilli, because staphylococci may also be present, as, for example, they were in the case which I report.

The piece of cornea, which was removed, is of practically normal constitution, the upper margin containing some lymphoid infiltration. Suitable stains failed to demonstrate microorganisms in the tissue.

DISCUSSION.

DR. R. L. RANDOLPH, Baltimore—I have been much interested in the paper just read, not only on account of its own value but because the author's investigations were made along a path that I have traveled myself during the past two years. Panophthalmitis presents a typical picture of a suppurative inflammation, and one would think that as such the staphylococcus aureus or albus, or certainly some one of the so-called pus organisms would be revealed by a bacteriologic examination. Such, though, has not been the case. Haab and his assistant, Poplawski, report thirteen cases of panophthalmitis, and in every case a bacillus was found to have been the cause of the inflammation. Two years ago I reported a case of panophthalmitis caused by the bacillus coli communis, the latter organism being found in the eyeball in pure culture. The paper of Dr. de Schweinitz just read, also records the finding of a bacillus. It is difficult to explain how the bacillus in pure culture is usually found. We know that the conjunctival sac is the resting place for various kinds of bacteria, and it is not likely that simply one kind of organism passes into the eye, and that always a bacillus. Maybe the bacilli as a class are of a hardier nature and of more luxuriant growth than the micrococci, and the latter, though present in the eyeball, are crowded out and finally supplanted by their stronger brothers. It is singular too, to note the fact that the bacilli found in most of these cases are to be regarded as, comparatively speaking, harmless organisms. They are not truly speaking pathogenic organisms, and yet when introduced into the eyeball they produce the most intense and destructive form of inflammation. When introduced into the conjunctiva the reaction is insignificant. These facts among others go to show that there are many organisms other than the so-called pus organisms that are capable of producing suppuration, and that organisms ordinarily harmless, possess sometimes marked pathogenic properties.

DR. HAROLD GIFFORD, Omaha, Neb.—The opinion in regard to the cause of sympathetic ophthalmia seems to be changing, as is the result whenever a new theory is found. The pendulum is swinging away from the germ theory and I can not but feel that it is a retrogressive step. Dr. de Schweinitz found foci of inflammation in his cases,—what caused them? What could produce it but the bacteria or the toxins produced by them? In these eyes the germs were not found, but that does not necessarily show that they had not been present. If any of you have examined eyes bacteriologically, you realize how difficult it is to find these germs. When staining for germs in the tissues, even the tubercle bacilli is very hard to find. There are two points to be considered: first, in this region wounds are very common. Bacteriologic examinations after experiments upon rabbits' eyes, show that the tissues of the ciliary bodies are most excellently suited to the growth of germs. As Dr. de Schweinitz remarked, a number of these experiments have failed to confirm Deutschmann's results in this matter. I failed to find them in any case in the optic nerve region, but did have them in the ciliary processes in large quantities. In the other parts of the eye, you will find them comparatively scarce. This may indicate one reason why wounds in the ciliary region are so dangerous. How can you account for an inflammation which starts in an eye, creeps along and produces all the disturbances that follow upon any ciliary nerve theory? In regard to the germs found in eyes with panophthalmitis, I have been surprised in many cases at not finding the germ I was looking for, but in a number of them did find what looked like Sternberg's diplococcus, more generally known as Fraenkel's. I failed to find them in stained preparations. In one case I had a short time ago I found pus germs. It seems to me a very important point to bring out here, is the resisting point of bacilli. You all know that bacilli are more likely to have spores than micrococci, and are more resistant to antiseptics. In noting the precautions

¹¹ Archives of Ophthalmology, vol. XXI, p. 22.

¹² Loc. cit.

¹³ American Journal of the Medical Sciences, N. S., 106, July to December, 1898, p. 440.

taken for operations, I find such remarks as this: "Instruments dipped into boiling water" or "put into 2 per cent. carbolic acid solution." I think we should not be content with less than five minutes' boiling. Pus cells may be killed in one minute, but we should not only take account of these germs, but also the possibility of germs that have spores.

HEMORRHAGE INTO THE RETINA AND VITREOUS IN YOUNG PERSONS ASSOCIATED WITH EVIDENT DISEASE OF THE RETINAL VEINS.

REMARKS ON THE FORMATION OF VESSELS IN THE VITREOUS AND ON THE MIGRATION OF A SUBHYALOID HEMORRHAGE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

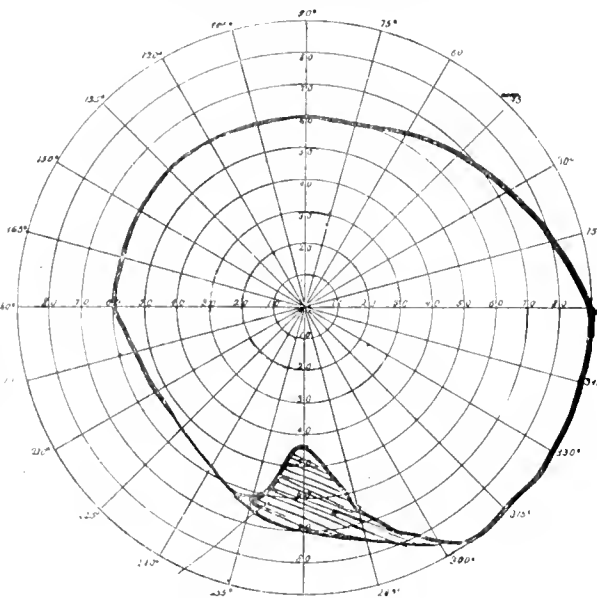
BY HARRY FRIEDENWALD, A.B., M.D.

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Hemorrhages into the retina and vitreous are due to an alteration and loss of resistance of the vessels, to changes in the composition of the blood, to disturbances in the circulation or to a combination of these factors. In many cases, however, it is difficult to determine the immediate defect which led to the extravasation. In the interesting class of retinal and vitreous hemorrhages which occur in young persons between the ages of 12 and 24, which have a tendency to recur and to impair vision to a great extent—in these cases the retinal blood vessels have never, so far as I have been able to find in reviewing the literature, been found to present any signs of disease. In the two cases which will be reported in this paper, the disease of the retinal veins was evident and important. Beside this, the unique observation was made of a subhyaloid hemorrhage migrating from a point above the macular region to a point below the macula; in so doing, it curved around the macula in such a definite manner as to clearly demonstrate the intimate union between the retina and the hyaloid membrane around the macula—a question about which varying opinions have been expressed. Another observation of interest was the development of fine blood vessels in the vitreous, which gradually increased and ultimately grew into large connective tissue masses.

Case 1.—A., aged 15, a healthy robust young man complained (Dec. 12, 1892) of slight pain in the eyes. He had noticed the occasional appearance of fiery balls before the eyes for several months. There was no history of previous eye-trouble, excepting a slight blow on the eye about four years previously; this had not been followed by any permanent impairment of sight. His general health had been excellent, but he had had intermittent fever; first, about six years ago, and then again slight "dumb" chills during the previous summer. The central vision of the right eye was 8-8 and almost as clear as that of the left. The field of both eyes was normal, excepting a small defect in the right, at the foot of the vertical meridian (see Field 1). There was slight hypermetropia, (0.5 D.s.). The ophthalmoscopic examination showed that the left eye was perfectly healthy. In the right, there were numerous peripheral hemorrhages, especially in the upper part of the retina. These were all in the form of small dots and spots; there were no large extravasations. The papilla and the central portion of the retina were normal; the arteries presented no decided changes, excepting slight fullness and tortuosity; but the veins were much distended and the smaller ones were very tortuous. The patient was seen frequently but no changes were noted until Jan. 3, 1893, when a large hemorrhage was found to have made its appearance in the upper part of the retina; its occurrence had been preceded by the appearance of fiery

spots. On the following day it seemed to have changed its position to a part lower down in the retina. An accurate sketch was made at this time and certain other changes were noted. (See Fig. 1). The large effusion was now situated above and to the temporal side of the papilla, its lower edge was about 1 P.D. from the upper edge of the very distinct macular reflex. The effusion completely hid the underlying blood vessels, which appeared sharply broken off at its margin. The upper edge was a perfectly horizontal line. The lower margin was made up of irregular curves. The arteries appeared unchanged, but decided alterations were noted in the veins. The vena temp. super. which was greatly distended, ended abruptly in two very small and very tortuous branches. At this point there was a curious twist, shown in the drawing; in its course it gave off a large number of fine branches. The vena temp. infer. was not only over-distended, but showed a marked difference in its caliber at various points. Soon after leaving the papilla it widened out but became narrower again, before dividing into its two branches. The branch running toward the temporal side ended in very tortuous twigs. The vena nasal. infer. was not greatly congested as were the two former. At one point it presented a constriction so great as almost to divide the blood vessel, (D). A small bluish spot (A) was seen lying upon the vessel and resembled a little cloud. The congestion of the retina was likewise shown by the appearance of numerous fine vessels throughout the retina; one set lay below the macula and was apparently not connected with any of the other retinal blood vessels, (C). The vessels of



Field 1.

the superior nasal quadrant were normal and there were no hemorrhages in this region. V. R. E., 8-8; V. L. E., 8-6. There was a small scotoma between 5 and 10 degrees beneath the point of fixation.

January 6, I was surprised to find that the large hemorrhagic plaque had migrated to a lower point and was lying directly over the macular reflex; its lower edge was slightly concave and corresponded with the convexity of the upper margin of this reflex. (See Fig. 2.) The hemorrhage was bounded above by an almost perfectly straight and horizontal line; at the nasal end this ran out into a set of linear hemorrhages which united the large effusion with the hemorrhages in the upper part of the retina. The area occupied by the effusion two days before was now apparently normal. There were dust-like opacities in the vitreous.

January 10, the hemorrhagic effusion had sunk still lower and had become divided into two parts, united by an irregular line. A small portion, (see Fig. 3, E.) occupied the former position in the form of a narrow band, whose lower edge fitted closely to the reflex of the macula in its upper and outer portion. The greater part of the effusion occupied a position to the temporal side of the macula and beneath it. (See Fig. 3, F). It was not regular in form but its upper margin was mainly formed by a straight horizontal line. A fresh vitreous hemorrhage had occurred from the upper and temporal portion of the retina. (Fig. 3, G.)

January 12 there was but a fine hemorrhagic line remain-

ing as a margin of the upper border of the macular reflex. The line of hemorrhages which united the two parts of the effusion and the hemorrhages in the upper part of the retina, had to a great extent disappeared; only a few points were left to indicate its position. A number of white spots were seen among the hemorrhages in the upper part of the retina.

January 16, fresh hemorrhages had again occurred; a fine linear hemorrhage lay in the inner macular region; a large effusion reached partly into the vitreous below. (See Fig. 4). The vena nasal. super. presented a fusiform dilatation at some distance (3 to 4 P.D.) from its origin. Central vision was almost perfect, but sight was somewhat disturbed during the past few days by a dark brown crescent-shaped cloud moving before the eyes.

January 22, the hemorrhages below the macula had so far diminished in size as to become lines resembling fine blood vessels.

January 30, at the point where the vena temp. super. ended in two fine branches, a veilly formation made its appearance; it was formed of a delicate network of blood vessels, lying in the vitreous. (See inserted in Fig. 4.)

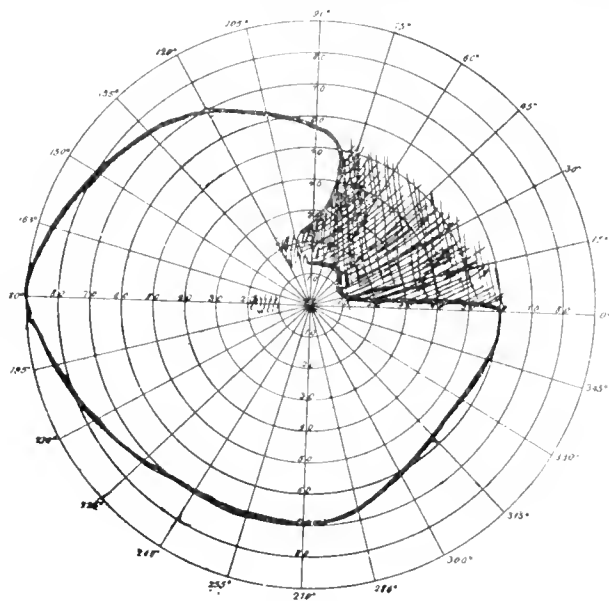
February 11, there was a fresh hemorrhage in the lower inner periphery of the retina; the old hemorrhage below the macula had entirely disappeared; V. R. E. still 8-8.

March 5, the vena nasal. infer. showed peculiar changes. About 2 P.D. from its origin, it sent off a large number of fine capillary vessels, which formed a meshwork in the vitre-

April 21, sight was unchanged until this morning. On the preceding day he had been sparring for some time. While reading the paper in the morning, he noticed the appearance of arrows, (black and green), flying before the eye and then a veil. Sight rapidly became worse, so that when examined a few hours afterward he could count fingers at but three feet. With the ophthalmoscope it was evident that a large vitreous hemorrhage had occurred.

During the next few days the veil seemed to rise somewhat and V. L. E. became 8-50 (almost), by April 23. At this time the hemorrhages were visible on the nasal side of the retina and in the vitreous toward the temporal side and below. One of these seemed to have started from the upper, outer part of the retina. The vascular formations in the vitreous gradually increased in size. On May 18, the one on the vena nasal infer. had entirely crossed the papilla and extended beyond its upper outer margin. V. R. E. 8-18 partly.

Feb. 14, 1894, the patient returned after a long absence. He informed me that his vision had improved so much that he had been able to see as well with the right eye as with the left. But in September, 1893, he had had a recurrence of his malarial chills and his vision had become slightly worse. In December, 1893, he had again had a hemorrhage, which likewise slowly cleared up. A few weeks ago another hemorrhage had occurred and this had almost completely destroyed the vision of the right eye. He could but see movements of the hand in the outer part of the field.



Field 2.

ous. (Inserted in Fig. 4, at A). At this point there was the appearance of a bend or twist in the vessel. A short distance beyond there were two thickenings, which upon close examination were seen to be twists in the vessel. (Fig. 4, H. H.) Beyond these points the vessel became exceedingly attenuated for about 1 to 2 P.D., then widened out and divided into fine twigs. On one of these there was a distinct round elevation. (Fig. 4, J.) This upon careful observation, was found to be a varicose dilatation; upon pressing on the eyeball, the dilatation visibly diminished in size. One of the fine branches arising from the vena temp. super. had become very tortuous and ended in a bunch of blood vessels reaching into the vitreous. The vena nasal. super. was now very tortuous, had marked variations in its caliber, (dilatations and constrictions), and was covered in the periphery by a hazy gray cloud.

March 28, the vascular veil arising from the vena nasal. infer. had greatly increased in size and now reached the lower inner margin of the papilla; (best seen with 2 Ds). The vascular formation on the vena temp. super. had likewise greatly increased in size and now contained some whitish connective tissue. V. unchanged. Since the last visit the patient had had a recurrence of the intermittent chills; on March 17 and 19 they were severe; he then began taking quinin and was relieved.

April 7, V. R. E., 8-6 almost. The hemorrhagic spots in the upper part of the retina had almost entirely disappeared; there were no fresh hemorrhages. The vitreous still contained fine dust-like opacities.



At this time, (Feb. 26, 1894), he was thoroughly examined by my brother, Dr. Julius Friedenwald, who found all the organs healthy, (lungs, heart, kidneys, etc.; the urine had been examined a number of times before, with negative result). The examination of the blood showed that "there was a low percentage of hemoglobin, but that the number and variety of the red and white corpuscles were normal. The condition was therefore similar to that of chlorosis in the female."

There was a black reflex to the ophthalmoscope in all directions excepting in the innermost part where there was a narrow line of red. V. gradually improved and the red reflex became larger.

May 1, V. 6-60.

June 22, V. 8-36. Slight red reflex in the center of the pupil.

July 21, V. 8-12 (partly). The center of the dilated pupil is clear, but the periphery of the vitreous is in great part dark. Toward the end of 1894, V. again became worse but subsequently cleared though very slowly.

At the last examination, (April 18, 1895), V. with dilated pupil (atropia), 8-24; with -1 Ds. 8-18 and 8-12 partly.¹ The eye now admits of ophthalmoscopic examination; the papilla is fairly clear; there are large masses of vascularized connective tissue in the vitreous, much larger than when last seen, presenting the picture of retinitis proliferans.²

Concerning the treatment, of which no mention was made in the above history, we may state here that it consisted at first in the administration of ergot, later of iodid of potassium, of jaborandi and of qui-

nin. None of these remedies produced any decided or even appreciable effect on the course of the affection.

In following this case, it is evident that the hemorrhages were due to disease of the retinal veins.³ The first appearance of the hemorrhages, which were densest in the upper periphery of the retina was associated with a definite sector-like defect in the field of vision, which has never disappeared. It is quite probable that this was due to a thrombosis of a small venous branch in the corresponding part of the retina. The affection of the veins was demonstrated by the pathologic dilatations and constrictions and by the varicose formation.

The fine vascular loops which developed in the vitreous, started from greatly congested veins and at points where there was a twist of the vessel (A and B). While under observation no vitreous hemorrhages occurred at these points; the development of the blood vessels was not the result of a process of absorption of effused blood. It is difficult to account for their formation in this case, unless we assume that they resulted from the great engorgement of diseased veins. It is scarcely possible that they were an evidence of organization of vitreous opacities, for the

subhyaloid hemorrhage. Its position between the retina and the vitreous admits of no doubt. These cases have recently been collected and studied by Haab,⁶ Dummer,⁷ and Hotz.⁸ The total number of these cases is not large. In one respect our case differs from all the rest, namely, in the distinct appearance of a firm union between retina and vitreous around the macula. That there is such a firm union in these parts has been assumed by Gunn, Nettleship, Lang and others to account for the circular form which subhyaloid hemorrhages within the macula usually take on. But this assumption was weakened by the fact that subhyaloid hemorrhages in other parts likewise frequently have a similar form. In our case this union was proved by the form which the blood assumed in following the course of least resistance around the macula.

Our case undoubtedly belongs to that curious class of juvenile hemorrhages of which numerous cases have been published. No definite cause has been discovered for this affection, but a number of etiologic

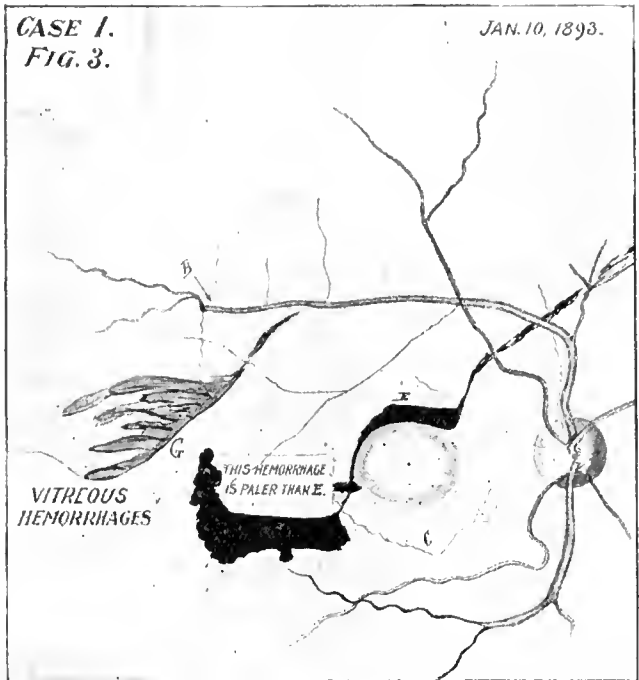


opacities which existed at that time were exceedingly fine and slight. As in a case which I have recently seen, and which I shall report at some later time, we may regard them as an evidence of vascular disease.

The fine, transparent vascular formations gradually and slowly developed into large connective growths, known as retinitis proliferans. This affection or rather condition is usually attributed to the organization of hemorrhages in the vitreous. (See *Leber Graefe-Saemisch's Handbuch*, vol. v. p. 666). Our case definitely showed that the vascular formation may be the beginning of retinitis proliferans. Connective tissue growths have been observed in other cases of juvenile vitreous hemorrhages.⁴ In these cases the connective tissue was considered an organized blood clot.

Concerning the appearance of newly formed blood vessels in the vitreous, we may mention that but a small number of cases have been published and in these the vessels remained stationary or disappeared in the course of time. Their development into the connective tissue masses described above, has not been observed.⁵

A feature of great interest in our case lay in the



factors such as anemia, constipation, dyspepsia, cardiac hypertrophy, etc., have been assumed. None of these, except slight anemia, were present in our case.

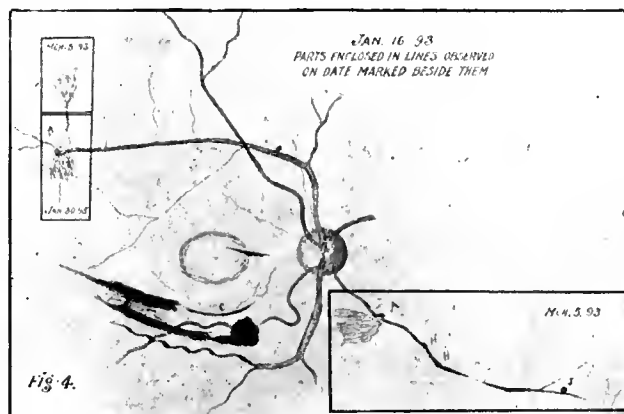
Malaria may have played an etiologic rôle. The patient had had malarial fever previous to the onset of the ocular affection and during its course; once a hemorrhage occurred at the same time as the chills. In view of the fact that there was no other etiologic factor and that a number of cases of retinal hemorrhage unquestionably due to intermittent fever, have been published, it is proper not to disregard this fact. In most of these cases,⁹ however, the patients suffered with a severe form of the disease and frequently with marked cachexia.

The trauma referred to in the history occurred so long before and was so slight that no etiologic importance should be attached to it.

Case 2.—R. K., aged 22, male, consulted me Nov. 23, 1890. He had had good eyes and no constitutional disorders excepting measles in 1880, and typhoid fever in 1887. He had

never suffered any injury. There was slight but chronic constipation. Urine was normal. He related the following history, which was subsequently confirmed: on Oct. 14, 1889, while at dinner a veil suddenly appeared before the left eye, and in a little while there was scarcely light perception left. He was examined by a well-known oculist who found a vitreous hemorrhage. Sight improved, and in about three weeks he was able to distinguish persons and in six, he could read. In three or four months he considered the sight restored to its full extent (?)

Oct. 14, 1889, V. L. E., 8-18; V. R. E., 8-8. In the left field of vision there was a large defect occupying the upper nasal quadrant, evidently due to disturbance of the circulation in the inferior temporal vessels. (See Field 2.) Ophthalmoscopic examination: the right eye showed nothing abnormal in the retina and a fine floating opacity in the vitreous. The image of the left eye was very clear, the papilla was hyperemic, as was also the retina (unusually large number of fine blood vessels seen everywhere). A slender pillar of intensely white connective tissue was seen projecting from near the center of the papilla somewhat nasally, downward and forward into the vitreous. Through its whole length a few fine blood vessels could be traced. At the papillary origin a great number of very fine blood vessels were seen, forming slender loops in the vitreous. At the distal end (best seen with +6 D.S.), another set of vessels extended far into the vitreous, and at the end of one of these there was a gray vitreous opacity of such a shape as to suggest its being a degenerated blood vessel. These vascular loops appeared to be entirely free from any connective tissue. The long connective tissue mass with its vascular outgrowths swayed gently to and fro when the eyeball was moved.



On examining the retinal blood vessels the following observations were made: on the superior temporal vein, about 2 P. D. from the margin of the papilla there was a red spot, lying directly over the vessel; it was somewhat irregular in form and had a diameter of between two and three times that of the vessel upon which it lay. It had something of the appearance of a small hemorrhage with a faint whitish film over its central part. On close examination it proved itself to be a varix; upon pressing upon the eyeball its size would diminish until it almost disappeared, leaving only a small gray spot not extending beyond the margins of the vein. That there was no optical illusion was proved by the distinctness with which a fine blood vessel which ran into it was seen after the spot had almost entirely disappeared. The vein itself showed no abnormality except a slight constriction just beyond the varix; this was apparently due to a gray thickening of the walls.

The inferior temporal vein presented a number of interesting points. About 1 P. D. from its origin it divided into two fine vessels which soon united in a large red spot; this had a diameter of between two

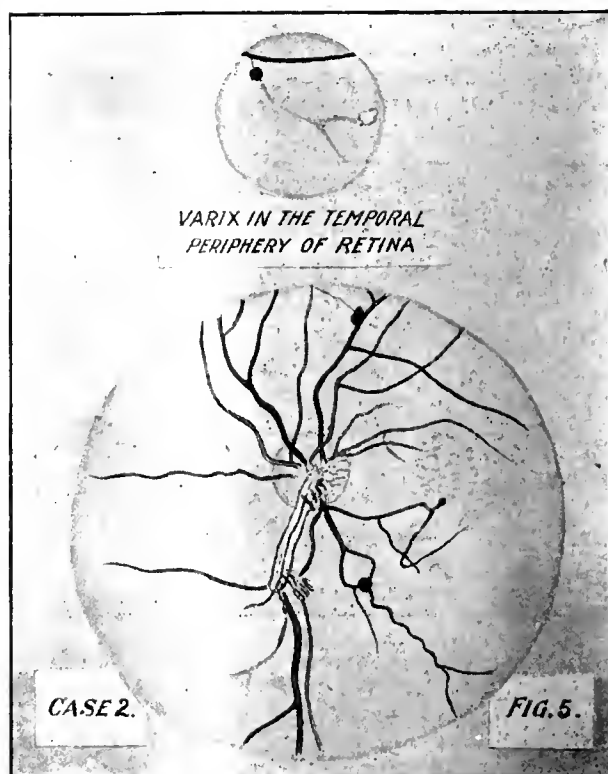
and three times the caliber of an artery of the first order. Beyond this, the vessel extended for a long distance but was exceedingly tortuous. Near its origin the vessel sent off a fine macular branch, which in the macular region ended in a small rounded red spot. Far in the temporal periphery, a similar spot hung like an apple from one of the veins; a fine white thread, an obliterated branching vessel, extended from it to a spot of choroidal atrophy.

These red spots were all small varices; their size decreased decidedly on pressure on the eyeball.

In the macular region there were a number of gray streaks and spots (irregular reflexes?), and one little crystal.

At an examination about ten months later, no changes were noted in the picture described above.

This case is in many respects analogous to Case 1. The vitreous hemorrhage which had thoroughly cleared up when I first examined the patient, must



be ascribed to the diseased veins, as was seen in the varices and in the sclerosed vessel in the periphery of the retina. No cause can be assigned for these changes.

In this case, the connective tissue in the vitreous was probably of different origin than that in Case 1. It had all the appearance of being a cicatricial band resulting from the absorption of the hemorrhage. The development of the fine vessels in the vitreous, as outgrowths from the connective tissue band, may have been due to the same cause or they may have originated independently, as in Case 1.

As both of these cases presented such marked evidences of vascular disease, I am inclined to the view that hemorrhages of the retina and vitreous in young persons may often be due to similar conditions. Further observation will prove or disprove this view. It is but proper to mention that a careful search has

not resulted in finding any description in literature quite comparable to that observed in our cases.¹⁰

¹ Niden observed a case of vitreous hemorrhage, in which emetropia developed into myopia (6 Ds.). Bericht der ophthalm. Gesellschaft, Heidelberg, 1887.

² Since the paper was read the patient has been examined a number of times. His vision continues to improve. August 26, 1895, V. R. E. 8-24-1.75 Ds. 8-8 almost. At this time there was a clear red reflex in every direction with but few grayish and translucent vitreous opacities; the image of the pupilla was fairly clear. The vessels were normal, or slightly congested as far as they could be followed, some disappeared in the white connective tissue formations. The latter contained blood vessels which extended far forward into the vitreous. This improvement gave us great encouragement, but unfortunately on Oct. 14, he returned with a fresh vitreous hemorrhage, which had again reduced vision to the perception of light.

³ The source of the vitreous hemorrhages under consideration has sometimes been placed in the retina, more frequently in the choroid.

⁴ Jacobson, Mittheilungen a. d. Koenigsberger Klinik, 1880, reviewed in Nagel's Jahresbericht for 1880, p. 350; Proebsting, Arch. f. Ophthalm. xxxviii, 8, p. 14; Raab, Arch. f. Ophthalm. xxiv, 30; Chodine, reviewed in Annales d' Oculistique, Amer. Ed. 1895, p. 287.

⁵ See Hirschenberg, Centralbl. 1890 p. 266, where a number of cases are collected; Schutter, Centralbl. 1891, p. 40; Charney and Fox, Ophthalm. Hospital Reports, x, 2, p. 193, reviewed in Nagel's Jahrb. f. 1891, p. 424; Jacobi, Zehender's Monatsbl. 1874, p. 255; reviewed in Nagel's Jahrb. 1874, 387.

⁶ Deutschmann's Beitrage, Bd. I, p. 395.

⁷ Deutschmann's Beitrage, Bd. II, p. 389.

⁸ Annals of Ophthal. and Otolaryng. Jan. 1893.

⁹ These cases have never been collected. A brief resumé is therefore not out of place:

¹⁰ Kries, (Graefe's Archiv, xxiv, reviewed in Nagel's Jahrb. f. 1878, p. 231) observed two cases as sequelae of intermittent fever; in one there was a profuse vitreous hemorrhage in one eye; in the other case, there were profuse retinal hemorrhages in both eyes.

Peunow, Centralbl. 1878, p. 88.) (reviewed in Nagel's Jahresb. f. 1878, p. 230.) found retinal and conjunctival hemorrhages in a number of patients suffering with intermittent fever.

Karpinsky observed retinal hemorrhages in a patient who had had intermittent fever for two or three weeks. (See Nagel's Jahresb. f. 1879, p. 226.)

Peunow observed retinal hemorrhages in a case of malarial cachexia, (Nagel's Jahrb. 1883, p. 301.)

Landsberg, (see Nagel's Jahresb. 1894, p. 326) reported two cases of retinal hemorrhages due to intermittent fever and occurring during or just after an attack.

Jones saw twelve cases of intra-ocular hemorrhages in malaria. (N. Y. Med. Record, June 27, 1885, p. 705.)

Bull reported seventeen cases of intra-ocular hemorrhage which he ascribed to malaria. All of these patients were over 50 years of age. Equatorial choroiditis was seen after the blood was absorbed. (N. Y. Med. Record, Dec. 1886.)

Mackenzie saw four cases of retinal hemorrhages due to very severe forms of intermittent fever. (Lancet, 1887, vol. II, p. 497.)

Brunt reported six undoubted cases. In all of them there was a high degree of malarial cachexia. (N. Y. Medical Record, 1888, p. 36.)

Minor mentions the occurrence of retinal and vitreous hemorrhages as a result of malaria. (Amer. Journal of Ophthalm. 1891, p. 243.)

¹⁰ Jacobi described "varicose tortuosity" of some retinal veins in three cases, in one associated with the development of blood vessels in the vitreous. But this appears to have been quite a different condition from that described in my cases. (Klin. Monatsbl., 1874, p. 255, reviewed in Nagel's Jahrb. f. 1874, p. 387.)

NEW INSTRUMENTS.

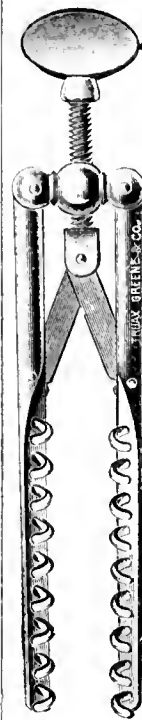
A MODIFICATION OF MY MASTOID RETRACTOR.

BY FRANK ALLPORT, M.D.

PROFESSOR OF CLINICAL OPHTHALMOLOGY AND OTOLARYNGY IN THE MINNESOTA STATE UNIVERSITY; PRESIDENT MINNESOTA STATE MEDICAL SOCIETY, ETC.
MINNEAPOLIS, MINN.

Some years ago I devised an instrument for facilitating mastoid operations. It has passed into extensive use, but its utility has been much curtailed by the fact that many instrument manufacturers persistently perpetuate two faults in its construction. They make it too delicate for permanent strength, and what is still more annoying, make a round or square screw-handle. The screw-handle should be flat, for when it is either round or square, the fingers will surely slip in screwing it up after the teeth have become engaged in the wound. This defeats one of the prime objects of the instrument, which is intended to be tightly screwed up, thus expanding the blades as widely as possible, for the double purpose of affording ample ground for operation, and of controlling the hemorrhage of the soft parts by producing extreme tension. These objects can only be obtained with a strong instrument, and a good-sized flat handle. I earnestly desire all instrument makers

to notice these instructions in order to enable the instrument to accomplish its full amount of good.



At this point I also desire to correct an unintentional error occurring in the last catalogue of Chas. Truax, Greene & Co., of Chicago, who present a cut of my retractor among their mastoid instruments, under the name of Barth's Retractor. Dr. Barth, of Marburg, Germany, has, it is true, devised a mastoid retractor, but it differs entirely from the one devised by myself. My mastoid retractor was made when nearly everybody used the drill for mastoid operations, and only a small field of operation was desired. At present the drift of sentiment favors the chisel for such work, and for this purpose a larger and stronger instrument is desirable. I have, accordingly, enlarged and strengthened my retractor, as will be seen by the accompanying cut. My old instrument has incurved arms, thus enabling the teeth to lock and be inserted in a small opening. The new retractor is intended for larger work, and an incurvation of its arms would lessen its strength, consequently I have had them made straight. After the incision has been made, the lips of the wound can be shoved back, and the teeth, which are somewhat separated

at the middle of the instrument, easily inserted and the blades expanded. It is scarcely necessary to say, that this expansion should be as wide as possible, for the purpose of affording a large field for observation and controlling the hemorrhage of the soft parts.

This retractor has also been devised for the purpose of facilitating openings into the cranial cavity at other portions of the skull, for abscesses, tumors, etc.

I would remark incidentally, that the principle involved in this instrument can be made useful in operations upon any part of the body where it is desired to hold apart the lips of an incision. Different sizes and shapes would, of course, become a necessity, but the principle involved is correct, and would much facilitate many operations.

This instrument has been admirably constructed under my personal supervision, by Chas. Truax, Greene & Co., 75 Wabash Avenue, Chicago, Ill., where it can be obtained, and I would respectfully request all other instrument makers desiring to manufacture the retractor, to strictly adhere to the model I have endeavored to describe.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, Sept. 9, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

DR. E. FRIEND read a paper entitled

SYMMETRICAL GANGRENE OR RAYNAUD'S DISEASE.

It is not with the idea of elucidating the etiology and pathology of this rare and interesting affection of the skin, that I report the following case, which I had the good fortune of seeing, but merely to show the keen observing powers of that most excellent clinician whose name this disease bears, and also to freshen the memory of those whose labors in other fields preclude the review of the literature of this subject.

Page 29 of Raynaud's original thesis, translated by Thos.

Barlow, M.D., states: "If, as I have attempted to prove, the fundamental fact of gangrene consists in the diminution or absence of oxygen necessary to the integrity of the life of a tissue, the pathogenic conditions of gangrene considered from a philosophic point of view will bring us back to the following cases:

"1. Absence of blood dependent on all causes which may attack the normal functions of the arteries (obliteration of them in only a particular case). This condition can be compared to nothing better than syncope, in which the action of the heart is momentarily suspended. I propose to call it 'local syncope.'

"2. Presence of anemic blood; that is to say, of a blood insufficiently oxygenated. Continuing to use a term of comparison in the same order of ideas, I will designate this condition, local asphyxia.

3. "It is possible that in consequence of an intoxication inexplicable as to its nature, the living cell, although having at its disposal the elements destined for its nutrition, may be struck with powerlessness to profit by them and gangrene results."

In classifying his cases, he divides them into six groups:

1. Local syncope of the most simple form.

2. Local asphyxia and superficial gangrene with predominance of the nervous element.

3. Symmetrical gangrene of the extremities of benign form.

4. Symmetrical gangrene of the extremities of grave form.

5. Cases of symmetrical gangrene with lesions of the circulatory apparatus, established by autopsy.

6. Doubtful cases, those cases which present less and less certainty, nevertheless they are interesting as a group, because they are in a marked degree removed from what occurs in the common cases, and because they may perhaps one day contribute to clear up many obscure points. It is not impossible that we may have here a very advanced form of the malady which occupies our attention.

Under the latter, he cites a very interesting case reported by Bernard Schrader as follows: "In 1829 while traveling with my brother, Jean Schrader, and Alexander Lak, studying surgery, we found ourselves in a town called Giest, and having entered a hostelry, the master, who was called Jean Brandes, made us see his daughter, aged 23 years who was attacked with the following malady: each month she suffered from severe pains in the extremities of the fingers, and of the toes, accompanied by edematous swelling of the face, feet and hands. This was followed by sphacelus or mortification of the extremities of those parts in which the pain was first felt, which became pale, dry, insensitive, nevertheless with no bad smell, and with no humor proceeding from them.

"These gangrenous parts separated each month in small morsels, which preserved their normal form. While informing me more particularly of the circumstances of this illness, the father of the girl showed me a box in which there were more than a hundred of these morsels of dead flesh which, in the space of three years, had been thrown off and detached from the extremities of different parts of the body of this girl."

As the name implies, the gangrene affects usually symmetrical parts of the body, more frequently the toes of both feet or the fingers of both hands and the two halves of the nose. Still there have been cases reported of late, which are undoubtedly of the same etiologic relation, involving asymmetrical parts. In the Nov. 16, 1893, number of the *Wiener Klinische Wochenschrift*, Docent Riehl reports a case of symmetrical gangrene in a hysterical patient, which could be classified under Raynaud's second division of cases.

A similar case is reported in the *Wiener Klinische Wochenschrift* of May 3, 1894, by Ehrl. Characterizing both these cases, were well-marked hysterical symptoms, such as localized anesthesia, diminution of the field of vision, achromatopsia, and ovarian tenderness.

I am indebted to Dr. Anson Brackett, of Nashua, Iowa, for the following history, having seen the patient in consultation with him in the summer of 1891:

Miss A. E. C., American, age 37, occupation that of a seamstress. Hair brown, eyes gray, height five feet eight inches, weight about 140 pounds. Complexion a little sallow. Lips pale, conjunctiva pale, blood vessels of the face ectatic, in spots, giving the skin a blotchy appearance; digestion good; bowels regular, appetite capricious. Patient had a severe attack of gastritis when she was 20 years of age, and has never menstruated since. Vaginal examination not permitted, but no tenderness or abnormal examination appreciable by external examination. Urine normal, sp. gr. 1020, acid in

reaction. Lungs and heart normal, as well as the abdominal viscera. The patient has never been robust since her sickness seventeen years ago, her health has been fair; has had to work very hard indoors in poorly ventilated quarters and was defrauded of her small savings a few years ago, which still further depressed her, and necessitated a renewal of incessant labor. She often sewed late into the night. In May, 1890, she began to feel badly. No definite symptoms were manifest, but she complained of general malaise over a period of some weeks. This was followed by feeling cold, yet with no distinct chills. The next manifestation was severe and protracted pain, localized in different spots, on both lower extremities. The pain was accompanied by a burning sensation in these spots, followed by intense redness, which gradually assumed a purplish hue, ultimately turning black, and surrounding each was a well marked line of demarcation. These spots, varying in size from that of a split pea to three inches in diameter, limited to both thighs, below the middle third, and exquisitely sensitive to touch. After the line of demarcation had formed, separation took place very slowly, leaving a dirty gray base, which healed gradually, it being weeks before cicatrization took place. There was no elevation of temperature except locally. The pulse was rapid, lacking in tonus, becoming quite thready at times. The general condition was that of great exhaustion and loss of vitality.

The treatment was purely symptomatic; as a tonic, strychnia and iron was given in full doses; rest, nutrition, general attention to hygiene of surroundings. Locally, flaxseed meal poultices and iodoform. After a few months she was able to get out of doors some, but walked with difficulty and was easily prostrated. During the summer of 1893 she had a recurrence of the condition, not so severe, however, the gangrenous spots seeming more superficial; in some of them a partial line of what might be called demarcation formed, followed by bulke of considerable size which were filled with a serous fluid and which soon dried up. These did not in the least resemble those of pemphigus. She had exacerbations and remissions of these lesions from time to time since, spending most of her time in bed in a weak and debilitated condition until about six weeks ago, when death relieved her.

Post-mortem examination not allowed. No tests were made for hematuria or hemoglobinuria, nor were the gangrenous masses examined for chemic agents. The urine contained no sugar, nor could any history of ergot or other medicinal poisoning be obtained, of local processes. The following could be entirely excluded, such as anthrax, furunculosis, phlegmon, as also gangrene from embolus of the vessels supplying the parts, as well as herpes zoster gangrenosum.

Affleck reports two cases of Raynaud's disease, the second of which was such a typical one that it will be well to briefly describe it:

A kitchen maid, aged 16, entered the hospital, stating that during six months preceding she had been subjected to severe pains in her hands and feet, very severe for eight days before entrance. The pains soon subsided in her feet, but became worse in her right hand, the tips of the fingers of which were blanched and corpse-like. There was great pain and at the same time anesthesia of the hand. The left hand presented the same appearance only in a milder form. The toes again became painful, but appeared perfectly normal. Physical examination of the patient revealed no pathologic or abnormal condition, except that no brachial, radial, nor ulnar pulse could be felt in the right arm. The right subclavian and axillary arteries were smaller than the left, and the circumference of the right arm and hand was about one-half an inch smaller than that of the left.

The arm was treated by means of warm opium fermentations, after which, whenever these removed, the hand first appeared blanched but very soon became purple and so painful that the fermentations had to be reapplied. Three days after entrance to the hospital there appeared in the tip of the middle and ring fingers, a dark spot which eventually sloughed off. The patient improved and left the hospital, but no pulsation could at any time be felt in the right arm.

In the other case, there was no clear history of the stage of ischemia of the skin, both feet being attacked instead of one hand, and the gangrene was much more extensive, following a Symmes amputation of the left foot, an examination of the nerves revealed a neuritis, and to this might be added numerous other cases, especially those of Pitres and Vaillard, in which the same pathologic changes in the nerves had taken place.

The following are the most common themes regarding the etiology and pathology of the disease:

1. Endarteritis obliterans.
2. Peripheral neuritis.
3. That championed by Raynaud, namely, a vascular spasm.

Cases included under these various theories have been cited from time to time, some claiming that the peripheral neuritis is only secondary to the vascular disturbances, and others that the neuritis is primary and responsible for the gangrene. This latter view is held by Pitres and Vaillard.

In support of his theory of spasm of the smaller arteries, as the causative factor in local asphyxia of the extremities, Raynaud reported a case of remarkable coincidence between the peripheral circulatory disturbances and identical phenomena observed with the ophthalmoscope in the retinal circulation which phenomena became manifest clinically by an intermittent obscuration of vision. Regarding the treatment, Barlow states that in a great many cases of symmetrical gangrene, amputation is necessary, as in other forms of gangrene, but in those cases where the gangrene is superficial he strongly advises the use of the constant current. The extremity of the limb which is the subject of gangrene is immersed in a large basin, containing salt and water; one pole of the battery is placed on the upper portion of the limb, and the other in the basin, thus converting the salt water into an electrode, opening and closing the current repeatedly to get moderate contractions. In connection with this method, gentle massage ought also to be tried after the acute pain has subsided.

EXHIBITION OF SPECIMENS OF PYOSALPINX,

by DR. WELLER VAN HOOK. I have brought with me this evening a specimen from a case upon which I operated last Friday. It consists of tubes and ovaries which were removed for salpingitis or, as Martin calls this condition sactosalpinx purulenta. If there is any interesting point about the specimen it is this, that we have here an acute inflammation engrafted upon a chronic inflammation, the tubes and ovaries having been removed during the acute attack. The patient was a married woman, 28 years of age, with one child 6 years of age. Her husband confessed to having had gonorrhea some twelve years ago, but assured me that the disease was entirely cured, and the patient does not give a history that she had an acute attack of gonorrhea at any time. It was only after the child was born that she had a pelvic inflammation. She has since had repeated attacks of salpingitis, after which she partially recovered, but had the usual pain and suffering that such women endure. She menstruated eight or ten days ago, but on the third day of menstruation the menses suddenly stopped, and she began to have intense pain in the abdomen, with elevation of temperature and other signs of acute salpingitis. Two or three days later the tubes were removed. Upon examining them it will be seen that they are intensely congested, but that the main portion of their surface is of a yellowish tint. In strictly acute salpingitis, either puerperal or gonorrheal, the color of the tubes is a vivid red.

There are the usual evidences of the tubes having been removed forcibly and the adhesions torn off. The fluid in the larger tube is of a straw color, somewhat inclined to be viscid, and is loaded with staphylococci.

Martin's new book on the diseases of the tubes, which has just appeared, is a most interesting work, and, I am sure, will be read with eagerness by every one interested in this work. He presents beautiful chromo-lithographs of such conditions as are shown by these tubes.

American Public Health Association.

Proceedings of the Twenty-Third Annual Meeting held in Denver, Colo., Oct. 1-4, 1895.

FOURTH DAY—FRIDAY, OCTOBER 4.

(Concluded from p. 676.)

The concluding session of the meeting of the Association was called to order shortly after 9 o'clock by PRESIDENT BAILEY.

After various announcements on behalf of the Local Committee of Arrangements had been made by CHAIRMAN SEWALL, the Executive Committee submitted the following recommendations: that the Standing Special Committee "On Restriction and Prevention of Tuberculosis," be discontinued. Adopted.

Three applications for membership were then elected members of the Association in the usual manner. This was followed by the report of the Advisory Council which was

read by Secretary Grey, and consisted in naming the officers and three members of the Executive Committee for the ensuing year, all of whom were unanimously elected as follows: President, Dr. Eduardo Liceaga, of the City of Mexico, Mexico.

First Vice-President, Col. A. A. Woodhull, U. S. A., Denver, Colo.

Second Vice-President, Henry Sewall, Denver, Colo.

Secretary, Irving A. Watson, Concord, N. H.

Treasurer, Henry D. Holton, Brattleboro, Vt.

Buffalo, N. Y., was named as the place for the next annual meeting.

The new members of the Executive Committee are:

J. C. Shrader, Iowa City, Iowa.

R. S. Goodwin, Thomaston, Conn.

James F. McShane, Baltimore, Md.

Regarding the time the next annual meeting should be held, as suggested in the President's address, it was moved and duly seconded that the option be placed in the hands of the incoming President, Vice-Presidents and Secretary, and if they thought it best that the meeting be held in September, 1896, to arrange for it to be held during that month instead of October.

PRESIDENT BAILEY announced these committees, a number of names being substituted during the reading as occasion required:

ADVISORY COUNCIL.

Alabama—Jerome Cochran, Mobile.

Arkansas—H. C. Dunnivant, Osceola.

Connecticut—R. S. Goodwin, Thomaston.

California—J. R. Laine, San Francisco.

Colorado—W. P. Munn, Denver.

Delaware—Mr. W. C. R. Colquhoun, Wilmington.

Florida—Joseph Y. Porter, Key West.

Georgia—William F. Brunner, Savannah.

Illinois—Liston H. Montgomery, Chicago.

Indiana—Lindsay S. Whitesides, Franklin.

Iowa—A. W. Cantwell, Davenport.

Kansas—Dr. Gifford, Topeka.

Kentucky—J. N. McCormack, Bowling Green.

Louisiana—Felix Formento, New Orleans.

Maine—A. G. Young, Augusta.

Maryland—James F. McShane, Baltimore.

Massachusetts—Samuel H. Durgin, Boston.

Michigan—Cressly L. Wilbur, Lansing.

Minnesota—H. M. Bracken, Minneapolis.

Mississippi—Wirt Johnson, Jackson.

Missouri—J. D. Griffith, Kansas City.

Nebraska—F. D. Haldeman, Ord.

New Hampshire—Granville P. Conn, Concord.

New Jersey—Henry Mitchell, Asbury Park.

New Mexico—J. Cole, Cerrillos.

New York—A. Walter Suiter, Herkimer.

North Carolina—F. E. Lewis, Raleigh.

North Dakota—John Montgomery, Ardoch.

Ohio—Charles O. Probst, Columbus.

Oklahoma—Charles F. Waldron, Oklahoma City.

Pennsylvania—Mr. Crosby Grey, Pittsburgh.

Rhode Island—Gardner T. Swartz, Providence.

South Carolina—H. B. Horlbeck, Charleston.

South Carolina—K. M. O. Teigen, Fargo.

Tennessee—J. Berrien Lindsley, Nashville.

Texas—R. M. Swearingen, Austin.

Vermont—Henry D. Holton, Brattleboro.

Virginia—(Unable to make the appointment as Professor Minor is dead.)

Washington—G. S. Armstrong, Olympia.

West Virginia—Louis D. Wilson, Wheeling.

Wisconsin—U. O. B. Wingate, Milwaukee.

District of Columbia—Ralph Walsh, Washington.

United States Army—F. Terrell, Washington.

United States Navy—Newton L. Bates, Washington.

U. S. M.-H. S.—P. H. Bailhache, Staten Island, N. Y.

Dominion of Canada—Frederick Montizambert, Quebec.

Province of Ontario—Peter H. Bryce, Ontario.

Province of Quebec—E. P. Lachapelle, Montreal.

Manitoba—James Patterson, Winnipeg.

New Brunswick—George E. Coulthard, Fredericton.

Nova Scotia—A. P. Reid, Halifax.

The appointment of members of the Council for the States of Mexico was referred to the new President, Dr. Liceaga.

PUBLICATION COMMITTEE.

Irving A. Watson, Concord, N. H.

Granville P. Conn, Concord, N. H.

Samuel W. Abbott, Wakefield, Mass.

COMMITTEE ON THE POLLUTION OF WATER SUPPLIES.

Maj. Charles Smart, U. S. A., Washington, D. C., (with authority to select associates).

COMMITTEE ON THE DISPOSAL OF GARBAGE AND REFUSE.

Rudolph Hering, C. E., New York City.
Delos Fall, Albion, Mich.
Louis Laberge, Montreal, P. Q.
Henry F. Hoyt, St. Paul, Minn.
Roberto Gayol, C. E., Mexico, Mex.

COMMITTEE ON ANIMAL DISEASES AND ANIMAL FOOD.

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Prof. James Law, Ithaca, N. Y.
Prof. José L. Gomez, Mexico, Mex.

COMMITTEE ON NOMENCLATURE OF DISEASES AND FORMS OF STATISTICS.

Samuel W. Abbott, Wakefield, Mass.
Jesus E. Monjaras, San Luis Potosí, Mex.
Elzear Pelletier, Montreal, P. Q.
Cressy L. Wilbur, Lansing, Mich.
Charles N. Hewitt, Minneapolis, Minn.

COMMITTEE ON PROTECTIVE INOCULATIONS IN INFECTIOUS DISEASES.

Prof. Victor C. Vaughan, Ann Arbor, Mich.
Surgeon-General George M. Sternberg, U. S. A., Washington, D. C.
George H. F. Nuttall, Baltimore, Md.
M. Carmona y. Valle, Mexico, Mex.
J. E. Laberge, Montreal, P. Q.

COMMITTEE ON NATIONAL HEALTH LEGISLATION.

Henry P. Walcott, Cambridge, Mass.
J. N. McCormack, Bowling Green, Ky.
Irving A. Watson, Concord, N. H.
James D. Plunkett, Nashville, Tenn.
Henry B. Baker, Lansing, Mich.
Samuel R. Oliphant, New Orleans, La.
Richard M. Swearingin, Austin, Tex.
Henry B. Horlbeck, Charleston, S. C.
Benjamin Lee, Philadelphia, Pa.
Samuel H. Durgin, Boston, Mass.
U. O. B. Wingate, Milwaukee, Wis.
Stephen Smith, New York, N. Y.
C. O. Probst, Columbus, Ohio.

COMMITTEE ON THE CAUSE AND PREVENTION OF DIPHTHERIA.

J. J. Kinyoun, Washington, D. C.
Peter H. Bryce, Toronto, Ont.
Juan Ramirez De Arellano, Mexico, Mex.
Wyatt Johnson, Montreal, P. Q.
A. Walter Suiter, Herkimer, N. Y.

COMMITTEE ON CAUSES AND PREVENTION OF INFANT MORTALITY

Charles N. Hewitt, Minneapolis, Minn., (with authority to select associates).

COMMITTEE ON CAR SANITATION.

Granville P. Conn, Concord, N. H.
E. C. Jordan, C. E., Portland, Me.
Domingo Orvanos, Mexico, Mex.
S. H. Woodbridge, Boston, Mass.
E. R. Lewis, Kansas City, Mo.

INTERNATIONAL COMMITTEE ON THE PREVENTION OF THE SPREAD OF YELLOW FEVER.

Felix Formento, New Orleans, La.
Surgeon-General George M. Sternberg, U. S. A. Washington, D. C.
Gregorio Mendizabal, Orizaba, Vera Cruz, Mex.
Manuel Carmona y. Valle, Mexico, Mex.
Jerome Cochran, Mobile, Ala.
Samuel R. Oliphant, New Orleans, La.
H. B. Horlbeck, Charleston, S. C.

ON STEAMSHIP AND STEAMBOAT SANITATION.

F. Montizambert, Quebec, Canada.
Samuel H. Durgin, Boston, Mass.
Samuel R. Oliphant, New Orleans, La.
H. B. Horlbeck, Charleston, S. C.
Albert L. Gihon, U. S. N., Washington, D. C.
The Committees "On the Transportation of the Dead" and "On Disposal of the Dead" were merged into one committee, namely

COMMITTEE ON TRANSPORTATION AND DISPOSAL OF THE DEAD.

and consists of
Jefferson D. Griffith, Kansas City, Mo.
Peter H. Bryce, Toronto, Ont.

Charles D. Smith, Portland, Me.
Charles O. Probst, Columbus, Ohio.
Farquhar Ferguson, New York City.
Mr. George W. Fuller, Lawrence, Mass.
Elzear Pelletier, Montreal, P. Q.
Jesus Chico, Guanajuata, Mex.

COMMITTEE ON THE USE OF ALCOHOLIC DRINKS FROM A SANITARY STANDPOINT.

Felix Formento, New Orleans, La.
C. O. Probst, Columbus, Ohio.
E. P. Lachapelle, Montreal, P. Q.

The appointment of the chairman of the Local Committee of Arrangements was referred to the new administration.

MR. CROSBY GREY offered a motion duly seconded that when the Association adjourns, it do so at 11:45 o'clock. The motion prevailed.

The following resolution offered by Dr. J. N. McCORMACK was unanimously adopted:

Resolved, That the members of the American Public Health Association desire and hereby tender most cordial thanks to all concerned in inviting and bringing the twenty-third annual meeting of the Association to the beautiful Queen City of the Plains; the Committee of Arrangements, the physicians and citizens, the Chamber of Commerce and especially to the ladies of Denver for the attentions and charming hospitalities which have made the stay here a pleasure; to the various railroad companies for reduced rates; to the Brown Palace Hotel for the use of its hall and to the newspapers for reports of proceedings. We also express thanks to Dr. Cantwell and other citizens of Davenport, Iowa, for courtesies extended at that point, and to the retiring President for the able, courteous and dignified manner in which he has presided over the meeting.

DR. HENRY MITCHELL moved, duly seconded, that a committee of three be appointed by the chair to communicate with the Postmaster-General regarding the transmission of bacteriologic specimens through the mails, in accordance with the resolution adopted on Wednesday forenoon by the Association. The motion prevailed.

At the instance of the Special Committee on National Legislation, of the American Pharmaceutical Association, of which Dr. F. E. Stewart of Detroit, Mich., is chairman, Dr. Liston H. Montgomery submitted letters and a resolution to the new executive committee, looking to the securing of uniform poison laws in all the States, as the laws at present regarding the sale of poison are not in accord. For instance, a poison can be legally sold as such in most States only with the label of warning, and after registration by a competent pharmacist. Put it up in the form of a proprietary medicine, and it is at once beyond the restraint of regulation and then it may be sold by anybody without let or hindrance.

REPORTS OF SPECIAL COMMITTEES.

DR. IRVING A. WATSON reported for Dr. Charles Smart, chairman of the Committee on the Pollution of Water Supplies, that the committee is hard at work and that this be regarded as a report of progress, with the request that the committee be continued, which was so ordered.

DR. P. H. BRYCE reported briefly for himself as the chairman of his Committee on International Pollution of Water Supplies, which was on motion referred to the new executive committee.

MR. RUDOLPH HERING, chairman of the committee on the Disposal of Garbage and Refuse, submitted an elaborate report, yet he stated that it was not complete. The speaker read but a few moments, when upon motion, the report was accepted, referred to the Publication Committee, and the committee continued in accordance with previous appointment.

Reports were due, although none were presented, from the following committees: On National Health Legislation, On the Cause and Prevention of Diphtheria, On Causes and Prevention of Infant Mortality, On the Transportation of the Dead.

Thirteen papers were announced to be read on the morning's program. A few were read with little or no discussion on the propositions evolved. The first paper was presented by DR. EDUARDO LICEAGA of the city of Mexico, entitled,

A CONTRIBUTION TO THE STUDY OF YELLOW FEVER IN CONNECTION WITH ITS MEDICAL GEOGRAPHY AND PROPHYLAXIS IN THE MEXICAN REPUBLIC.

The speaker contended that the means of combating the disease must be sought in the inoculation of blood serum from persons already attacked, or rather who have suffered

from yellow fever, or by inoculation of blood serum from animals that have acquired immunity. Yellow fever does not exist in an endemic condition except in the port of Vera Cruz, and in the northern districts of the peninsula of Yucatan. There is not nor has there been a single endemic source of this disease on the Pacific Coast of the Mexican Republic. The only epidemic during the present year was that which occurred at Vera Cruz with a mortality of 120, between January and August.

The second topic was a paper on

PROPHYLAXIS OF YELLOW FEVER.

by Dr. MANUEL CARMONA Y. VALLE, also of the city of Mexico, which was read in English by Dr. Formento, while his colleagues and the author attentively listened. The writer said in part: By the inoculation of a yellow fever sufferer with his urine the disease is stemmed and finally eradicated from the system. In 1882 he began treating victims of the scourge with subcutaneous injections of urine and success followed. He discovered that he could vaccinate a sound person with the fluid from a patient who was over four days diseased, and that those undergoing the operation were immuned from any further danger of contagion. The injection is made in the cellular tissues of the back part of the arm and from 1,358 inoculations made by him, there has never followed any other consequence than the formation of a single abscess in the place of injection. This method has been used by Dr. Garcia del Formel in Panama with great success. The essayist, while first experimenting, treated 208 persons in 1882-83. Only one out of this number, a relative employed in the custom house in his city became slightly ill, not sufficient for him to go to bed with the malady. Continuing he said that Surgeon-General Sternberg of the U. S. Army, who had been in correspondence with him, proposed that the residuum of urine be obtained by the evaporation of the liquid in a vacuum. . . . M. Bouchard of Paris, had been for some time investigating the author's method of treatment, with successful results in the case of inoculated animals. The Doctor recommended to his colleagues in the United States that they use the residuum, retained in small flasks which should be perfectly aseptic and hermetically sealed, when treating a case of yellow fever. His own method before making an inoculation is to dissolve 5 centigrams of residuum in 1 gram of pure water, then inject with a Pravaz syringe.

In the brief discussion that ensued, Dr. Woodhull expressed his thanks to both writers and the authors of the foregoing papers for their contributions on yellow fever, and particularly for the last one. The reading of that paper was to him exceedingly interesting as he thought it was to all the gentlemen present.

Dr. FORMENTO—said that there is a great future in the study of the prophylaxis of this disease. Since 1880, yellow fever has been kept out of New Orleans as all cases are quarantined at the quarantine station in the river below the city. He had no doubt that the substance found in the urine of patients suffering from yellow fever will produce immunity from the disease to others if they permit themselves to be inoculated in the manner described by Dr. Carmona y. Valle.

A paper was delivered in Spanish by Dr. JESUS E. MONJARRAS of San Luis Potosi, Mex., "On the Necessity for the Establishment of Sanatoria to Prevent Chlorosis as the best Prophylactic against Consumption in Particular, and Constitutional Diseases in General," upon which there was no discussion. He was followed by Dr. GREGORIO MENDIZABAL of Orizaba, Vera Cruz, Mex., who read a paper

ON BATHS; THEIR NECESSITY, THEIR INFLUENCE IN ECONOMY; THE DANGERS THEY PRESENT, AND THE METHODS OF PREVENTING THEM,

of which these excerpts were taken: cleanliness is without dispute, the fountain of beauty, as it is also the most pure spring of human health. The writer referred to the fact that cleanliness is a preventive of disease. . . . The importance given to bathing by the Egyptians, Persians, Greeks, and above all the Romans was considered. . . . The first act of Eastern hospitality during the remote ages, consisted in offering a bath to the traveler seeking the shelter of a roof. . . . The gigantic Roman ruins, and the degree of prominence given to ablution in that exalted nation whose legions triumphantly traversed the greater part of the then known world was dwelt upon. . . . Unfortunately civilization, the corruption of morals, as John Jacob Rousseau says, converted in an evil day those fountains open to all; as well to the high born as the plebeian; the rich as the poor; the wise as the ignorant, and from which those people ob-

tained such benefits to health and virility—into amphitheaters of corruption and iniquity, into centers of depravity and effeminacy, making them abominable in the eyes of men of pure heart and habits who succeeded the villified race of that abject Roman Empire. . . . These institutions having gone out of use, it was necessary to go slowly again over the same ground and provide the social classes with the most easy and economical means of cleansing their bodies and clothing, as well as to preserve them from the thousands of ailments emanating from negligence and ignorance.

This is one of the many, and perhaps most interesting propositions of contemporary hygiene, and the boards of health have not been idle, and their gospel has begun to bear fruit. We note with satisfaction the rivalry between modern cities in procuring for each inhabitant the greatest possible number of gallons of water, and supplying it so cheaply as to place the means of cleansing within the reach of even the most destitute of our race. . . . The advantages of hygiene were further proclaimed to show that the indifferent and indolent poor would be benefited by a strict observance of it. . . . The physiologic and therapeutic properties of cold water were noted; how it raises the standard of health, invigorates the most debilitated constitutions, and assuages nervous excitement, etc. . . . The shower bath is a good tonic because it gives rise to a healthy perspiration. It does not irritate and one is less exposed to a cold than in a tub because the duration is very short; the body is more thoroughly cleansed as all impurities are removed from the skin by the continually new and pure falling water. It satisfies also the demands of economy without any extra expenditure of water.

Public baths have reached the highest state of perfection in Germany, Austria and England, and these countries have produced in the last fifteen years the largest number of scientific works on the subject.

The city of Berlin shows with pride to travelers her bathing department in the barracks of the Grenadier Guards wherein 300 soldiers can bathe themselves hourly, each consuming only from 10 to 15 liters of water.

The City of Mexico which had hitherto only a supply of from 65 to 70 liters of water per inhabitant, will double this allowance within a short time and will augment the number of modern bathing centers where prices will be arranged within the reach of all.

The government is now constructing a bathhouse in Lagunillas Square, applying to the object a private donation, in which the poor will find hot and cold shower baths, with the further privilege of having their soiled linen washed while they are on the premises.

The speaker then dwelt upon the manner in which diseases may be contracted in badly kept and imperfectly cleansed tubs, through the use of sheets, towels, combs, brushes, etc.; he recited the various kinds of disease that had come under his observation contracted in this manner, and concluded by saying, the necessity of having public baths kept absolutely clean is imperative, otherwise they act as disease disseminators.

An abstract of a paper on

SMALLPOX IN WISCONSIN FROM JANUARY, 1894, TO JUNE, 1895, was presented by Dr. U. O. B. WINGATE, of Milwaukee, Wis.

The State of Wisconsin has an average length of about 260 miles, breadth 215 miles, and an area of 56,000 square miles, or 35,840,000 square acres. In other words, its territory is nearly equal to that of England and Wales together. . . . The highest elevations are about eighteen hundred feet above the level of the sea, and the lowest six hundred feet. It is divided into seventy counties, and has a population, according to the census of 1895, of nearly 2,000,000. It has one city of about 250,000 population, and a total of 1,235 cities, villages and towns, out of which number there are 48 cities with a population ranging from 25,000 to 40,000 respectively. Each city, village and township is required by law to have an organized local board of health, consisting of a chairman, a secretary and a health officer, who is the executive officer of the board. There are a few townships in the sparsely populated districts that have not conformed to the requirements of the law. There are, however, about 475 legally organized local boards of health in the State.

Prior to 1894, smallpox had not existed in the State for a number of years with the exception of now and then a sporadic case. At the beginning of 1894 the disease showed an alarming increase in the city of Chicago, Ill. During January of that year three cases occurred in the interior of this State and one in the city of Milwaukee. The disease did not

seem to spread from these cases, but soon after it began to appear in different places throughout the State. In some instances it could be traced directly to Chicago. The State Board of Health adopted its vaccination rule which required that no child could be admitted to school without presenting a certificate of successful vaccination. This rule was of general application throughout the State. It also urged vaccination of all teachers, inmates and employees of all institutions, factories, etc. There was, however, a very active anti-vaccination society at work in the city of Milwaukee, and its influence spread more or less over certain portions of the State, but subsequent reports showed that the rule was very generally observed, and especially in those localities where the disease made its appearance. . . .

The disease increased and reached its height in the State about the middle of October, 1894, when it began to decline and entirely disappeared in the month of June, 1895. It appeared in thirty-one out of the seventy counties, and in fifty-eight places. . . . A table showing the number of cases in each county, and number of deaths was then given. . . . Out of the total number of 1,412 cases throughout the State, with 352 deaths, 1,197 cases occurred in the county and city of Milwaukee, with 299 deaths. . . .

The total death rate in the State was 24.92 per cent., while in the city of Milwaukee there were 1,060 cases with 271 deaths or 25.56 per cent. Out of this number 575 cases were treated in the hospital with 134 deaths, giving a death rate of 22.53 per cent. . . . Four hundred and eighty-five cases were treated in houses, with 137 deaths, giving a death rate of 28.25 per cent. . . . Out of the 1,060 cases, a history of vaccination was obtained in 1,016, 343 of which gave a history or presented evidence of vaccination some time prior to the attack. Of this number, 35 died, or 10.21 per cent. . . . Six hundred and seventy-three cases gave a history of having never been vaccinated. Of this number 181 died, or 28.38 per cent. . . .

In several instances the disease was promptly stamped out. If a second focus of infection was introduced some weeks or months subsequently, again it would be promptly stamped out. . . .

In the majority of instances, public sentiment sustained the State laws, which are ample and sufficient, if properly enforced, to control an outbreak of contagious disease of any kind in Wisconsin. Although great difficulty was at first encountered in the city of Milwaukee, for a time, to overcome the prejudice of a certain class who did not appreciate the value of sanitary law and its enforcement, riotous demonstrations occurred which are already a matter of history. . . .

Vaccination to be effective must be repeated sufficiently often to keep the system immuned from the disease, and until that time comes there will be smallpox. Until every person will take it upon himself to be re-vaccinated every four years, on the same principle that he would have a fire or life insurance policy renewed when it runs out, we can never expect to be absolutely protected from smallpox. Some persons vaccinated in infancy may remain immune for a lifetime, while with others immunity will last only a few years. The only safety is in oft-repeated vaccinations, certainly as often as every five years. . . . Pure lymph should be propagated absolutely under the control of the State or National government, and should be taken out of the hands of commercial interests. . . . Until this is done it is no wonder that the people, or quite a proportion of them, oppose vaccination on the ground of impure and unreliable vaccine. . . . The writer believes this is true also of the antitoxins and similar products used for immunizing purposes. . . . Successful vaccination with pure effective vaccine, and isolation of cases, are the two great weapons upon which we must rely to control outbreaks of smallpox, and to carry these two means into effect we must have both law and education. . . .

The death rate, as shown by all statistics with which the author is acquainted, show that cases treated in properly constructed and properly managed isolation hospitals is decidedly less than of those cases treated in homes. . . . In the great majority of instances, in cities especially, cases of smallpox can not be properly isolated at home without danger to the public. . . . People should be taught the advantages, not only to themselves but to their neighbors, of being removed to isolation hospitals for treatment. . . . Another great work to be done, is to educate communities up to the importance of appropriating a sufficient amount of money to erect and maintain in every city suitable hospitals which should be in every way so well equipped that no complaint can be brought against

them, and which should be maintained at public expense, that the comforts enjoyed therein by patients ill with contagious diseases are equal to or greater than those enjoyed in the majority of homes. . . . By such provisions, epidemics of smallpox can be easily controlled, and not only life and health saved, but the enormous expense to every community which necessarily occurs in which any extended outbreak of this disease exists.

PRESIDENT-ELECT LICEAGA was then escorted to the chair by Drs. Formento and Horlbeck and formally inducted into office.

Senors:—I consider the honor bestowed upon me as an honor to my country, and I thank the Association. I consider that among my own countrymen present, there are men more worthy of the honor, and on that account I feel a personal debt of gratitude to the Association. I can assure the Association that my deficiencies will be compensated by devoting all my intelligence, good will and energy to become worthy of the great honor conferred upon me.

PRESIDENT BAILEY the retiring executive officer, thanked the Association for courtesies shown him, and assured his friends that the occasion would be one of the delights of his lifetime. He then adjourned the Association at 11:35 o'clock to reconvene at the Antlers Hotel, Colorado Springs on Monday morning at 10 o'clock October 7.

COLORADO SPRINGS, COLO., Monday, October 7.—About one hundred members of the American Public Health Association visited this city last Saturday and remained over until to-day. The citizens and medical profession of Colorado Springs and Manitou entertained the Association in a luncheon at Broadmoor Casino and in a trip to Cheyenne canon and other points of interest in the Pike's Peak region, including a drive through Glen Aerie, the Garden of the Gods, etc.; this program was carried out to the letter. The remaining visiting members passed a resolution of thanks for the numerous courtesies and hospitalities they received during their brief sojourn in this beautiful city, after which the Association adjourned *sine die*.

Some arrangements had been made to start from the Union depot in Denver on Friday afternoon after adjournment, for a trip around the famous "Georgetown loop" to Silver Plume. This included a "stop over" at Idaho Springs, but the inclement weather then prevailing made the undertaking too hazardous and it was therefore abandoned.

Thursday afternoon the 3d inst., the members with their families and invited guests indulged in a trolley ride about the city and suburbs which included about forty-five miles, starting from the headquarters at 2 o'clock. This was tendered by the Denver Chamber of Commerce. The ride included a visit to the Zoological Gardens at the outskirts of the city. Many members also availed themselves of the invitation extended by Col. and Mrs. A. A. Woodhull, to an afternoon tea where the genial host and hostess entertained the visitors at their hospitable home, 1020 Logan Avenue; on Wednesday the 2d inst., the lady delegates and visitors were invited to an afternoon tea given by Mrs. N. P. Hill at her residence, corner of Fourteenth and Welton Streets. This proved to be a most enjoyable and delightful affair. During the evening, a reception for the members and their friends was given in the parlors of the Brown Palace Hotel. The De Harport orchestra was in attendance, and the care with which the details of the reception were carried out made it a perfect success. It was stated that there were upward of 400 ladies and gentlemen present during the evening. The parlors were beautifully embellished for the occasion. It was while this was in progress shortly after 9 o'clock that the Mexican delegation arrived which altogether included fourteen members. During the day also at various intervals, the program was varied by a visit to the Denver Athletic Club and to the Smelters, in a tally-ho which was furnished by the Local Committee of Arrangements.

Tuesday evening, the 1st inst., after the open public meeting in Trinity M. E. Church, the program was of a semi-social and semi-formal character. His Honor the Mayor, and Mrs. T. S. McMurray, Dr. and Mrs. J. H. Gower, Dr. and Mrs. Henry Sewall, Dr. and Mrs. J. N. Hall introduced the guests to the citizens.

Monday afternoon the 30th, at 1:30 o'clock the members and their friends were invited by the Denver Union Water Co., to inspect the water works of the mountain supply in the Platte canon, twenty-two miles from Denver. Special cars were provided for the occasion, also dainty refreshments. However pleased the Association might have been with the source of Denver's water supply for drinking and domestic purposes it did not formally indorse it.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, OCTOBER 26, 1895.

CONCERNING PORTRAITS.

Animum pictura pascit inani.—VIRGIL.

"And with the shadowy picture feeds his mind."

We have had many letters from members of the ASSOCIATION making inquiry about the probable disposition of the photographs of the members, which this JOURNAL has been receiving from time to time for the last six months.

Some other journals have even been facetious when mentioning the matter. The truth is that few things are of more interest historically than the pictures of the men who make the history, and from the earliest times it has been a common complaint that the world was indifferent to contemporary portraits.

PLINY ("Natural History") lamented that his age possessed no portraits of living men. "Correct portraits of individuals," says PLINY, "were formerly transmitted to future ages by painting, but this has now fallen into desuetude. Brazen shields are now set up, and silver faces with only some obscure traces of the countenance; the very heads, too, of the statues are changed; a thing that has given rise before now to many a current sarcastic line, so true it is that people prefer showing off the valuable material to having a faithful likeness. And yet, at the same time, we tapestry the walls of our galleries with old pictures, and we prize the portraits of strangers; while as to those made in honor of ourselves, we esteem them only for the value of the material, for some heir to break up and melt, and so forestall the noose and slipknot of the thief. Thus it is that we possess the portraits of no living individuals, and leave behind us the pictures of our wealth, not of our persons. And yet the very same persons adorn the palæstra and the anointing-room with portraits of athletes and both hang up in their chamber and carry about them a likeness of EPICURUS."

PLINY referred with pleasure to the practice of his ancestors, so entirely different. Family portraits were arranged each in its separate niche, to be always in readiness to accompany the funeral processions of the family, occasions on which, by this practice, every member of the family that had ever existed was always present.

"Indeed," says PLINY, in concluding his interesting chapter on portraits; "it is my opinion that nothing can be a greater proof of having achieved success in life, than a lasting desire on the part of one's fellow men to know what one's features were. This practice of grouping portraits was first introduced at Rome by ASINIUS POLLIO." It was VARRO who first inserted portraits in books.

"What," says the elder D'ISRAELI, "is more agreeable to the curiosity of the mind and eye than the portraits of great characters? An old philosopher whom MARVILLE invited to see a collection of landscapes by a celebrated artist replied, 'Landscapes I prefer seeing in the country itself, but I am fond of contemplating the pictures of illustrious men.' This opinion has some truth; LORD ORFORD preferred an interesting portrait to either landscape or historical painting. 'A landscape,' said he, 'however excellent in its distributions of wood and water and buildings, leaves not one trace in the memory; historical painting is perpetually false in a variety of ways, in the costume, the grouping, the portraits, and is nothing more than fabulous painting, but a real portrait is truth itself and calls up so many collateral ideas as to fill an intelligent mind more than any other species.'"

It is a false pride which refuses to have a picture taken. "Do you not think," said DASSIER, the painter, to MONTESQUIEU, "that there is as much pride in refusing my offer as in accepting it?"

The voice of antiquity, not less than that of modern curiosity, urges us to make these collections of our contemporaries while we can, and before TIME, that subtle painter, shall have changed all the lineaments that made the physiognomy characteristic of our friends in the active period of their labor.

ADDISON, who placed the line from VIRGIL which we quote at the head of this article, at the beginning of his charming vision of a picture gallery, observed "an old man creeping up and down from one picture to another, and retouching all the fine pieces that stood before me. I could not but be attentive to all his motions. I found his pencil was so very light that it worked imperceptibly, and after a thousand touches, scarce produced any visible effect in the pictures on which he was employed. However, as he busied himself incessantly, and repeated touch after touch without rest or intermission, he wore off incessantly every disagreeable gloss that hung upon a figure. He also added such a beautiful brown to the shades and mellowness to the colors, that he made

every picture more perfect than when it came fresh from the master's pencil. I could not forbear looking upon the face of this ancient workman, and immediately by the long lock of hair on his forehead discovered him to be TIME." And so, while TIME may produce the "wrinkled front," he blends the wrinkles deftly, until the face most worthy of protracted study is that of the sage, mellow with age and accumulated wisdom.

Let then, our old and young members alike aid in furnishing our portrait gallery with their pictures. They will be deposited in the ASSOCIATION Library, as among the most sacred archives of our noble ASSOCIATION. What would our generation give for an authentic portrait of HIPPOCRATES or GALEN, or of the medical masters of medieval times, and yet our time will some day be quite as remote from distant posterity. Opportunity may indeed prevent this age from producing a counterpart of HIPPOCRATES or GALEN, but measured by the sum total of the reduction of human suffering, the age that produced anesthesia can never be uninteresting or unimportant.

THE COLOR SENSE AND RAILWAY AND SEA SIGNALS

The importance of systematic examination of the color sense in seamen and railway employes is now so thoroughly recognized that it is perhaps commonly thought that all the requirements for the safety of life and property are met by the system now in vogue. The complete weeding out of all who show defects of color vision from these employments is the ideal of the ophthalmologists and of those who have made a specialty of this subject, like DR. JEFFRIES, of Boston, and some others. Against them, however, there is sometimes raised a voice, for example, DRS. DIBBLE and OUTTEN at the last meeting of the Association of Railway Surgeons, and MR. F. FERGUS, in a recent issue of the *Glasgow Medical Journal*. These objectors assert that there are cases that are rejected by the usual tests that are perfectly competent to meet all practical emergencies, and that any rigid tests apart from those directly practical sometimes work injustice. It is asserted also by some, that considering the fact that 4 per cent. of males are more or less defective in their color vision, there ought to be a larger proportion of accidents by land and water directly traceable to these defects during the many years that these defective individuals have been employed.

DR. W. R. GOWERS, in a communication in the *Lancet*, last March, asked for direct evidences of accidents due to this cause; the replies he received were surprisingly few in number, and the instances given were in part those mentioned by JEFFRIES, which are, so to speak, the classic ones in the literature.

Recognizing, however, as one must, the difficulties of establishing all the causes of accidents by rail or

sea, it may be admitted on *a priori* grounds that the element of defective color vision is an important one among the possibilities of danger, and that it should be adequately guarded against. The examinations can be made sufficiently practical and, where actual hardship results especial care should be taken and some compensation afforded if justice demands it. There is more danger probably in the defects of those who can pass the examination successfully than in the chance of a case of imperfect color vision passing it, or in the possible laxity of the tests.

The dangers from color blindness are not confined to those who reveal it in sorting worsteds or even to the spectroscopic tests. It is a temporary symptom of many possible pathologic conditions, alcoholism, hysteria, tobacco saturation; it may be a relic of acute disease, convalescence from which seems to be complete, and lastly it may probably be sometimes the direct temporary result of mental stress, so that in certain emergencies where it is most needed it may be wanting. These cases are the more dangerous in that they are unsuspected, and caution and suspicion are done away with by the successful result of the prior examination. To trust human life implicitly and solely to the perfection of so delicate and easily deranged a function, when additional precautions for safety are practicable and readily available, would seem to be almost criminal when all these facts are taken into consideration.

Color blindness in these cases, as well as probably in many congenital ones, as was maintained nearly fifteen years ago by BANNISTER and BURNETT, is probably a psychic rather than a retinal disorder, and this psychic factor is a possibility to be always considered. The danger, therefore, is that we shall depend too much upon a refinement of a sensory function that is defective in an appreciable percentage and may possibly fail under critical circumstances in a much larger proportion.

The advisability of supplementing the color signals by some other and more efficient device has long been recognized by practical navigators, and it is efficiently done upon the inland waters of the United States by the use of range lights on steamers, which has lately been made compulsory also on the lakes. They have the advantage over the colored lights, of greater range of visibility, of being distinguishable at all times, and of affording data by which to ascertain the exact course of the approaching steamer. Whether any analogous arrangement is equally available in railway practice is perhaps a question, but there can be no doubt that a semaphore arrangement of lights for a danger signal would always be a most useful addition to the colored lights now employed.

The subject has important medical as well as practical bearings, and it would be well were it fully discussed in the medical press.

UREMIC PERICARDITIS.

The frequency of pericarditis in chronic nephritis is well known. BÜHL (*Mitteilungen a. o. pathol. Institut. München*, 1878) estimated the frequency at 35 per cent. of the observed cases; BAMBERGER, (*Volkmann's Sammlung klin. vorträge*, 1878, No. 173) at 14 per cent. and WAGNER (*Ziemssen's Encyclopedia*, 1882) observed pericarditis fourteen times in 150 cases of chronic nephritis. Many of the earlier writers believed the cause of this inflammation of the pericardium, as well as of other tissues, in the course of chronic nephritis, to be toxic substances circulating in the blood which the kidneys failed to eliminate. Under the influence of the study of bacteriology the opinion gained ground that pericarditis in connection with nephritis must be due to an accidental infection, and this was the view expressed by LECORCHÉ and TALAMON in their treatise of albuminuria and Bright's disease published in 1888.

It is self-evident that in order to determine the exact cause of the pericarditis in a given case, resort must be had to the modern microscopic and bacteriologic examination of fresh material as soon after death as possible. There are already a few records published of the examination of such cases and especially by BANTI of Florence. He described a case of pericarditis in a uremic in 1888 (*Deutsche med. Wochenschrift*, No. 44, 1888) in which the exudate and the tissue of the pericardium seemed absolutely free from bacteria as far as could be determined by microscopic examination, by culture experiments and by inoculation into animals. BAUMGARTEN (*Baumgarten's Jahresbericht*, Bd. iv) was inclined to think that the inflammation in this case was due to microorganisms that had died before the material was examined, but BANTI was not inclined to accept this criticism because the pericarditis had existed only seven days before death. Last year (*Centralblatt für Allg. Path. u. Path. Anat.*, Bd. v, No. 11) BANTI described a new case of pericarditis in uremia due to arterio-sclerotic interstitial nephritis, in which the exudate and the tissue of the pericardium were found free from microbes after the most thorough examination according to the best methods. Aërobic and anaërobic culture experiments were made with large masses of the exudate upon a variety of media, but all remained sterile. In this case the clinical manifestations pointed to the existence of the pericarditis for about four days before death.

BANTI consequently concluded that in the light of the results obtained from the study of these two cases, the pericardial inflammation was due to toxic substances circulating in the blood in consequence of failure of elimination through the diseased kidneys. He then made some animal experiments and found that rabbits in which the pericardium had been cauterized, developed a more marked fibrinous pericar-

ditis after nephrectomy or ligation of the ureters, than animals in whom the cauterization of the pericardium only was made, and which were killed after the same length of time in which the uremic animals died. While these experiments were not conclusive, yet they seem to support the theory of uremic pericarditis.

In October, 1894, BECO (*Centralblatt für Allg. Path. u. Path. Anat.*, Bd. v, No. 19) describes a germ-free case of sero-fibrinous pericarditis in a chronic nephritic, which he is inclined to interpret as due to toxic substances produced by the bacillus coli communis which was present in the blood and in the spleen. This view is supported by certain experiments of CHARRIN (*Sem. Medicale*, 1894, No. 42, p. 337) which seem to show that the bacterial toxins may cause serositis without the immediate presence of the corresponding microorganisms. In March, 1895, (*Centralblatt für Allg. Path. u. Path. Anat.*, Bd. vi, No. 5) BANTI describes two additional cases of uremic pericarditis in which there were no bacteria either in the pericardium, in the blood or in the spleen, and he concludes that the presence of the bacillus coli communis that BECO found in his case was accidental and due to agonal or post-mortem invasion.

From these interesting observations it does not seem unreasonable to believe that there may be a "toxic inflammation" independent of all direct bacterial influence. Such observations as BANTI's and others, indicate the necessity of a thorough bacteriologic examination of all cases of pericarditis and other serositis in connection with kidney lesions in general. The results obtained are in full harmony with the views concerning auto-intoxication that are rapidly gaining credence at the present time.

INADEQUACIES OF ARBITRARY MILK STANDARDS IN ENGLAND—THE "APPEAL TO THE COW."

MR. RICHARD BANNISTER, one of the best known officers of the Local Government Board of Great Britain, recently occupied the chair as President of the Section on Chemistry and Climatology of the Congress at Hull of the British Institute of Public Health. His presidential address treated chiefly of the work being done by the governmental bodies for the restriction of food products adulteration. He regards the laws as amply framed for the protection of any community, and those communities are blameworthy that refuse to act thereunder. Adulteration is sometimes alleged, especially in respect to imported foods, when it does not exist. The existing laws have already effected an incalculable amount of good, notwithstanding the lukewarm support given them.

At this point in his address, according to the *Sanitary Record*, he turned his attention to the all-important subject of the milk supply, a subject which

he held was attended by many more difficulties than is commonly admitted. He presented facts and figures going to show the great necessity to study the milk and butter question in all its bearings, and to see what difficulties there were in the way of carrying out this part of the analyst's duty with justice alike to himself, the producer, and consumer. With regard to milk, many difficulties would be removed if the statement made by an expert to the Parliamentary Committee on Adulteration in 1894 were true, that the quantity of fat varied in milk, but the other constituents were wonderfully constant, and they hardly varied at all, and that according to certain rules he could tell how much water had been added to a given sample of milk, or how much cream had been taken from a given sample of milk. This unfortunately is not the case. Government officers have publicly declared that it would not be in accordance with the design of the Act that a poor man should be subjected to penal proceedings because his cow does not produce as good milk as the better herds of his richer neighbors. It has been suggested that a legal standard for milk should be adopted, and that this standard should be the average composition of commercial milk.

The hardship of such a standard would be felt by persons keeping a few cows or a single cow in country places, but in the case of town supplies the large distributor would be able to lower this standard by the help of separated milk. Again, another point arose, calling for settlement. Cows supplying milk under contract were kept as simple milk-producing machines, kept up and fed in such a way as to produce the maximum quantity of milk of the contract quality. Was milk so produced, though richer in fat and "solids not fat," as wholesome as that produced by the cow when living under normal conditions? In other words, was the percentage of "solids not fat," and fat, the true standard of value of cow's milk when taken as an article of food? This standard had been taken because it required no question to be asked or inquiries to be made as to the origin of the milk under examination, but in the case of direct milk supply to the consumer by the producer this standard needs to be modified; and in fact, it had been modified, by the magistrates. The raising of the standard would not secure the purity of the milk. The large distributors would be able to make larger profits than they do now, and the small producer would be more frequently prosecuted for adulteration through no fault of his own. In Manchester and Salford the sale of adulterated milk appeared to have been reduced to a minimum, the percentage of adulteration in Manchester being 5.4, and in Salford 3.1. This had been brought about by *appealing to the cows* supplying the suspected milk whenever such an appeal could be made. The plan

was an expensive one at first, but it eventually paid, and caused the minimum of hardship to producer, distributor, and consumer. In conclusion, the author of the address said:

"Much of the evidence which had been given with reference to mixtures was only a repetition of what was said twenty years ago, before the 1874 Commission, but it had been strongly shown that the trade labored under great hardships from the following causes: 1, the non-acceptance by magistrates trying adulteration cases of the certificate of the analytic chemist employed by the defendant, which necessitated his appearance in person at considerable expense; 2, the refusal of the magistrates to allow the defendant his full costs when the case was decided in his favor; and 3, the refusal of some magistrates to allow an appeal to the referees under the Act, and of not accepting the certificates of referees as evidence in the case. In all such cases justice must be blind; no prejudice must be imparted into the proceedings on one side or the other, and as the proceedings under the Adulteration Act were criminal, it was their duty to lean to the side of mercy and only proceed when the case was free from doubt. The large majority of manufacturers and tradesmen of this country were desirous of suppressing adulteration, and were ready to coöperate with the authorities in so doing. It would, therefore, be a misfortune if by harsh measures they lost the sympathy and support of the right-minded, who were willing to aid them in their great movement of protecting the food supply of the nation from adulteration, or of creating an impression in the minds of the Legislature that the legitimate trade of this country was being fettered and injured by their action."

None of the foregoing conditions apply in this country to any extent, and our chemists have a more elastic scale of allowance for the fat percentage. There is only one reason why milk dealers are prosecuted in the United States, that is for adulteration, and the fat percentage is only taken into account in our analyses when it falls so low as to show that water has been added. The "trade" in this country, have no reasonable complaint, and what the public wants and will have, if it can get it, is pure milk.

MEDICAL EXAMINER'S FEES.

Elsewhere we print a letter from a correspondent who invites attention to recent action of certain life insurance companies, whereby the fees of the medical examiners are to be reduced. This reduction is based on the amount of insurance applied for. It is inconceivable that the companies suppose that an examination can be any different in one case than in another. All cases require the same care and skill, and the same amount of the examiner's time. The amount of money involved in the risk is of absolutely no consequence to the examiner, however much the company may be interested, and we think so unjust a plan should be promptly receded from.

The majority of examiners are already underpaid,

as some of the companies only allow a pittance for an examination requiring not only a great deal of technical knowledge, but the exercise of the highest quality of skilled service, and ability as a cross-examiner.

CORRESPONDENCE.

A Convenient Test for Color Blindness.

LA FAYETTE, IND., Oct. 14, 1895.

To the Editor:—Being called upon frequently to make color tests for railroad employes, I have been using a method which Dr. Carrow of Ann Arbor gave us in a course on ophthalmology. Whether it has been published or not, I can not say. If it has, this will emphasize its importance and convenience, and if not, will describe it for the first time. The skeins of wool have been abandoned as consuming too much time and occupying too much space.

The test consists of a sample card of Corticelli embroidery silk. On the folding card are 269 colors all named. Over the names must be pasted blank paper to hide them. These colors may now be numbered consecutively. In testing, we direct the patient's attention to one of the colors; blue, green or red. We will take, for example, blue, and ask him if he sees any color in the green or red column of colors to correspond. If he says, no, we point out to him the red, and ask him if there is anything in the blue or green column to correspond. If he answers, no, we may then ask him to name and point out the colors we have been comparing. If he answers correctly, he is not color blind to these colors so important in railway service. He must not be told the name of any color. He must tell the examiner correctly.

On the other hand, however, suppose we point out to him a simple blue and ask him if there is any color on the card to correspond and he says there is, and points to green, for example, we know him to be blind to either blue or green. To which one, is easily ascertained by asking him the name of the color to which we directed his attention first. If he calls the blue color, green, we know that he is blind to blue and vice versa. If he should say the red is like the blue, we know him then to be color blind to either red or blue. To find out which, we need only ask him to name the colors. If he calls red, blue, we then know him to be blind to red and vice versa. If red and green correspond in color to him, his color blindness will be ascertained as above. The rest of the card may be used to ascertain the different shades of different colors to which the applicant may be blind.

GEO. F. KEIPER, M.D.

Life Insurance Companies Reduce Fees.

LA FAYETTE, IND., Oct. 13, 1895.

To the Editor:— . . . Both the Equitable and the New York Life Insurance Companies have lately adopted the graded scale of fees to local medical examiners, thus:

For three thousand dollars or less of insurance . . . \$3.

For from three to twenty-five thousand 5.

To be brief and plain, I inclose the blank just received from the New York Life Insurance Company; it explains itself.

By the examination of the books of one of our oldest and most reliable life insurance agents in La Fayette, I find that nine out of ten applications for policies are for a less sum than \$3,000 insurance showing that this graded scale of fees means a cut of about 40 per cent. from old and established rates. I do not believe that the doctors throughout the country appreciate this, and I wish most earnestly that you would write one of your instructive editorials on this subject to appear in the JOURNAL at an early day. The Equitable circular announcing a reduction of fees is similar to this; in fact, it is my remembrance that it is the same.

With best wishes for the JOURNAL and its editor, officially and personally, I am, dear Doctor,

Very truly yours, W. W. VINNEDGE, M.D.

PUBLIC HEALTH.

Antistreptococcin.—The *New Remedies*, September, gives a brief reference, from its foreign correspondence, to a new remedial serum bearing the name in the caption. It is the latest of the antitoxic serums. It has been developed and brought into the therapeutic field by Professor Marmorek. "It is said to destroy the pathogenic streptococcus absolutely, and will therefore prove of inestimable value in conditions which are now usually abandoned as hopeless. The serum is injected in routine style and does not produce side or after-effects." Marmorek is conducting clinical experiments which will be published as rapidly as consistent with reliability. Early reports thereon have been promised.

A Health Officer Vindicated.—The Bulletin for September of the North Carolina Board of Health gives notice that Dr. John L. Ray, of Burnsville, the Health Superintendent of Yancey County, has received a handsome vindication from certain accusations against him that had found their way into the Public Documents of the State. Typhoid fever occurred in the county jail which was in an unsanitary condition. There were five cases reported as originating there, and from them not less than twenty-four cases were developed among the townspeople. Dr. Ray used due diligence in reporting the cases, in applying disinfectants, and in urging the cleansing of the jail by the officers having charge of that institution. Notwithstanding his courageous efforts, the Public Documents contained a severe criticism, alleging neglect of duty. This criticism, when sifted, was found to be based in part upon a forged report by a clerk of the court. The vindication of Dr. Ray is found in a numerously signed certificate as to the qualifications and energy of the Superintendent, and as to the falsity of the allegations published in the Documents. Among the signers of the certificate are the physicians of the town, or nearly all of them, the mayor, the postmaster, the Representative, the marshal, an alderman, a justice and a score of lawyers and merchants. It appears from the Bulletin, that a betterment of the condition of the jail has been effected, following upon the appointment of a new jailer, together with a reduction of the dangers to the community from typhoid fever. The Bulletin congratulated Dr. Ray on the fact that his courage and efficiency have been vindicated beyond question by a host of competent witnesses.

Health Reports.—The following health reports have been received at the office of the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans: October 5 to 12, 2 cases, 2 deaths.
Michigan: Battle Creek Twp., October 5 to 12, smallpox reported; Detroit, October 5 to 12, smallpox reported.
Wheeling: July 1 to September 30, 3 deaths.
Tennessee: Shelby County, September 15 to October 15, 3 cases; Memphis, September 15 to October 15, 4 cases.

SMALLPOX—FOREIGN.

Antwerp: September 21 to 28, 1 death.
Cairo: September 9 to 16, 2 deaths.
Calcutta: August 31 to September 7, 2 deaths.
Corunna: July 1 to September 30, 1 death.
Dublin: September 21 to 28, 18 cases, 2 deaths; Dublin, September 28 to October 5, 11 cases, 1 death.
London: September 21 to 28, 234 cases, 2 deaths; London, September 28 to October 5, 1 death.
Madrid: September 24 to October 1, 1 death.
Manchester: September 21 to 28, 4 cases.
Montevideo: August 31 to September 14, 2 cases, 1 death.
Naples: September 28 to October 5, 1 case, 1 death.
Odessa: September 21 to 28, 1 case.
Prague: September 21 to 28, 2 cases.
Rio de Janeiro: September 7 to 21, 135 deaths.
Rotterdam: September 28 to October 5, 2 deaths.
St. Petersburg: September 14 to 28, 10 cases, 1 death.
Southampton: September 28 to October 5, 1 case.
Trieste: September 21 to 28, 2 cases.

CHOLERA.

Calcutta: August 31 to September 7, 6 deaths.
 Cognac: September 29 to October 5, 1 death.
 Madras: August 31 to September 6, 6 deaths.
 Osaka and Hiogo: September 7 to 21, 99 cases, 77 deaths.
 Tangier: September 1 to 30, 800 cases, 600 deaths.
 Honolulu: August 18 to September 28, 87 cases, 62 deaths.
 Damietta: October 15, 15 cases, 3 deaths.
 Japan: fifty cities and towns September 13 to 19, 3,336 cases, 2,680 deaths.

From beginning of epidemic to September 19, 46,009 cases, 31,188 deaths.

YELLOW FEVER.

Cienfuegos, September 6 to 13, 2 deaths; Cienfuegos, September 30 to October 6, 4 deaths.

Rio de Janeiro: September 7 to 21, 6 deaths.

Sagua la Grande: September 28 to October 12, 30 cases.

St. Johns, Antigua: September 23 to 30, 3 cases, 3 deaths.

Santiago de Cuba: September 28 to October 12, 19 deaths.

NECROLOGY.

SURGEON-GENERAL SIR THOMAS LONGMORE, C.B.—We regret to announce the death of Surgeon-General Sir Thomas Longmore, C.B., which occurred Sept. 30, 1895. He was born in London, Oct. 10, 1816. His father was a surgeon in the Royal Navy. He was educated at Merchant Taylors School. In due course of time he became a student at Guy's Hospital. He was dresser to Mr. Bransby Cooper, assisted that surgeon in his private practice and in writing the life of Sir Astley Cooper. He arranged and catalogued the museum of that great surgeon, afterward purchased by the Royal College of Surgeons of England. He became M.R.C.S. Eng., 1841, and F.R.C.S., 1856, and Fellow of the Royal Medical and Chirurgical Society. He was gazetted Assistant Surgeon 19th Regiment Feb. 3, 1843; served with that regiment in the Ionian Islands, the West Indies, and Canada, returning to England in 1851. He was gazetted Surgeon of his regiment in March, 1854, and served as Surgeon of the 19th Regiment in the Light Division of the Eastern Army, from its first taking the field throughout the campaign of 1854-55, until the termination of the siege of Sebastopol; he was not absent from duty one day during the campaign. He was present at the affair of Bulganac, battles of Alma and Inkerman, capture of Balaklava, assaults on the Redan June 18 and September 8; and received the medal and three clasps, and the Turkish medal, and was named a Knight of the Legion of Honor. He served with the 19th Regiment in the Sepoy Mutiny war until promoted Deputy Inspector-General of Hospitals in 1858. On his return to England he was appointed P.M.O. at Colchester. In 1860 he was appointed by Lord Herbert, then War Minister, Professor of Military Surgery at the new Army Medical School, and delivered the opening address in the presence of that Minister, the General Commanding the District, and other officers of distinction.

In 1864 he represented the British Government at the International Congress at Geneva. At this Congress the International Treaty, since known as the Convention of Geneva of August 22, 1864, was formally adopted, and he was a member of the Committee that settled the terms of the Convention. In 1867 he took part, by order of the Secretary for War, in the international conferences of the societies for aid to wounded soldiers in time of war. In 1867 he was nominated a Companion of the Military Division of the Most Honorable Order of the Bath, and in the following year he was gazetted Honorary Surgeon to Her Majesty the Queen. In 1866 the Société Impériale de Chirurgie de Paris elected him Correspondant Etranger. In 1869 he again represented his Government at a Conference in Berlin on Aid to Sick and Wounded in War. In 1872, and again in 1873 and 1876, Surgeon-General Longmore represented the British Government at Vienna and Brussels for the settlement of international agreements relating to sick and wounded in war, and took, in a mixed committee of military and medical officers, an active part in establishing the bearer companies, and most of the existing field hospital arrangements of the British Army. On five other occasions he represented his Government at foreign congresses, and was elected an Associé Etranger of the French Academy of Medicine and other scientific societies. In 1879 he was promoted by decree of the President of the French Republic to the rank of Officer in the Legion of Honor, the insignia of which, by Royal license, he was per-

mitted to wear. In 1886 he was knighted by the Queen at Osborne, and in the following year the Military Medical Services presented the fine portrait of Surgeon-General Longmore to the Army Medical Department, by George Reid, R.S.A., of Edinburgh, which adorns the anteroom of the mess-room at Netley.

This JOURNAL for August 24, 1895, contained an exhaustive review of Sir Thomas Longmore's last published work.

JAMES COLLINS, M.D., died suddenly of heart failure, on the 7th inst., at his home in Philadelphia. Dr. Collins was 65 years of age, and a native of Pennsylvania. He was a well-known surgeon and had been connected with the German Hospital of Philadelphia, as a prominent member of its staff for thirteen years, and was also a member of the AMERICAN MEDICAL ASSOCIATION. He attended the Philadelphia County Medical Society regularly and was a highly valued member. At its meeting held September 25, the President being absent, Dr. Collins was, on motion, elected chairman *pro tem*. He was graduated by the University of Pennsylvania, Medical Department, in 1860 and afterward by Göttingen University. He was appointed Surgeon of the 3rd Regiment Pennsylvania Reserve Corps in 1861, and served in the Army of the Potomac; where he was captured and remained in Libby Prison until 1862. He subsequently became Surgeon of Volunteers with the rank of Brevet Lieutenant Colonel. He was executive officer at Depot Field Hospital, at City Point, and was mustered out at the close of the war. He was a member of the Board of Examiners of Pension Surgeons and was a member of Meade Post, G.A.R. For seven years Dr. Collins served as demonstrator of surgery in the Medical Department of the University of Pennsylvania, but although an operator of good judgment and great skill, he was not a fluent speaker, so he gave up this field with reluctance and devoted himself to clinical surgery at the German Hospital, with which he was connected as consulting surgeon at the time of his death. Dr. Collins was a charitable, amiable and public-spirited man and had a large circle of acquaintances in the upper portion of the city. He leaves a widow.

ALBERT E. FOOTE, M.D., well known for his devotion to mineralogy and scientific studies, died at Atlanta, Georgia, on the 10th inst., where he was engaged in supervising the mineralogic exhibit of the State of Pennsylvania. Dr. Foote was born in Hamilton, N. Y., Feb. 6th, 1846. He was graduated at Ann Arbor in 1867, and afterward remained for a year as instructor in chemistry at the University of Michigan. He then accepted a position at the Iowa State College as professor of chemistry and mineralogy and held the chair for five years. For the last twenty years, he has resided at Philadelphia, engaged in his profession as mineralogist and in the sale of scientific and medical books. He was a member of the American Association for the Advancement of Science, the American Geological Society, the New York Museum of Natural History and of the Academy of Natural Sciences of Philadelphia.

ETHAN SPENCER, M.D., formerly of Indiana, but who has been residing in this city with his son, died at the latter's residence, of old age, October 17. Dr. Spencer was one of the pioneer physicians of Southern Indiana. He was born in New York city in 1812, and when quite a young man removed to Ohio. During his stay there he received a land grant from the government to several hundred acres, near Booneville, Ind. It was here he first began to practice, later removing to Evansville where he amassed a large fortune. He launched into mercantile life and lost his fortune in the panic of 1872. He again began the practice of his profession, in Evansville, where he continued actively at work until about four years ago, when he removed to this city, to live with his son. His remains will be taken to Evansville, for burial.

J. P. WELCH, M.D., formerly of Esmeraldo, New Mexico, now of St. Johns, Arizona, requests that his friends be notified through the JOURNAL of the death of his wife, which occurred September 21.

S. F. RODOLPH, M.D., of San Francisco, October 9.—**E. W. Buck, M.D.**, of Los Gatos, California, October 5, aged 68.—**Michael Price, M.D.**, of Harrisburg, Pa., October 11.—**J. V. Holson, M.D.**, of Lynchburg, Va., October 11, aged 85.—**John T. Witherspoon, M.D.**, of Lawrenceburg, Ky., October 12, aged 25.—**Timothy B. Cox, M.D.**, of Frankfort, Ind., October 16, aged 79.—**F. M. Warner, M.D.**, of New York city, October 9, aged 48.—**R. H. McFarland, M.D.**, of Orlando, Fla., October 9, aged 78.—**Geo. W. Davis, M.D.**, of South Jacksonville, Fla., October 9, aged 74.

BOOK NOTICES.

Transactions of the First Pan-American Medical Congress. Held in the City of Washington, D. C., U. S. A., Sept. 5, 6, 7 and 8, 1893. In two vols., pp. 2,250. Washington: Government Printing Office. 1895.

The contents of these two large volumes consist mostly of the papers and discussions read at the first meeting of this great Congress. Abstracts of them were flashed by wire to the medical journals at the time, and from time to time for six months after the meeting of the Congress the papers themselves appeared here and there, and as a rule they enriched medical literature. But there is much in the book that will be of permanent value. The vast work of organization which devolved upon President Pepper, Secretary-General Reed and their colleagues, has its story partially told in the opening of the volume. Those familiar with the organization will not need any glimpses behind the scenes to supply the unwritten part of that history.

We can not undertake in this brief notice to write a review of these great volumes. It is, however, proper that we should caution our Mexican confrères against the repetition of the mistake of too fine subdivision of the Sections. General surgery, for instance, was nearly ruined by the intense desire to create new sections, in some cases, after the formation of the original Section. "Orthopedic" Surgery, "Railway" Surgery, "Military" Surgery, Gynecology and "Abdominal" Surgery, "Oral and Dental" Surgery each claimed a separate section. This came near destroying the usefulness of the Section. Some of them doubtless may be legitimately separated, but the limited discussion of papers that followed such minute divisions was a serious loss to the Congress. So far as the papers are concerned, they are in the book under the same roof and the same man may consult all of them at his convenience, but he could not attend the different Sections in which he was interested at the time of the meeting.

The importance of this initial meeting can not be overestimated when its bearing on the future of American medicine is considered, and the opportunity which was for the first time afforded of carrying into effect the wishes of the American statesmen who for all these years, since the foundation of our Republic, have wished for closer union politically, commercially, professionally and socially. The great learning and far-sighted wisdom of President Pepper, the industry and energy of Secretary-General Reed, and the devotion of the Chairmen and Secretaries of the Sections have made the Congress a creditable one from the standpoint of American medicine, and we doubt not that when the second Pan-American Congress shall be called to order in the City of Mexico, the doings of the first Congress will be taken as a model, and when the Christmas chimes of 1896 are pealing forth a welcome to the adherents of the new Congress, there will be a refrain pleasing to the ears of the constituents of the old Congress, having for its burden, "Well done, thou good and faithful servants."

A Text-Book of Practical Medicine. Designed for the use of Students and Practitioners of Medicine. By ALFRED L. LOOMIS, M.D., LL.D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York; Visiting Physician to Bellevue Hospital, etc. Revised and enlarged, with 207 illustrations and 1 chromo-lithographic plate. Eleventh Edition, 1,134 pages. Price, cloth, \$6; leather, \$7.

The prefatory note by the publishers states that, "Dr. Loomis was actively engaged in the revision of the present volume at the time of his last illness and had completed the greater portion of the work. Since his death only such alterations and additions have been made as seemed necessary. Dr. G. C. Cokely, Dr. E. D. Fisher, and Dr. Warren Coleman assisted in the preparation of the present volume."

Few text-books on the practice of medicine in this country have been more widely read than this book of Professor

Loomis, and this edition will be referred to with melancholy interest as a posthumous production, although the revision was far advanced when Dr. Loomis was stricken with his last illness. In this edition the articles on endocarditis, cardiac fibrosis, and cardiac palpitation have been re-written. Arrhythmia, tachycardia and brachycardia have been added to the list of cardiac neuroses. Dysentery has been placed among the infectious diseases; acute infectious jaundice has been added, and the introduction of malarial fever has been brought in accordance with bacteriologic teachings on the subject. The chapter on bacteriology, although brief, gives the essentials on the subject.

In regard to antitoxin, after giving the claims of the advocates for it and those of the opposition, the subject is summarized as follows (p. 739): "When good observers report so exactly opposite on the effects of antitoxin, it behooves us to administer the substance cautiously, or wait for the results of more extended observation."

It is probable that with occasional revisions this work will continue to hold its enviable position among works on the practice of medicine for many years to come.

Herrick's Diagnosis. A HANDBOOK OF MEDICAL DIAGNOSIS. By JAMES B. HERRICK, M.D., Adjunct Professor of Medicine, Rush Medical College, Chicago. In one handsome 12mo. volume of 429 pages, with 80 engravings, and 2 colored plates. Cloth, \$2.50. Philadelphia: Lea Brothers & Co., Publishers. 1895.

Although, as the author says, this book is intended chiefly for the use of students, it will be found extremely useful to all grades of practitioners. It is very well written, devoid of circumlocution, and shows throughout that its author is fully competent to write on the subject. It may be said to be fairly a Chicago book, inasmuch as it is the outcome of the author's experience in the Cook County and Presbyterian Hospitals. It must not, however, be inferred that contemporaneous literature has been ignored; on the contrary, there are few omissions of any important facts.

The contents of the book, after the introduction and general considerations, include a discussion of the diagnosis of: i, Infectious Diseases; ii, Diseases of the Digestive System; iii, Diseases of the Respiratory System; iv, Diseases of the Circulatory System; v, Constitutional Diseases, including Diseases of the Blood and Ductless Glands; vi, Diseases of the Kidneys and Genito-Urinary Organs; vii, Diseases of the Nervous System; viii, Diseases of the Spinal Cord and its Coverings; ix, Diseases of the Brain and its Coverings, and x, Functional Nervous Diseases.

It is thus seen that the scope of the work is that of a general medical diagnosis, and the author has made a fair epitome of the entire subject. The work is creditable to the author and publisher from every point of view.

Foster's Physiology. TEXT-BOOK OF PHYSIOLOGY. By MICHAEL FOSTER, M.D., F.R.S., Prelector in Physiology and Fellow of Trinity College, Cambridge, England. New (Sixth) American Edition with notes and additions. In one handsome octavo volume of 922 pages, with 257 illustrations. Cloth, \$4.50; leather, \$5.50. Philadelphia: Lea Brothers & Co.

When a book has passed to its sixth edition there is little that can be said by the reviewer which will either make or mar the book, and there are few text-books on physiology better known in this country or in Europe than that of Foster. In this American edition a strong effort has been made to eliminate all superfluous words and condense it as much as possible. Few practitioners, either in general or special practice, keep abreast of the advances in physiology, and this is the more lamentable because of the great aid a knowledge of this branch of science is in every single medical or surgical specialty. No practitioner can read a recent book on physiology without being greatly benefited by it. Our knowledge of pathologic processes must bear certain and definite proportion to our knowledge of the operations of the body in health, and he who neglects the study of physiology deprives himself of one of his most certain supports. The book under consideration has been carefully

revised and will be found fully up to date. It has almost become in this country as in England as standard as "Gray's Anatomy."

Taylor on Venereal Diseases. THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES. By ROBERT W. TAYLOR, A.M., M.D., Clinical Professor of Venereal Diseases in the College of Physicians and Surgeons, New York. In one very handsome octavo volume of 1,002 pages, with 230 engravings and 7 colored plates. Cloth, \$5.50; leather, \$6.50. Philadelphia: Lea Brothers & Co., Publishers. 1895.

This book is the direct successor of the well-known work of Bumstead and Taylor on venereal diseases, and gives the author's conclusions as a result of his own extensive researches and wide experience. To this he has added the results of a careful sifting of the literature of the subject down to the present time. The book is divided into three parts as follows: Part I, forty-two chapters devoted to gonorrhea and its complications. Part II, seven chapters, devoted to chancre and soft chancre. Part III, thirty-eight chapters, devoted to syphilis. As an exhaustive treatise on the subject, at the same time one that is painstaking and accurate, it will be a work to which the surgeon will turn for reference whenever he has occasion to study the subject. The dosage is partly in the decimal, and partly in the old system, that is, when a continental author is quoted the decimal system is used. The book is in every way creditable and affords a further illustration, if any were needed, that in these days it is not necessary to buy a foreign book in order to keep fully abreast of the scientific knowledge of the day. We are confident that Dr. Taylor's work will meet with even more pronounced success than the former works in which he was engaged with the late Dr. F. J. Bumstead.

Surgery. A PRACTICAL TREATISE WITH ESPECIAL REFERENCE TO TREATMENT. By C. W. MANSSELL MOULLIN, A.M., M.D., Oxon. Assisted by various writers on special subjects. With 623 illustrations, many of which are printed in colors, about 200 having been made from special drawings. Third American Edition, revised and edited by JOHN B. HAMILTON, M.D., LL.D., etc. Cloth; pages 1,250. Philadelphia: P. Blakiston, Son & Co. 1895.

In the prefatory note to this edition, the editor states that the entire work was passed through the press in the period of six weeks—a most unusual record even in this age of many improved facilities. The revision of this book was undertaken with the express purpose of striking out every superfluous word in it, leaving nothing but the solid text, and then to add whatever was new that was necessary to bring it in harmony with the latest teachings on the subject. New illustrations have been added, and it may be confidently stated that the book is not surpassed by any single volume text-book of surgery on the market for the use of general practitioners and students. The illustrations are from the latest text-books, and those examining the work will find that omissions are very few.

Gray on Nervous and Mental Diseases. A TREATISE ON NERVOUS AND MENTAL DISEASES. By LONDON CARTER GRAY, M.D., Professor of Diseases of the Mind and Nervous System in the New York Polyclinic. New (Second) Edition. In one very handsome octavo volume of 728 pages, with 172 engravings and 3 colored plates. Cloth, \$4.75; leather, \$5.75. Philadelphia: Lea Brothers & Co., Publishers. 1895.

It is a pleasure to write a notice of a book of this character. The well-known literary attainments of the author, the fine paper and beautiful text, the elegant illustrations, many of which are in colors, make it easy to understand why this book has passed to a second edition. Five new chapters have been added in this edition, namely: Dementia, Dementia Paranoidea, Confusional Insanity, Delirium, and Massage. "The word treatment," says the author, "has been construed in the broadest sense to include not only medicinal and non-medicinal agents, but also those hygienic and dietetic measures which are often the physician's best reliance."

In regard to massage, the author says: "In cases of individuals who, for various causes, are unable to use their mus-

cles, or in others who are necessarily confined to their room or to bed, massage is an invaluable therapeutic agent. The great difficulty about it is there are few persons expert in the giving of it. For several years I almost abandoned its use for this reason, and it has only been since I have kept in my employ a masseur that I have been able to rely upon it. In some instances I have known physicians instructing some nurse so as to obtain very creditable results."

This edition will be found carefully revised and brought up to date with the exception of the prescription writing, in which the old system of dosage is still adhered to. The book will be found as interesting as its predecessor and retaining all of the characteristics which made the first edition popular.

Synopsis of a Course of Lectures on the Anatomy, Physiology and Histo-Chemistry of the Nervous System. By JOHN A. BENSON, M.D. Chicago: E. H. Colegrove & Co. 1895.

This is a complete syllabus of a course of lectures on its titular subject, in which the author's experience as a physiologist and his practical ability as a teacher are well displayed. We commend the syllabus to those who are interested in the subject.

Case Recorder in General Medicine and Gynecology; for the Use of Physicians, Students, Dispensaries and Hospitals. By S. B. LYON, M.D. Milwaukee: A. L. Koursh & Co. 1895.

We have examined this clinical record with some care, and have to say that for minuteness and completeness we have not seen its equal. Every possible symptom has a place wherein it can be recorded, and those who desire to keep accurate records of their patients will find this a most useful record book.

Bernd's Physicians' Register. St. Louis, Mo.: Henry Bernd & Co.

This register is admirably adapted for the keeping of accounts with patients, and doctors who are said in some quarters to be poor business men, can be made good ones, so far as the keeping of their accounts is concerned, if they will take pains to provide themselves with this admirable record.

MISCELLANY.

Septicemia.—The latest treatment for general septicemia is hypodermic injections of creasote. The creasote is mixed with equal parts of camphorated oil, and 20 minims of the solution are injected three times a day.—*Journal of Practical Medicine*, October, 1895.

Illinois State Medical Society.—The Transactions of the Illinois State Medical Society were sent to the members last week by express. Those who are in arrears may receive the volume by at once remitting their annual dues to the Treasurer, George N. Kreider, M.D., Springfield, Ill.

Medical Advertisements.—In its issue of October 15, *The Medical Fortnightly* gives notice that it has adopted the rule that it will not accept advertisements of medical preparations, the proprietors of which do not give a formula containing the official or chemic name and quantity of each composing ingredient to be inserted as a part of the advertisement.

Hospitals in Jerusalem and Damascus.—An English medical missionary, Dr. Masterman, at present residing at Jerusalem, reports that progress is being made with the erection of the new mission hospital at Jerusalem. The hospital will have beds for forty patients, and will also have a dispensary. It is outside the city, on the freehold property of one of the London societies known as the "Sanitarium," about three-quarters of a mile from Jaffa Gate. A hospital at Damascus will shortly be opened. Dr. Masterman will take charge of the work for a year, at the expiration of which time a permanent medical appointment will probably be made.

Parvin on Boerhaave.—In the *Medical and Surgical Reporter* is quoted a letter from Dr. Parvin, narrating his medico-vacational tour through Holland. He found much to interest him in the Dutch cities, inclusive of Leyden. Of that city he writes: "Leyden interested me chiefly because there Boerhaave lived and taught. It seems to me that Medicine has given the world few greater, and none better than he. His monument, with its brief inscription, scarcely more than date of birth and date of death, reveals a man of commanding appearance, and of large head, with prominent forehead."

Divorce Denied.—A cruel statement is telegraphed from Kansas City, to the effect that one of the "New Women" who practices medicine in that town, was refused a divorce by an unfeeling judge, who asserted that the reasons urged by her were insufficient to warrant the issuance of a decree. It seems that the bill of the plaintiff alleged that the wicked husband refused to cook the meals while she was engaged in daily practice of her profession, and that he would not even help her prepare the meals, but "laid around" while she was thus engaged. The complainant's tale of woe is probably unique, and deserves more mention than it is likely to receive.

An Old Garbage Dumping Ground.—Riker's Island, near New York city, was for a time used as a dump for garbage. This use was perforce abandoned on account of the villainous odors caused thereby. The subsequent story regarding the place is interesting, as showing how difficult it is to throw anything away. One of the New York papers tells that story as follows: "Riker's Island was a barren aggregation of rocks, not too far from New York to be reached and not near enough to be noticed. It seemed a handy spot to dump garbage and garbage accordingly was dumped on it. The garbage smelled bad, so earth was spread on top of the garbage. Then it was left alone. It began to smell bad again about a month ago, and its neighbors complained. Then an explorer was fitted out to investigate it. He came back with a great load of vegetables, and the surprising tale that Riker's Island had dreamed it was a kitchen garden, and that the dream had come true. The vegetable seeds in the garbage had grown up through the top-dressing of soil, and behold profusion itself—melons, pumpkins, squashes, tomatoes, and other fruits of the earth glowing and ripening in their seasons, with no one to hinder and no one to glean."

Progress of Dentistry in Japanese Cities.—An eminent correspondent of the New York *Herald*, having been inquired of regarding the field for American dentists in Japan, has written a letter discouraging in its tenor, that is abstracted in the following: "Japan is full of dentistry, and the native dentists are flourishing. There is a dental department connected with the medical branch of the Tokyo Imperial University. There are fifty-six practicing dentists in Tokyo, and each office has from four to twelve students. These young men assist at all operations. One works the drill, another handles the syringe, another passes up the gold foil, and the division of labor is quite scientific. Many of the Japanese dentists are graduates of first-class American colleges. They are quite skillful. The Japanese are fond of having their front teeth filled with gold. They frequently have holes bored in good teeth in order to have them plugged and polished. They think that the exhibit of gold fillings in front teeth suggests advanced civilization. San Francisco turns out about one hundred young Japanese dentists a year. There is a factory in Tokyo which turns out all manner of dental instruments and dental goods, including engines and porcelain teeth."

Distribution of Population in New York and Philadelphia, London and Paris.—The New York *Sun* contains some census comparisons that are of interest to medical readers, showing how the people of certain large cities in this country and

Europe are housed. New York has 115,000 houses, averaging 18 residents to each. London, the greatest accumulation of inhabitants in the world, has 600,000 houses, or 7 residents in each on the average. London has increased in this respect very rapidly, for at the beginning of the present century the number of houses was only 130,000, little more than New York has at the present time. The population of London at that time was 960,000. It is now 4,200,000. So it has increased nearly fivefold, but the number of houses has not increased in as large a ratio. Paris has 90,000 houses. At the close of the Franco-Prussian war it had 70,000. At the close of the Napoleonic wars it had 28,000. The area of the city has been extended meanwhile. The average number of residents in a house in Paris is 25, which is about 50 per cent. greater than in New York. In all computations of city population by houses, Philadelphia ranks as a shining example of a big town which has plenty of "elbow-room" to expand in. Philadelphia, with a population in excess of 1,000,000, has 137,000 houses. It is less densely populated than London, but not much less so.

Pharmacy Law of Oklahoma.—The pharmacy law of the Territory of Oklahoma has been amended so that it is in part as follows, the old provisions on the same subject being inclosed in quotation marks: "Any person in order to be qualified [as a pharmacist], shall be 21 years old, and shall have passed a satisfactory examination before the board of pharmacy of the Territory of Oklahoma," or shall produce a certificate of pharmacy, regularly issued to him under the authority of any State or Territory, and prove that he is in good standing in that State or Territory, "or shall be a graduate of pharmacy, as hereinafter provided:" *Provided, however,* That nothing in this chapter shall be construed to prevent any physician duly authorized to practice medicine in this Territory from keeping drugs for use in his profession, and compounding his own prescriptions. Pharmacists having passed the examination provided by the board of pharmaceutical examiners, and being duly registered, as provided by law, it is also enacted, are to be exempt from all jury service.

Milk Typhoid at Simla in Northern India.—The *Sanitary Record* has an item referring to the outbreak of fever at Simla, a summer resort for Indian officers and Europeans doing business in and around Bombay and other cities. It says: "Several cases of typhoid fever which have occurred lately are attributed by Dr. Cunningham to the sale of impure milk, brought in from villages in the surrounding native States. Dr. Cunningham has addressed a very strong remonstrance to the Municipal Committee on the subject, and urges the necessity of immediate action being taken."

Congenital Unilateral Absence of the Kidney.—Ballowitz (*Virchow's Archiv*, Bd. 141, Heft. 2), makes a literary and statistic study of 210 cases of congenital absence of one kidney and adds three cases of his own.

The combined statistics of Brown (*Journal of Anat. and Phys.*, xxviii, 1894), Morris (*Brit. Med. Journal*, 1885, vol. 1, p. 314), Sargalli (*Reale Istituto Lombardo Rendicont*, Ser. II, vol. ix, 1876), Mensiès (*Jour. Anat. and Phys.*, vol. xxi, 1887), and Rootes (*Lancet*, 1866, vol. II, p. 251), show one kidney to have been absent eleven times in 27,806 post-mortem examinations. Of the 213 cases of single kidney collected by Ballowitz the defect occurred one hundred and seventeen times on the left side and eighty-eight times on the right. In 112 male bodies the kidney was absent seventy times on the right side and forty-two times on the left. In sixty-five female bodies the left kidney was absent thirty-one times, the right thirty-four times. Consequently the figures show that single kidney is found nearly twice as often in male as in female bodies, and that in the male bodies the left kidney is much more frequently absent than the right. When a kidney is absent the corresponding renal vessels are practically always also absent. The ureter was also absent except in fifteen cases. The shape of the single kidney is generally

the normal one and it usually occupies its normal position, but it is very often the seat of a compensatory hypertrophy—in one instance the single kidney weighed 440 grams. The urinary bladder was usually normal with the exception of the absence of one of the ureteral orifices. In 111 of the 213 cases mention is made of the adrenal, which was present in eighty, absent thirty-one times on the same side as the absent kidney. In 103 of the 213 cases, mention is made of the genital organs. In thirty cases it is emphasized that these organs are normal. In seventy-three cases there are noted defects of the generative organs, viz, in twenty-eight male and forty-one female bodies (four times the sex was not or could not be determined). Single kidney is consequently much oftener accompanied with genital defects in females—41:71—than in males—28:113. These sexual anomalies occur almost exclusively on the same side as the kidney is absent and involve usually the system of excretory ducts, rarely the ovary or the testis, although the latter may be either hypoplastic or atrophic. There was a uterus unicornis eighteen times, complete absence of one Fallopian tube three times, anomalies or defects in the external genitals nine times; of the forty-one cases of genital defects connected with single kidney in females the ovary on the hypoplastic side was absent only three times. In the male bodies the vas deferens and seminal vesicle were completely absent thirteen times; in the four cases in which reference is made to the ejaculatory duct it was also absent. In three cases the seminal vesicle alone was absent. The testis was absent only twice, eight times it was atrophic. The epididymis was nearly always rudimentary in these cases of genital defects connected with single kidney in males. In four cases the lateral half of the prostate corresponding to the aplastic side was distinctly smaller than the other half, but very few investigators paid any attention to the condition of the prostate. Single kidneys are exceedingly liable to the formation of calculi. Cystoscopic examination might lead to the diagnosis of single kidney when only one normally situated ureteral orifice is found. Abnormal conditions connected with the genital organs, such as the probable absence of a vas deferens, asymmetry of the prostate, etc., should also suggest absence of the kidney on the same side. Ballo-witz does not discuss the embryologic relations of unilateral absence of the kidney and the associated genital defects.

Treatment for Oklahoma Inebriates.—Any inhabitant of the Territory of Oklahoma who is of kin to, or a friend of, any habitual drunkard who is resident of the Territory and the head of a family, the Legislative Assembly has ordained, may petition the board of county commissioners of the county of the residence of such habitual drunkard for leave to send such person, at the expense of said county, to an institute within the Territory, for the medical treatment of drunkenness and morphinism, as said board of county commissioners may designate, at an expense of not to exceed \$100, including board and lodging; but the sending of such person to such an institution shall be discretionary with the commissioners, and not more than four persons shall be sent from the same county in any one year. The petition referred to must set forth, among other things, that such person or those of his kin petitioning, are not financially able to incur the expense of his cure, and that he is willing and will agree to attend such institute for the cure of drunkenness and morphinism, as well as contain his written agreement to that effect and that he will abide by and comply with the rules of such institute.

Society Notes.

THE NEW YORK STATE MEDICAL ASSOCIATION, which was in session three days in the Mott Memorial Hall, at No. 64 Madison Avenue, adjourned October 17, after electing the following officers: President, Darwin Colvin, of Clyde; Vice-Presidents, C. H. Glidden, of Little Falls; Thomas Wilson, of Claverack; S. G. Seaman, of Seneca Falls, and J. R. Vandever, of this city; members of the Council, W. H. Robb, George E. McDonald, J. G. Truax, E. M. Moore Jr., and W. L. Ayer; Secretary and Treasurer, E. D. Ferguson, of Troy.

At the annual meeting of the Vermont State Medical Society, the following officers were elected for the ensuing

year: President, C. F. Branch, Newport; Vice-President, Lyman Rogers, Bennington; Secretary, D. C. Hawley, Burlington.—The Southeastern Medical Association held their annual meeting in Middlesborough, Ky., October 11.—The semi-annual meeting of the Cumberland County Medical Society was held in Bridgeton, Pa., October 8.—The Delta Medical Association held a regular meeting at Greenville, La., October 10.—A meeting of the Toledo, Ohio, Medical Association was held October 11.

Hospital Notes.

THE plans and specifications for the alterations of the Kings County Hospital, N. Y., have been approved by the State Board of Charities and work will be begun immediately.—The foundation for the new Protestant Hospital at Bloomington, Ill., has been laid.—The West Philadelphia department of the Rush Hospital was formally opened October 9. The new institution has accommodations for twenty patients.—The Alexian Brothers Hospital in Chicago has been sold and will be removed to a better site within a period of two years.

St. Louis Notes.

THE MORTUARY REPORT for the week ending October 19 shows total deaths 178 as compared with 198 during the preceding week and 185 for the corresponding week of last year. Deaths under 1 year, 33; under 5 years, 54. Death rate 16.5 per 1000.

CONTAGIOUS DISEASES.—Reported during the week ending October 19: diphtheria, 134 cases, 16 deaths; croup, 13 cases, 4 deaths; scarlatina, 5 cases, 1 death; typhoid fever, 18 cases, 5 deaths; whooping cough, 4 cases, 2 deaths.

ST. LOUIS MEDICAL SOCIETY.—The discussion at the regular weekly meeting, October 19, was led by the ophthalmologists. The question of the admission of the reporters for the daily press was brought up for renewed consideration, but a former resolution excluding them was not altered.

ST. MARY'S INFIRMARY.—The present building of this institution now proves entirely too small to accommodate the increasing number of applicants for charitable medical attention and the Sisters are making a public appeal for subscriptions to enable them to enlarge the building. The Infirmary is largely supported by voluntary subscriptions, which during the last year made it possible to care for 700 patients.

THE CITY HOSPITAL.—The carelessness of a male nurse has resulted in the death of one of two patients whom he poisoned with corrosive sublimate. The doses of the bichlorid were administered for doses of magnesium sulphate.

THE CITY INSANE ASYLUM is again opened by the Board of Health for clinical teaching; the privilege of clinical demonstration of cases of insanity is extended alike to all the medical schools.

PRODUCTION OF DIPHTHERIA ANTITOXIN.—Prof. G. C. Crandall in charge of the Bacteriological Laboratory of the Marion-Sims College, is conducting experiments with a view to produce this remedy.

THE PUBLIC INTEREST IN INSANITY in its medico-legal relations is in no danger of languishing for lack of material to busy itself about. Within the week the City Board of Health has had presented to it petitions signed by 600 persons, praying for the release from the City Asylum of a paranoiac confined there. The superintendent refuses to release the individual in question, save by process of law. His statement of his position is entirely correct, since he is by law the sole judge of a patient's fitness or unfitness for discharge. This particular person he regards as a dangerous *persecuteur* and he will not accept the responsibility of placing him where he can do harm. It is presumable that not one in a hundred of the petitioners are personally acquainted with the object of their solicitude, much less with the nature of the responsibility they are so anxious to assume.

THE TRIAL OF THE MURDERER DREHER is set for the present week. The case hangs upon the question of simulated insanity. Strong testimony to show that the prisoner is simulating a form of mania will be met by testimony showing the prisoner to be insane. Whatever the result for the prisoner, the good repute of the profession is sure to suffer in the eyes of law and laity. With such examples as this and the Duestrow case, it would seem that the medical profession must see the need of a united effort to reform the present method of calling out the testimony of medical experts.

Louisville Notes.

TEXAS FEVER.—The report of the State Board of Health representatives, Dr. Eisenman, veterinarian, and Dr. Cashin, bacteriologist, is complete, so far as Louisville is concerned, and the surprising record is made of 250 cattle dead. The serious import of this is realized when it is known that all of these were milch cows owned by dairymen who have furnished milk to the people of Louisville. This number is perhaps greater than has been reported during the past twenty years in any epidemic, due in part, perhaps, to the prompt action of the State Board of Health in appointing inspectors. The unusual prevalence of this disease among our Kentucky cattle is explained by the bacteriologist, Dr. Cashin, as being due to the southern cattle brought here, having upon them a small tick or bug; these southern cattle, or the majority of them have the disease. The ticks draw the bacilli or other cause contained in the blood, and when the infected cattle mix with the local herds, it does not take long for them to be covered with the ticks, by which they are inoculated. Some of the dairymen have been compelled to go out of business, owing to heavy losses. It is the intention of the State Board of Health to take steps to prevent the spread of the disease next summer.

SOUTHWESTERN KENTUCKY MEDICAL SOCIETY.—The Southwestern Kentucky Medical Society held its regular meeting in Bowling Green, on October 15 and 16, Dr. McLaren, of Elkton, President. The following are some of the titles of papers read: "The Technique of Vaginal Hysterectomy for Pelvic Abscess and Uterine Myoma," by W. H. Wathen, Louisville; "Fissure of the Anus," by A. B. Cooke, Nashville; "Asepsis and Antisepsis," by J. N. McCormack, Bowling Green; "The Value of Venesection and the Necessity for its prompt Performance, with Case to Illustrate," by T. Edward Bruce, of Elkton; "Puerperal Uremia, with and without Convulsions," by D. G. Simmons, Adairville. The following were the officers elected: President, Dr. D. G. Simmons, Adairville; Vice-Presidents, Drs. E. S. Smith, of Hodgenville, H. P. Cartwright, of Bowling Green; Secretary, Dr. R. W. Fry, of Trenton; Treasurer, Dr. G. S. Mosely, of Casky. Russellville was selected as the next place of meeting.

CENTRAL KENTUCKY MEDICAL SOCIETY.—The regular quarterly meeting of this Society met at Lancaster on the 16th, 17th and 18th. The meeting was well attended. Danville will be the next place of meeting in January.

HEALTH OF THE CITY.—Diphtheria has been prevalent throughout the eastern portion of the city to a remarkable extent, three children in one family dying from that cause, and yet in face of all of this, and the six fatal cases during the past week, the Council refused to enact the contagious disease ordinance, which Dr. White, the Health Officer, has been trying so faithfully to have passed. Three times the lower board has passed it, and each time it has been "lost" in the upper board. Why intelligent men are not aware of the benefits to be derived from such an ordinance, is difficult to imagine. At one of the funerals of a child, dead from diphtheria last week, the classmates attended the funeral in a body, and viewed the remains before the procession started—and the prohibiting of public funerals is one of the objections urged against the ordinance.

Typhoid fever is unusually prevalent also for this season of the year, but it is hardly to be wondered at from the low state of the Ohio at present. It is lower now than it has been for eleven years, the "falls" are dry, and sightseers are walking across dryshod. Beargrass Creek, which conveys all of the refuse from the distilleries in the upper part of the city, flows into the river above the city, and the back water now reaches nearly to the pumping station of the water works, about two miles farther up. The water company has no facilities for filtering the city's supply, and those who are compelled to drink the water without filtration at their residences are in great danger. If the water is allowed to stand in vessels more than twenty-four hours, the odor arising therefrom is enough to prevent its use. The city is in great danger, if the drouth is not ended.

There were sixty-three deaths during the past week, and four stillbirths. Of these deaths consumption caused ten, diphtheria and typhoid fever each six.

Washington Notes.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officer for the week ended October 12, is as follows: the deaths reported at the Health Department last week numbered 126. This is an excess of 12 over those reported in the preceding week. Fourteen were from typhoid fever, as against 12 the week previous and 6 in the same period last year. The average of other diseases in fatal form was very similar as between the two weeks. The abeyance of the dangerous contagious diseases still continues, the mortality being confined to chronic and acute brain and heart maladies and those pertaining to childhood. Of the total deaths 50 were children under 5 years of age. Only 9 of these were from diarrheal complaints, the remainder being mainly from premature birth and congenital debility and kindred maladies. With the exception of the persistence of typhoid fever, as mentioned above, which is somewhat in excess of the same periods in former years, the general health of the city is quite favorable. Number of deaths (still-births not included) white, 78; colored, 48; total, 126. Death rate per 1,000 per annum, white, 21.62; colored, 28.28; total, 23.78. Death rate per 1,000 per annum for corresponding week last year, 18.06. Still-births: white, 3; colored, 6; total, 9. The health officer has recommended to the Commission the furnishing of telephones for the use of the physicians to the poor, also an increase of salary from \$30 to \$40 per month. Both recommendations receive the indorsement of physicians and the public.

DENTAL SOCIETY.—At the meeting of the Washington Dental Society held on the 15th inst., an interesting paper on the "Dental Treatment of Children" was read by Dr. W. N. Cogan. Many valuable suggestions were thrown out by the paper itself and during the discussion which followed. A large attendance of members was present.

RESIDENT STUDENT APPOINTED AT THE WASHINGTON ASYLUM.—George M. Godfrey has been appointed resident medical student at the Washington Asylum Hospital *vice* C. E. Young, resigned.

PHYSICIAN TO THE POOR APPOINTED.—The Commissioners have accepted the resignation of Dr. J. F. Price, physician to the poor in the southwest, and appointed Dr. E. E. Richardson to the position. Dr. Richardson is one of the physicians who recently passed the medical examining board and attained a high standing. He is a graduate of Columbia Medical College.

DR. STONE'S HIGH AVERAGE.—In the recent examination held for applicants to be physician to the poor, twenty-five doctors submitted themselves to the severe tests. Fourteen passed satisfactorily and have been certified to the health officer. The best mark attained was 94 out of a possible 100. This was made by Dr. John H. Stone, of Brightwood. Dr. Stone (son of Dr. Chas. G. Stone) is a graduate of Columbia Medical College, and for some time was resident physician at Garfield Hospital.

PUBLIC HEALTH COMMITTEE MEETS.—A meeting of the Committee of the Washington Board of Trade on Public

Health was called on the 15th inst. by the Chairman, Dr. Samuel C. Busey. Important business was discussed relating to sewers, water supply, milk supply and inspectors, and the annual report of the Committee.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Society held on the 16th inst., Dr. Bovee presented three specimens of fibroids recently removed. Dr. B. A. Storck read a paper on puerperal septicemia and antiseptics. Both subjects brought out a full and interesting discussion. The following resolution touching the question of typhoid fever in the District was adopted:

Resolved, That the Medical Society commends the efforts of the Health Office to ascertain the number of cases of typhoid fever in the District; and that the corresponding secretary be instructed to send a circular letter to every member of this body, urging him to report at once to the Health Office the number of cases of typhoid fever he has treated since July 1, 1895, and if he has not had any cases to report that fact."

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The two hundred and thirty-third meeting of the Society was held on the 8th inst. at the Arlington Hotel. This was the annual business meeting for the election of officers and committees, and resulted as follows: President, Dr. Geo. Byrd Harrison; Vice-Presidents, Dr. Geo. N. Acker and S. S. Adams; Secretary, Dr. G. W. Cook; Treasurer, Dr. John Van Rensselaer; Corresponding Secretary, Dr. W. S. Bowen. Business Committee, Drs. Winter, Nash and Bowen. Admission Committee, Drs. Spriggs, Deale and Cuthbert. Publishing Committee, Drs. Deale, Spriggs and Cook. The Society will entertain the Southern Gynecological Society at its meeting here in November, and appointed a committee to make arrangements. At the close of the meeting the members sat down to one of the finest banquets ever served in the "Arlington."

MICROSCOPICAL SOCIETY.—The annual meeting of the Society was held on the 8th inst. The following officers were elected: President, Dr. Marshall; Vice-President, Dr. Gibbs; Treasurer, Dr. Bullock; Secretary, Mr. Mooers. A banquet will be held next month.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting held on the 9th inst., Dr. Shands read a very interesting paper entitled, "The Importance of Early Mechanical Treatment in Anterior Polio-myelitis." A free discussion followed. Dr. J. T. Johnson presented cases and specimens, viz., concretion from an appendicitis, extra-uterine pregnancy, ovarian cysts and two hysterectomies.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The regular monthly meeting of the Board of Directors of the hospital was held on the 11th inst. The following appointments as assistants, were made by the staff and approved by the Board: Drs. H. S. Goodall, Wallace Johnson, Ada R. Thomas, Rupert Norton, Walter A. Wells, E. E. Morse and Maxwell H. Allen.

RECOMMENDATIONS OF EXCISE BOARD.—The excise law of the District does not provide protection against the adulterations of liquors by dealers or others, hence the Excise Board submitted the following to the Commissioners of the District, with the request that they urge its passage by Congress:

"Every person so licensed, or any other person who shall intentionally or otherwise sell or give away or direct or permit any person or persons in his employ to sell or give away, malt, spirituous and vinous liquors which shall be adulterated with strychnin, strontia, sugar of lead or any substance which is poisonous or injurious to health, shall forfeit and pay the sum of \$300 for every such offense, and in case of non-payment of such fine shall be imprisoned in the jail of the District of Columbia for a period of time not exceeding six months or till the same is paid. An analysis made by a practical chemist shall be deemed competent testimony under the provisions of this section."

THE POST-GRADUATE SCHOOL OF MEDICINE OF THE DISTRICT OF COLUMBIA.—The following named gentlemen met on the 10th inst. at the office of Dr. H. L. E. Johnson, and organized the Post-Graduate School of Medicine of the District of Columbia: Dr. H. L. E. Johnson, E. L. Tompkins, W. W. Johnston, Samuel C. Busey, J. Foster Scott, H. D. Fry, S. S. Adams, J. Ford Thompson, T. E. McArdle, Chas. W. Richardson, James Kerr, G. N. Acker, W. H. Wilmer, M. F. Cuthbert, E. M. Parker, G. Wythe Cook and George Byrd Harrison. The meeting was called to order by Dr. Johnson, and Dr. Samuel C. Busey was unanimously elected President. Upon motion the President appointed a committee to draft a constitution and by-laws. The meeting adjourned pending the report of the committee.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 10, 1895, to October 17, 1895.

Major B. F. Pope, Surgeon U. S. A., is granted leave of absence for thirty days.
Capt. Julian M. Cabell, Asst. Surgeon, ordered to Davids Island, N. Y., for duty. In lieu of reporting to the Surgeon-General for duty.
Major Henry M. Cronkhite, Surgeon, having been found incapacitated for active service, is retired, to date from Sept. 17, 1895.
First Lieut. Isaac P. Ware, Asst. Surgeon, is granted leave of absence for one month, on surgeon's certificate of disability, with permission to leave the limits of the Department.
First Lieut. John S. Kulp, Asst. Surgeon U. S. A., is granted leave of absence for one month, to take effect about Nov. 10, 1895, with permission to apply to the Adjutant-General of the Army for an extension of one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending October 19, 1895.

Medical Directors G. S. Beardsley and P. S. Wales, ordered to duty as members of the naval examining and retiring board.
P. A. Surgeon J. S. Sayre, ordered to treatment at the Philadelphia Naval Hospital.
P. A. Surgeon C. H. T. Lowndes, detached from the naval hospital at Mare Island, and ordered to the Marine Rendezvous, San Francisco, Cal., and in attendance on officers in that city.
P. A. Surgeon C. J. Decker, detached from the Marine Rendezvous and special duty in San Francisco, and ordered to the naval hospital at Mare Island.

APPOINTMENT.

J. C. Rosenbluth appointed Asst. Surgeon in the Navy, October 14.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended October 15, 1895.

Surgeon R. D. Murray, granted leave of absence for thirty days, Oct. 4, 1895.
Surgeon Fairfax Irwin, granted leave of absence for thirty days, Oct. 4, 1895.
P. A. Surgeon C. E. Banks, detailed as chairman of board for physical examination of officer and candidates, revenue cutter service, Oct. 2 and 8, 1895.
P. A. Surgeon S. D. Brooks, when relieved from temporary duty at St. Louis, Mo., to rejoin station at Chicago, Ill., Oct. 3, 1895.
P. A. Surgeon G. M. Magruder, upon completion of duties at Camp Jenner, Eagle Pass, Texas, to rejoin station at Galveston, Texas, Oct. 11, 1895.
P. A. Surgeon L. L. Williams, to proceed from Charleston, S. C., to Waynesville, Ga., as Inspector, Oct. 2, 1895.
P. A. Surgeon J. O. Cobb, to proceed to Victoria, B. C., and Vancouver, Wash., on special temporary duty, Oct. 12, 1895.
P. A. Surgeon B. W. Brown, detailed as recorder of board for physical examination of officer and candidates, revenue cutter service, Oct. 2 and 8, 1895.
P. A. Surgeon E. R. Houghton, granted leave of absence for thirty days from date of being relieved from duty at Vineyard Haven, Mass., Oct. 5, 1895.
Asst. Surgeon Emil Prochazka, when relieved from temporary duty at Charleston, S. C., to proceed to Cairo, Ill., for temporary duty, Oct. 12, 1895.
Asst. Surgeon A. R. Thomas, relieved from temporary duty at New Orleans, La., and directed to rejoin station at St. Louis, Mo., Oct. 3, 1895.
Asst. Surgeon J. B. Greene, relieved from temporary duty at Wilmington, N. C., and directed to proceed to Vineyard Haven, Mass., and assume temporary command of the Service, Oct. 2, 1895.

RESIGNATION.

P. A. Surgeon E. R. Houghton, resignation accepted, to take effect upon expiration of leave of absence, Oct. 5, 1895.

LETTERS RECEIVED.

American Express Co., Chicago, Ill.; Ayer, W. W. & Son, Philadelphia, Pa.
Bach, J. A., Milwaukee, Wis.
Clark, Robert, Co., Cincinnati, Ohio; Carpenter, J. T., Philadelphia, Pa.; Chaddock, C. G., St. Louis, Mo.
Hobday, W. A., Chicago, Ill.
Johnson, H. L. E., Washington, D. C.
Keiper, Geo. F., La Fayette, Ind.
Lang, J. M., Chicago, Ill.
Moore, W. H., Brockport, N. Y.
Parker, W. W., Richmond, Va.
Smart, Chas., Washington, D. C.
Woodbury, Frank, Philadelphia, Pa.; Walker, W. H., Oakland, Texas.
Young, A. G., Augusta, Me.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, NOVEMBER 2, 1895.

No. 18.

ADDRESSES.

INTRODUCTORY ADDRESS.

Delivered at the Chicago Medical College.

BY EDMUND ANDREWS, A.M., M.D., LL.D.
CHICAGO.

DO NOT LET YOUR LATIN SPOIL YOUR ENGLISH.

You have all prepared yourselves with some knowledge of Latin and Greek to assist your medical studies. Many of you have received degrees from colleges and universities such as Bachelor of Arts, Bachelor of Sciences, Master of Arts, etc., given as honors for your hard study in these and other branches. Your knowledge of Latin and Greek will immensely facilitate your understanding and memory of technical terms, as well as promote your skill in writing prescriptions and will prove a valuable element in your mental culture. To this end and to this extent, you may well be glad of your knowledge of the classic languages. Connected with this knowledge, however, there is a peril besetting the development of your literary style. It is the danger of allowing Latin and Greek derivatives to crowd unnecessarily into your speech and writings, corrupting the purity of your English, and giving to your productions an air of stiffness and pomposity.

It is true that many organs in the human body, and many physiologic processes have no English names, and we are compelled to make use of a certain number of technical terms borrowed from the Latin and Greek, but words of this group are long and generally harsh in sound, and they work roughly and badly in the construction of English sentences. They should be used therefore as sparingly as possible. They do not harmonize well with Anglo-Saxon speech.

High literary authorities condemn the needless loading of sentences with these half foreign words. If a new word has to be composed to express a new and unnamed fact, make it as short and as smooth in sound as possible, remembering that pure, simple, crystalline English constitutes the best style. Do not spoil it by loading it down with pompous polysyllables of Latin and Greek origin.

That master of good style, James Russell Lowell, laments our inferiority to English writers in this respect. He says: "It has long seemed to me that the great vice of American writing and speaking is a studied want of simplicity. Very few American writers wield their native language with the directness, force and precision that are common as the day in the mother country. While the schoolmaster has been busy 'starching' our language and smoothing it flat, the newspaper reporter has been doing even more harm by stretching and swelling it to suit his occasions." Such is Lowell's opinion.

Short Anglo-Saxon words of common use are the

best, wherever they will express the meaning. It is this choice of short words, resulting in a condensed style of singular force, which gives the writings of Shakespeare and the English translation of the Bible much of their tremendous power.

It is amusing and yet vexations to see a worthy medical gentleman whose ordinary conversation is in a simple and good style, suddenly swell up when he writes a medical article. He changes his whole dialect and fills his pages with a jangle of harsh technical terms, not one-third of which are necessary to express his meaning. He tries to be solemn and imposing. For instance, a physician recently devised a new instrument, and wrote it up for a medical journal under this title, "A New Apparatus for the Armamentarium of the Clinician," by which heading he doubtless hopes to make the fame of his invention "go thundering down the ages" as Guiteau said.

Another writer wanted to say that cancer is an unnatural growth of epithelium. He took a big breath and spouted the following: "Carcinoma arises from any subepithelial proliferation by which epithelial cells are isolated and made to grow abnormally." Now, then, you know all about cancer.

A writer on insanity illuminates the subject as follows: "The prodromic delirium is a quasi-paranoid psychosis in a degenerate subject. A psychosis of exhaustion, being practically a condition of syncope."

The following is an effort to say that certain microbes produce the poison of erysipelas: "The streptococcus erysipalatosus proliferating in the interspaces of the connective tissue is the etiologic factor in the secretion of the erysipelatosus toxins."

A large cancer of the liver was found at a post-mortem examination and reported about as follows: "A colossal carcinomatous degeneration of the hepatic mechanism."

Still, the man of big swelling words is not always up in the clouds. If called to a case of accident, he examines the injury, and may inform the family in quite a simple and dignified manner that their father was thrown sidewise from his carriage breaking his leg and putting his ankle out of joint, but if he writes out the case for his medical journal, he gets up straightway on his stilts and says: "The patient was projected transversely from his vehicle, fracturing the tibia and fibula and luxating the tibio-tarsal articulation."

Your man of solemn speech is peculiar. He does not keep a set of instruments—not he—he has an armamentarium. His catheters never have a hole or an eye in them, but always a fenestrum. In gunshot injuries, a bullet never makes a hole in his patient, but only a perforation. He does not disinfect his armamentarium by boiling, but by submerging it in water elevated to the temperature of ebullition. He

never distinguishes one disease from another, but always differentiates or diagnosticates it. His patient's mouth is an oral cavity. His jaw is a maxilla. His brain is a cerebrum, his hip joint is a coxo-femoral articulation. If his eyelids are adherent, it is a case of ankylo-symbblepharon. If he discovers wrinkles on the skin, they are corrugations or else rugosities. He never sees any bleeding, but only hemorrhage, or sanguineous effusion. He does not examine a limb by touch or by handling—he palpates or manipulates it. If he finds it hopelessly diseased he does not cut it off—that is undignified. He gets out his armamentarium and amputates it.

I like the sturdy contempt of our English brethren for all mere word pomp and prudishness. In London they still call their most fashionable avenue for horseback riding by its ancient name of "Rotten Row." In Chicago we would long ago have changed it to "Grand Washingtonian Cavalry Boulevard."

The surgeon over there generally shows the same solid traits as their other writers, and you will do well to study the writings of the eminent Frederick Treves of London, as a model in this respect.

A good British surgeon has good culture and good common sense combined. He takes his trocar and taps a dropsy, for instance. Not so the American. He blushes to hear such plain speech from his British brother, but he takes his armamentarium and goes out straightway and performs paracentesis abdominis. Still the pompousness is not all on one side of the ocean, and it is refreshing to see an occasional touch of it beyond the seas, just to show that we are not the only sinners in this respect.

A celebrated British surgeon explains his opinions as follows: "Septic peritonitis, save where definable from evidence wholly extrinsic to the condition of the peritoneum, is an etiologic entity which exists only in the mind of the pathologic metaphysician." Nothing worse than this was ever written on our side of the water.

Two of the stilted phrases which have recently gotten into vogue are etiologic factor and etiologic entity. They are both snobbish substitutes for the plain English word, cause.

The Greek word *αἰτία*, means a cause. *Ἀιτιολογία*, from which we derive etiology, is compounded of *αἰτία*, cause, and *λογος*, which taken in composition means a study or science. The whole means the science of causes. *Ἀιτιολογικός*, from which we derive etiologic, means a person skilled in the study of causes, or a thing pertaining to the science of causation. Factor is a Latin word, lugged in improperly, to mix with the Greek. It is of the masculine gender and signifies a man doing or producing something. As an English word it also has a mathematical use. Putting the whole jumble in order, an etiologic factor ought to mean some person or thing skilled in, or related to the science of causes; or, in other words, a causative-science maker, or a maker of something or of somebody pertaining to the science of causation. In the name of all the gods of Greece and Rome, what idea are these men trying to express? If they mean cause why don't they say cause and be done with it? Language is not manufactured; it grows. The speakers of each tongue have evolved it through the ages by the process of trying thousands of new words, and instinctively rejecting such as lack the music and fitness required for speaking purposes. They have tried all ways of

molding words into sentences until the perfected language, like mosaic work in the hands of some great master, has become fitted to express all the high and inspiring thoughts of men.

Such a language is the pure English of to-day. Derived mainly from the Anglo-Saxon, its words are chiefly monosyllables, but they are all gems, and all polished and fitted to each other by ages of use. Whoever is master of it, is an artist in the highest sense. Whoever thrusts into it a rough, harsh, polysyllabic word, crudely quarried out of a Greek or Latin dictionary, is like a fool who drives a pickaxe through a magnificent mosaic picture, and then plugs the hole with a brickbat.

The author who dumps upon us a book full of long and ragged new words, merely to display his knowledge of ancient languages, shows his ignorance of English, and brands himself as a bungler and a literary blockhead.

As I said before, use newly coined words sparingly, but when they become necessary, select them as carefully as you would choose jewels for your bride. Fit them, polish them, and make them suitable for flashing forth the best thoughts of human souls.

It is curious that the half-educated man who knows little or nothing of the classics, always dotes most on these big phrases, and is ever foremost in piling up the abominable rubbish-heap of long, scraggy words which deform medical literature, and render it a melancholy spectacle to gods and men.

The evil is intolerable, and in your day a reform will be demanded. Bear in mind that your lives are to be spent in an atmosphere of higher culture than that of your predecessors.

The finer culture of the future will demand a reorganization of our word system, and will cast to the moles and the bats very much worthless material which is now the pride of the ignoramuses who invented it. Prepare yourselves therefore for the change, and do your best to make the language of future science more bright, pure and simple, and more fit for the use of all who wish to couple clearness of thought with beauty of expression.

SOCIOLOGY AND CRIMINOLOGY.

Address at opening of Department of Sociology and Criminology, at the Medico-Legal Congress.

BY CLARK BELL, Esq.

NEW YORK.

That public interest in sociologic studies is on the increase in our day, can not be questioned. We may recognize its hold on popular thought, by remarking that in the present Congress more papers are contributed to the Department of Sociology and Criminology, than to any other. This is not in my opinion the result of chance, but is due to the increasing interest manifested in the world of thought in this domain of scientific investigation.

Especial stimulus has been given to the study of criminology by Lombroso's writings, and others of his school.

Enrico Ferri has touched it with his brilliant lance. Herman Kornfeld, Morris Benedikt, Kraft Ebbing, Morel, Le Grand du Saulle, Brierre du Bois Mont and Prosper Depine on the continent; Havelock Ellis, W. W. Ireland, Pritchard, Thomson, Dr. Nicholson and W. Douglass Morrison in Great Britain, and many other writers of distinction have illumined its

importance. The International Congress of Penal Law, attracted twice, many great names from all the world, to this subject.

It is not crime alone that we study now, with method of punishment, sentences, prisons and their management, including discipline and corporal punishment in prisons, all the offenses and the modifications in penal statutes, but we are coming to study more, the criminal himself, his characteristics, degeneracy, heredity, and above all environment.

Are punishments for crime, as defined in our penal statutes, really deterrent? Has the State the moral right to inflict punishment in any retaliatory spirit as is now oftentimes the basis of penal statutes? and if experience demonstrates that excessive or prescribed forms of punishment do not act in fact as a deterrent in diminishing crime, should we not consider with greater care what modifications are proper to reach the end desired, beside the protection of society, a perceptible decrease in the volume of crime?

The lesson of the repeal of long list of capital offenses in Great Britain since the day when sheep stealing was a capital offense, must not be lost. Severity of punishment does not appear to operate as a deterrent. It seems to be true that the fear of the scaffold rarely deters the murderer.

Crime seems in the ocean of humanity, to be the sum of social causes, which, like great rivers, flow toward and empty into it. Its Amazon is, no doubt, alcoholic stimulants which more than all other causes combined, constitute the inevitable, terrible, irresistible scourge of the race. In its currents, tides and eddies, are insanity, epilepsy and physical degeneracy, not always in the parent, but more certain in the offspring. Its movements run like the blood of man into the veins and lives of children's children, with a taint as terrible as that of leprosy or syphilis.

The burdens to the State for the care of the insane in the rural districts or counties, notably in an agricultural county like Yates, where I reside in the summer, in this year of grace is actually greater than the cost of the schools, and almost equal to the entire other expense of the State government including the canals.

When will we have the courage to look this awful question squarely in the face, and decrease the volume of crime, not by penal laws for the punishment of the criminal (often the victim of his birth and environment) but by striking at and repressing the cause.

The recognized defects in our penal laws, especially in Great Britain, the United States and many of the continental states may be summarized as follows:

1. The principle of equality of sentences, as to their duration as now existing, is erroneous and vicious in its fundamental principles.
2. It is wrong to make arbitrary punishments for the same offenses against all offenders alike.
3. Criminal laws must be so framed as to meet the social conditions of the criminal classes.

Laws based upon the social conditions of men in the ordinary walks of life, fail. They should rather be aimed at the social life and condition of the criminal classes. I quite agree with W. Douglass Morrison of the Wadsworth Prison in England, when he asserts that: "The criminal is a product of anomalous biologic conditions, as well as adverse circumstances."

4. Some plan should be devised in the administration of punishments to offenders, under which the

principle of determinate sentences should be applicable to the individual condition of the offender. For example: (a), the same offense should not receive the same punishment in all cases, as for example, when committed by an adult, or a child or a youthful offender: (b), the difference in punishment for the same offense by a man and by a woman, should be rather to *the* man and *the* woman.

5. We must consider whether Bentham was right in insisting that we should, in adjusting our methods of punishment, look as much to the nature and condition of the offender as to the nature of the offense. Much of the failure of our present system as a protection to society is unquestionably due to our ignoring this fundamental law in our present penal statutes, and punishment of criminals.

Mr. Morrison strikes at an important principle, that we should place our prisons on the same basis as the penal laws. That prisons should reach the causes and conditions which produce the criminal, and the penal statutes be placed on the same plane.

ORIGINAL ARTICLES.

PROGNOSTIC SIGNIFICANCE OF ALBUMINURIC RETINITIS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. OLIVER BELT, M.D.

PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY, HOWARD UNIVERSITY, AND OPHTHALMIC AND AURAL SURGEON TO FREEDMAN'S HOSPITAL.

WASHINGTON, D. C.

It seems to be generally admitted that the retinitis following scarlet fever and pregnancy is not of special prognostic significance as to vision or mortality, for under careful treatment recovery of both vision and health are not unusual in these cases. Therefore in this paper, such cases have been excluded, as the prognosis is altogether different and unfavorable in the retinitis of chronic Bright's disease. Though improvement of vision very frequently occurs in albuminuric retinitis, it is of minor importance in comparison with the life of the patient, and the main point which I wish to determine is the average duration of life after the appearance of retinitis from renal disease. The statistics heretofore published upon this subject deal mostly with hospital cases, in which the duration of life rarely exceeds one year. Occasionally we see reported a case in private practice which has survived five, ten, and even fifteen years (Noyes mentions one of ten years, and Webster reports the case of a minister who survived seventeen years). This led me to think that we might be able to give a more hopeful prognosis in cases which could receive good medical attention with the proper hygienic surroundings, and I decided to try and find, whether or not the average duration of life was greater among private than among hospital cases. With this end in view, a few weeks ago I requested quite a number of ophthalmologists throughout the country to report the cases which had occurred in their private practice to me. The time allowed was too short for many to look over their records, and many had not kept trace of the patients after referring them back to the family physician, but enough cases were reported to show that the duration of life is longer among private patients, and that renal affection is undoubtedly influenced by hygienic sur-

DIED WITHIN TIME DESIGNATED BELOW.

Physician.	Total cases.	3 mos.	6 mos.	12 mos.	18 mos.	2 yrs.	Over 2 yrs.	Living after first Observation.
J. H. Thompson, Kansas City, Mo.	15			13				One 7 mos.; one 2 mos.
W. V. Marmion, Washington, D.C.	10				10			
Hiram Woods, Baltimore, Md.	4	1						One 6 mos.; one 5 mos.
Wm. Cheatham, Louisville, Ky.	9	1	2	2	2	2		one 18 mos.
Geo. T. Stevens, New York	1						One 11 yrs.	
S. C. Ayres, Cincinnati, Ohio	2	1	1					
G. H. Good, Cincinnati, Ohio	1					1		
J. A. Spalding, Portland, Me.	6	1	2	1		2		
H. B. Young, Burlington, Iowa	3	2					One 5 yrs.	
David Coggin, Salem, Mass.	30		28					
Richmond Lennox, Brooklyn, N.Y.	2	1	1					
P. A. Callan, New York	1						One 9 yrs.	
W. F. Mittendorf, New York	6	3	1		1	1		
E. C. Rivers, Denver, Colo.	3			2				One 8 mos.
R. J. McKay, Wilmington, Del.	11		5	3	2		One 3½ yrs.	
E. Oliver Belt, Washington, D.C.	2		2					
Total	106	10	42	21	15	6	6	6

Deducting the six cases not traced 2 years, leaves the following total: 100 cases; 3 months, 10 per cent.; 6 months, 42 per cent.; 12 months, 21 per cent.; 18 months, 15 per cent.; 2 years, 6 per cent.; over 2 years, 6 per cent. Died within 1 year, 73 per cent.; within 2 years, 94 per cent.

PRIVATE CASES.

G. Hartridge	5	1	1	3				
James Anderson	3	2	1					
Simeon Snell	8	3	3	1	1			
Possaner and Haab	39			19		4		Four 3 years; two 8 years; ten 2 to 5 yrs. Ten 2 to 5 years.
E. Oliver Belt	100	10	42	21	15	6		
Total	155	16	47	44	16	10	22	

Died within 1 year, 62 per cent.; within 2 years, 85 per cent.; over 2 years, 14 per cent.

HOSPITAL CASES.

Miles Miley	45	26	11	5	3			
Possaner and Haab	33			24		3	5	Three over 2 yrs. 1 less
Total	78	26	11	29	3	3	5	

Died within 1 year, 85 per cent.; within two years, 93 per cent.; over 2 years, 6 per cent.

MIXED CASES.

C. S. Bull	103	16	14	27	7	11	Six 3 years; four 4 years; one 6 years; one 7 years.	Fourteen 6 mos. Two 1 year.
		Deducting 16 cases not traced 2 yrs., leaves						
Dr. Gruening	87 100	16 100	14	27	7	11 100	12	
Total	187	16	14	27	7	111	12	

Died within 1 year, 65 per cent.; within two years, 93 per cent.; over 2 years, 6 per cent.

Private	155	16	47	44	16	10	22	
Hospital	78	26	11	29	3	3	5	
Mixed	187	16	14	27	7	111	12	
Total	419	58	72	100	26	124	39	

Died within 1 year, 72 per cent.; within 2 years, 90 per cent.; over 2 years, 9 per cent.

roundings. However, the number of cases surviving two years was disappointingly low, and the consensus of opinion, as shown from the following extracts from letters received, seems to be that nearly all prove fatal in less than two years.

Dr. G. E. de Schweinitz, of Philadelphia, says: "So far as I know, there is no case in my private practice that has lived longer than two years after the development of the retinitis."

Dr. J. L. Thompson, of Indianapolis, says: "Have had between fifty and one hundred cases scattered through my books in a private practice of twenty-four years. Several of my patients have died within thirty days, while others have lived two years. Many more died within six months after its first manifestation in the eyes than lived after that period."

Dr. Walter B. Johnson, Paterson, N. J., says: "In many cases the retinitis was the first indication of kidney disease, which after discovery almost invariably progressed very rapidly."

Dr. Peter D. Keyser, of Philadelphia, says: "That the length of life depends upon the retinal appearance at the time of the first examination. In well marked cases, I should say an average of twelve

months, if the patient is under good medical care. I have had some cases to run two years; others only three months."

Dr. L. A. W. Alleman, Brooklyn, N. Y., says: "Save in some cases due to pregnancy, I have never seen a pure case of albuminuric retinitis last over a few months from the time it has come under my observation."

Dr. Samuel D. Risley, Philadelphia, says: "My impression is that after the appearance of eye symptoms, nephritis is rapidly fatal. I recall cases of death occurring within a few weeks, and can not recall one which did not prove fatal inside of two years, whether associated with pregnancy or not."

Dr. G. C. Savage, Nashville, Tenn., says: "My recollection of these cases is that they died within two months, and I do not remember that a single case lived longer than five months."

Dr. Charles W. Kollock, Charleston, S. C., says: "In no case in my practice has any such patient lived out the year."

Dr. Peter A. Callan, New York, says: "My impression is that the great majority die under two years after the onset of the retinal changes, but there

are exceptional cases, one of which has now lived nine years since I first made out that she had the kidney trouble with the eye complication."

Dr. George T. Stevens, New York, says: "I observe that some of our colleagues think that a fatal termination is to be expected within a few months after the discovery of the albuminuric retinitis. I can recall to mind quite a number of people who have survived several years. Mrs. K. survived more than eleven years after I found well-marked retinitis albuminuria. This is not, I think, a specially exceptional case."

Dr. David Coggin, Salem, Mass., says: "Of thirty fatal cases, I remember but two who lived over six months."

Dr. C. S. Turnbull, Philadelphia, says: "My experience has in a general way led me to think that the time is most variable, depending greatly upon the many and varied forms of renal disease in different individuals."

From all the statistics I have been able to find, we get the following results: Cases in private practice 155; of these 62 per cent. died within one year; 85 per cent. in two years, and 14 per cent. lived more than two years.

Hospital cases, 77 of these, 85 per cent. died within one year; 93 per cent. in two years, and 6 per cent. lived more than two years.

Mixed cases, 187 of these, 65 per cent. died within one year; 93 per cent. within two years, and 6 per cent. lived more than two years.

Total number of cases, 419; of these, 72 per cent. died within one year; 90 per cent. within two years, and 9 per cent. lived more than two years.

1701 H Street.

EXTENSIVE COLLOID CHANGES IN THE CHOROID, WITH REPORT OF CASES.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOHN T. CARPENTER JR., M.D.

PHILADELPHIA, PA.

In some of the text books on ophthalmology mention is made of a senile change in the fundus oculi, characterized by the appearance of small yellowish and yellowish white spots which have been regarded as hyalin or colloid degeneration in the lamina vitrea choroidea. In Noyes we find a full description under the head of degenerative changes of the choroid, in which he assumes the identity of drusen and this colloid degeneration of the lamina vitrea. He calls attention to the clinical fact that vision is not impaired in these cases. Two excellent colored plates representing two varieties of the affection are shown, to both of which I wish to call attention. In one, the large, globular, mulberry-like masses are seen both upon the nerve-head and in the outlying fundus. This plate is taken from Lawson's case, reported in the Transactions of the Ophthalmological Society of the United Kingdom, vol. III. The second from Nettleship's case, vol. IV of the Transactions of the Ophthalmological Society of the United Kingdom, shows the other variety, in which the lesions are small yellowish dots, showing a tendency to group in large numbers in the central region of the eye-ground. This picture, is a very faithful delineation of a variety of colloid change, which Tay, and afterward Nettleship, designated "guttate choroiditis."

The term "verrucosities hyalines" had also been applied to this affection by French writers (Terson). Many original articles have appeared on the subject in ophthalmologic literature, among which that of A. Terson (*Arch. d'Ophtalmologie*, No. 6, 1892,) contains a complete bibliography and a very thorough resumé of the anatomic and histologic points involved. In all the reports, the fact seems to be established that these lesions are simply senile degenerative changes, or, if seen in adult life, they accompany severe intra-ocular disease.

There seems to be no excuse for the various names under which this affection has been described. There are no evidences of choroidal inflammation, but simply a retrograde change in the lamina vitrea choroidea, and hence the use of the word choroiditis is inadvisable. Colloid degeneration has been found occurring in the cartilages of old people, and according to Fuchs, the arcus-senilis is produced by colloid changes in the periphery of the cornea. The most satisfactory term for this affection would seem to be "colloid changes in the choroid." The hyalin masses on the nerve-head, or drusen, of which I reported cases in the *International Medical Magazine*, November, 1893, have been regarded until recently as identical with colloid choroidal lesions. Hirschberg, (*Centralbl. für prakt. Augenheilk.*, June and July, 1891) after extensive study of post-mortem specimens with different chemic reagents (for the details of which consult his article) advanced the opinion that these were two separate diseases. His position was strengthened by the very thorough post-mortem study of de Schweinitz, reported in the Transactions of the American Ophthalmological Society for 1892. He also believed them to be distinct affections. From the clinical as well as ophthalmoscopic standpoint, however, these lesions appear to be identical. In this article I report a case, with rough but accurate drawing of the fundus, in which typical drusen and colloid changes of the choroid are associated in the same eye-ground. There are many difficult points in arriving at a decision that will reconcile all the conditions present.

There is still considerable doubt among anatomists regarding the exact anatomic relation of the sclera and choroid at the lamina cribrosa. It has been denied that the lamina vitrea choroidea is found in this situation and hence the impossibility of these colloid masses, on the nerve-head, springing from the lamina vitrea, has been insisted upon. Again, there are conflicting views as regards the origin of the colloid changes in the choroid. By some they are regarded as of epithelial origin; by others it is claimed that the intercellular tissue of the lamina vitrea breaks down and forms colloid degeneration. Without attempting to reconcile the views advanced by different observers, the subject viewed from a clinical standpoint would seem to show the identity of drusen and these colloid changes. Patients suffering from choroidal disease affecting circumscribed areas, rarely consult the ophthalmologist on account of symptoms directly referable to the choroidal lesions. With the ophthalmoscope, the yellowish or whitish spots, often heavily pigmented and scattered over the eye-ground, constitute the familiar picture of choroiditis. It is in the associated retinal involvement, and that, too when the more central portions of the eye-ground are diseased, that reduced vision, lowered light sense, metamorphosia, photopsia or scotoma

form part of the clinical picture of choroiditis. True it is, moreover, that these associated retinal changes are the rule in inflammation of the choroid. In colloid changes of the choroid, although the ophthalmoscopic appearances are startling and the masses occupy the macular region, over an extensive area, at no time in the clinical history of the disease is the functional activity of the retina interfered with. From ophthalmoscopic examination, the observer would expect to find a large central scotoma interfering with the use of the eye and producing marked visual defect. On the contrary, sharpness of sight remains unaffected and there is not even a reduction in the light-sense as tested by lowering the illumination upon the test letters.

There are two distinct clinical groups which have as their distinguishing features the size of the separate globular formations and the character of their arrangement in the fundus. In the first group, corresponding to "guttate choroiditis," the affection occurs as separate, small, yellowish dots, often no larger than the diameter of a retinal vein; showing a marked tendency to invade the macular region where they are often so numerous that an appearance of heaping is produced. At times, however, the picture is not unlike an atypical form of albuminuric retinitis.

In the second group we have large globular acinous formations similar in appearance to drusen and as in that affection, occupying symmetrical positions in both eye-grounds. Each globular mass may have a diameter equivalent to three or four times the size of a retinal vein.

In connection with this paper, three cases presenting all the features of this rare and interesting disease are reported. Before relating the clinical histories, I wish to call attention to the fact that these colloid changes when sought with the ophthalmoscope, appear much more pronounced under lowered illumination. When examined under the enlarged image of the direct method with lowered illumination, the observer frequently changing the direction in which the light strikes the fundus by moving the mirror from side to side, these translucent masses seem to be thrown into relief against the background of the fundus and their true size and appearance can then be best appreciated. In presenting the following clinical histories only the more characteristic in the two groups have been selected. Among the distinguishing features, from a general standpoint, my experience has been that the colloid changes in group one, have invariably been seen in patients past middle life, the average age being from 60 to 70. Whether it is simply a coincidence or not, rheumatism of a severe chronic type, often with articular changes, was seen in nearly every patient of this group. In one exception to this rule in which the small, yellowish colloid dots filled the macular region in a patient aged 28, there were all the evidences of marked gouty diathesis. It is worthy of note that both gout and rheumatism, as well as Bright's disease, were frequently found associated with drusen (Gurwitch).

Case 1.—Miss F., aged 63, a sufferer from chronic rheumatism, with sclerotic changes in the arteries, consulted me for presbyopic trouble. The entire fundus showed small yellowish spots more numerous in the macular region, choroidal in situation, and symmetrically placed in each eye. Her corrected vision was 6-6. Examination of the urine gave negative results. Two years later, the vision and fun-

dus condition remained the same. The ophthalmoscopic picture suggests albuminuric retinitis.

Case 2.—Daniel F., aged 70, was seen Dec. 11, 1893. He sought advice because of inability to use his eyes at the near point. The case is important as showing both large and small globular yellowish masses in the same eye. In the right eye the ophthalmoscope showed in the temporal region around the macula lutea, an area composed of large and small colloid changes in the choroid. The largest of these masses showed a diameter equivalent to four times the diameter of a large retinal vein. There were no secondary retinal changes H=1D. In the left eye, the small yellowish dots were seen scattered more generally throughout the fundus, as well as grouped in the macular region, but no large masses were discovered. With +1.00 DC +1.00 cyl. ax.; 90° corrected vision was 6-6. Urine examined and found negative.

Under the second group, I shall report more in detail the clinical histories of three patients in whom the colloid changes were startling in appearance, covering extensive portions of the central region in both eyes, and occurring in patients of early adult life. In one case there was pulmonary tuberculosis, in another chronic interstitial nephritis, and in the last, a marked gouty diathesis.

Case 1.—Mrs. S., aged 36, (whose fundus appearances are shown in water-colored sketch) consulted me on April 22, 1893, suffering from accommodative and muscular asthenopia. She was extremely neurasthenic, and the ophthalmoscopic examination was difficult on account of marked retinal hyperesthesia. Her appearance suggested pulmonary phthisis, and she stated that three years ago she was examined and that the sputum showed bacilli. After spending a year and a half in a warm dry climate she had returned apparently cured of pulmonary disease. In the right eye vision 6-12; in left eye 6-12. She read type D. 0.50 to 17 centimeters. At 6 meters, there was esophoria of 18°. At 30 centimeters 14°. She had been suffering from severe headache and weak eyes, complained of diplopia after reading or sewing, and nausea and vomiting followed prolonged use of the eyes at close work. The ophthalmoscope revealed in the macular region of each eye an area horizontally oval 3+2 disk diameters, composed of globular, yellowish, mulberry-like masses over which the retinal vessels passed with some slight elevation. There were no evidences of secondary retinal changes. The lesion closely simulated drusen. Careful examination of the entire fundus showed occasional small yellowish dots but no large masses such as were seen in the macular region. An interesting fact was the high degree of esophoria, present, and the opinion was advanced by Dr. S. D. Risley, who saw the case, that the macular condition might account for the muscular defect. The diagnosis lay between tubercular disease which was favored by the general condition of the patient, and colloid changes in the lamina vitrea choroidea. Her corrected vision was 6-7½ in each eye, and the field of vision was normal. A year later when I tenotomized both interni with marked benefit to the patient, the vision rose to 6-6. Dr. de Schweinitz saw the patient and at that time spoke of its marked resemblance to a case which he has since reported with a water-color sketch of the fundus, in last year's Transactions of the American Ophthalmological Society.

Case 2.—Mrs. R., aged 40, was referred to me by Dr. H. A. Slocum for examination of the fundus. There was chronic interstitial nephritis, and some disturbance of vision, more marked in the left eye, led him to refer the case to me to determine whether the refractive error or a retinal lesion were responsible for the visual defect. Her right vision was 6-6; left vision 6-9. The ophthalmoscopic examination in the right eye showed simple congestion of the nerve-head with soft blurring of its edges. H.=2 or 3 D. In the macular region an extensive area three times the size of the disk was covered with characteristic colloid acinous formations. There was in this eye some choroidal atrophy which was much more marked in the left though there were no retinal changes. Careful correction of the refractive error of the left eye failed to improve the vision beyond 6-9. There were no typical retinal conditions suggestive of Bright's disease. The water-color sketch of the previous case would almost apply to this fundus.

Case 3 in this interesting group, is that of Mr. H., aged 38, who consulted me on Sept. 17, 1894, on account of accommodative asthenopia. Both eye-grounds showed the most re-

markable condition of colloid changes that I have ever seen. Mr. H. was a man of slight build, nervous temperament, of strong gouty tendency, whose urine showed an excessive amount of uric acid with high specific gravity. Syphilis and tuberculosis can be absolutely eliminated from the history after a careful study. With his hypermetropic astigmatism corrected, his vision was 6-6 in each eye. The fundus presented the following remarkable characteristics: the entire choroid was occupied by numerous disk-shaped areas, three or four times the diameter of a retinal vein, yellowish in the center with lace-like delicate pigmentation of retinal and choroidal situation. The entire fundus being occupied by these colloid changes gave an ophthalmoscopic picture simulating disseminated choroiditis. In fact the diagnosis from disseminated choroiditis in this case was one of considerable difficulty. The absence of any important retinal, optic nerve and vitreous involvement, was strictly in favor of the colloid nature of the lesion as opposed to its being an inflammatory disease of the choroid. Careful examination of his field of vision showed no defect and there was absolutely no reduction in a light sense. Dr. de Schweinitz who also saw this case, was of opinion that it was colloid degeneration of the choroid, with secondary pigment disturbance without involvement of the important retinal layers. The lesion was perhaps congenital or at least of infant origin. At his suggestion I examined other members of Mr. H.'s family without finding a similar choroidal lesion on either side, although the family record was poor, there being several cases of glaucoma among maternal aunts. At the present day the vision remains normal and the fundus appearance has not changed.

Case 4.—The last case to which I desire to call attention is one presenting choroidal changes of colloid nature together with extensive denser formation of the nerve-head, which is almost concealed by thickly packed globular masses. The fundus appearances in this patient aged 59, whose corrected vision was 6-6 are shown in my rough drawing.

In conclusion, certain points in the study of this choroidal affection impressed me as being worthy of summarizing: 1, the entire absence of any visual defect resulting from even the most striking ophthalmoscopic changes; 2, the almost constant relation between senility and the multiple small colloid masses seen in group one, and the absence of any such relation in the large globular masses of group two; 3, the almost invariable situation of the lesion in the central or macular region and the symmetry of arrangement in each eye; 4, the importance while studying the fundus of using a low power of illumination and of continually changing the direction of the light from the ophthalmoscopic mirror in order to reveal the true outlines of these masses; 5, the clinical proof of the identity of drusen with these extensive colloid changes, both from the standpoint of symptomatology as well as from the fact that in at least one case, drusen and colloid changes of the choroid existed in the same eye; 6, and lastly, the importance of diagnosing this colloid change of the choroid from exudative choroiditis, tubercular disease of the choroid and in some instances from albuminuric retinitis of the macular region.

108 S. 18th Street.

DISCUSSION.

DR. G. DE SCHWEINITZ, Philadelphia—As you know, I have had the opportunity of studying microscopically the so-called drusen in the nerve-head and, clinically several cases of choroidal diseases resembling these hyalin bodies in the papilla. Thus far, at least, it is not proved that the drusen and the colloid bodies springing from the lamina vitrea, are identically pathologic processes. Moreover, we are not in possession of the information which decides what relation these so-called colloid choroidal changes which I have figured and which Dr. Carpenter so well described this morning, bear to the other two lesions, viz, drusen and colloid bodies from the lamina. Therefore I am doubtful whether all of these cases should be grouped together, although I am sure we should all agree with Dr. Carpenter that they constitute a class of cases to be separated from inflammatory

disease. My experience with guttate changes is that they always produce defective central vision and negative scotoma, while these colloid macular changes in young people are not connected with defective central vision; indeed, even the light sense is perfect. Drusen may be seen in otherwise normal nerve-heads or in one that is atrophied; therefore they may be associated, with or without visual disturbance. Symmetrical disposition of the drusen is not universal. I have reported one monolateral case and studied another. Dr. Gifford, I know, is now studying a similar unilateral case. On the other hand, the colloid changes in the choroid, in my experience, are always symmetrical. Dr. Carpenter's cautions in regard to the best method of studying these lesions are timely.

DR. B. ALEXANDER RANDALL, Philadelphia—Several pathologic conditions are comprised in these "colloid" appearances as many of us have doubtless seen; colloid degeneration of the retinal pigment epithelium, colloid deposits in the choroidal stroma, and similar lesions in the retina akin to the mere serous vacuolization that is so commonly seen at the periphery. In a considerable group of clinical cases it has seemed impossible often to discriminate which process was present in the ophthalmoscopic picture.

DR. HAROLD GIFFORD, Omaha, Neb.—I have followed some cases of this disease for several years. One case occurred in a girl 9 years of age with a very remarkable change in the optic nerve. This case I report as an exception, in that the sight was entirely destroyed. The retinal arteries were obliterated, whether as the result of colloid changes or of some other disease I am uncertain. One point you should consider is, What sort of prognosis are you going to give? Will they retain what vision they have through life? I have had a case in which sight was reduced to 20-50 by these changes; that is, I could find no other cause for the reduced vision.

DR. HERMAN KNAPP, New York—I wish to acknowledge the value of Dr. Friedenwald's paper. The subject of hemorrhages in the background of the eye is larger and more important than we formerly thought. Many of the varied appearances of striation and white or black deposits which were formerly complained of can now be referred to previous hemorrhages, after we have had time to watch a large number of cases where the gradual conversion of the blood into these conditions could be followed up. As to the clinical course of the colloid excrescences of the choroid, I have the advantage of age over most of you, in stating that for years they can remain in *statu quo*. In a gentleman whose eyes had extensive colloid deposits in the choroid, they have not notably changed these twenty years. Regarding the differential diagnosis, these excrescences may be mistaken for a disseminate choroiditis as it occurs in syphilis. In the latter disease the small patches have a somewhat notched border beset with pigment (as the colloid occasionally are too) and their color is white, the white of the sclerotic, whereas the colloid deposits look dull white like old ivory.

DR. J. T. CARPENTER JR., Philadelphia—I am glad to hear from others that the question of diagnosis between disseminated choroiditis and some cases of extensive colloid choroidal degeneration has been one of some difficulty. The grouping of these cases was done simply from a clinical standpoint. The prognosis is invariably good as regards vision, and Dr. Gifford's cases must have been of serious optic nerve lesion, probably posterior to the papilla.

THE TECHNIQUE OF TENOTOMY OF THE OCULAR MUSCLES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association
Baltimore, Md., May 7-10, 1895.

BY LEARTUS CONNOR, A.M., M.D.

DETROIT, MICH.

It is desirable that both patient and operator be in good physical condition. The surgeon, his assistant, patient, instruments, and operating room should all be rendered as aseptic as possible, because asepsis is the fundamental principle of modern surgery, which no ophthalmologist can afford to disregard, even when doing an ocular tenotomy. The operator's hands should be washed with pure soap and hot water, by the aid of a hand brush, so as to loosen all bacteria and other infectious materials lodged on the skin, at-

tached to the hairs, embedded in the mouths of the oil or sweat glands or under the finger nails. This loosened *débris* is best removed by running hot water. The face, and beard (if the operator have one), are cleansed with scrupulous care. When dried, the hands are soaked in bichlorid solution, 1 to 1000. The assistant and patient cleanse themselves in a similar manner. Especial care is taken to free from all septic material the edges of the eyelids, lacrymal passages and conjunctiva by washing with the bichlorid solution. The instruments are to be sterilized in steam or boiling water, and just before using, soaked in absolute alcohol, dried and laid upon an aseptic tray. The room freed from all infection should afford adequate light, as the best work is impossible unless the surgeon can see distinctly each step.

An anesthetic, local or general, is imperative. Usually cocain suffices, but occasionally the patient is so uncontrollable as to compel the administration of a general anesthetic—ether, chloroform or methylene bichlorid. The surgeon's personal views, determines his selection of the anesthetic. Unquestionably, chloroform is more dangerous, but it is more pleasant to both patient and operator, and I do not recall a death from an ocular tenotomy done under its influence. The instruments needed are: a speculum; lid retractor; fixation forceps; fine toothed forceps; a blunt pointed scissors curved on the flat; tenotomy hooks; fine needles and fine silk sutures; sterilized absorbent cotton and bandage.

The several steps of the operation are: 1, the opening of the conjunctiva; 2, opening the capsule of Tenon; 3, lifting the tendon from its sheath; 4, division of the tendon; 5, dressing of the wound. It is improbable that any operator takes these steps exactly as any other, but all open the conjunctiva and capsule, divide the tendon and dress the wound in some manner. Some open the conjunctiva and capsule at the lower edge of the tendon and parallel to its fibers; some at the center of the tendon and in the same direction; some at right angles to the tendon fibers, either at their outer edge, at their center or along the entire line of their insertion; some make the opening large, others of medium size, and others small. Some divide the tendon subconjunctivally, others partially so, and others openly. Some unite the edges of the conjunctiva with fine silk suture; others leave the wound entirely open. Some use forceps to lift the tendon for division by the scissors; others use the blunt hook of various shapes; all however use either forceps or blunt hook. Doubtless each surgeon, by more or less unconscious experiment, finds the method suited to his personal equation, and adopts it, as giving him the best results. The end sought is the division of the tendon close to its insertion, without unduly disturbing the adjacent tissues.

Some surgeons dress the wound by putting a few drops of boric acid solution into the conjunctival cul-de-sac, then a bit of linen moistened in bichlorid solution on the closed lids, then a bit of borated cotton and, finally, a bandage over all; others after cleansing the conjunctiva, simply close the lids with isinglass adhesive plaster; others leave the eye entirely open, after the effects of the cocain have disappeared; others protect the eye from light, dust and wind with a blind, and have the eye soaked in hot water at regular intervals, to hasten repair and relieve discomfort. Good results attend any of these

variations in operating or dressing, at the hands of a skillful operator. While unable to discuss their merits or demerits, the open dressing commends itself because it best utilizes the vision of the squinting eye in fixing the eyes in the best position while re-attachment of the divided tendon is taking place. If the operation be done aseptically the wound should be carefully closed by suture, unless from its small size and horizontal direction there is no necessity to exclude air after the effects of the cocain have disappeared.

In estimating the effects of a tenotomy we must consider: the weakened power of the muscle operated upon; the muscular force of its antagonist; and the elasticity of the tissues—factors which vary greatly in individual cases. Roughly, the force of the muscles can be determined by the degrees to which they are able to turn the eye in the direction of their long axes, during their greatest contraction. This motility affords a sound guide in estimating the effects of a tenotomy. Thus, if the motility of the muscles be unchanged, clearly the operation is ineffective and the cause must be searched for and removed.

To operate intelligently, the surgeon must, first, measure the extent of the strabismus; and to know his results he must repeat his measurement after the tenotomy. The best means for making such measurements are the use of prisms, producing double images at 6 or 7 meters. The difficulty with this method, lies in the fact that not all squint eyes possess sufficient vision to render it available. Such cases compel the surgeon to select a method applicable to them. The varieties of these are legion. Some operators depend entirely upon their own eyes, both in measuring the amount of squint, and the perfection of its correction. Others mark with an ink dot, the position of the center of the pupil or edge of the cornea of the squinting eye, on the edge of the eyelid, both in the squinting and fixing position—the space between the two dots roughly measuring the deviation. The strabismometer, with others takes the place of the ink dots. In Graefe's method, the flame of a candle is fixed by the squinting eye at a distance of 5 meters, and the zero point of the scale brought beneath the corneal image of the flame. Then the fixing eye is arranged for the same flame, and we note how far from the middle of the pupil the squinting eye has deviated from zero. The observer should be in the visual axis of the squinting eye, while making his observation. The secondary variation of the fixing eye is measured in the same manner. Of the many other methods, by perimeters, tapes, boards, etc., we can not speak.

In my own work, the following technique has proved satisfactory: the vision of each eye is carefully noted, all ametropia, ascertained under atropin, fully noted, if such correction will diminish the strain upon the weaker muscles. The power of the several muscles is measured, all defects being accurately recorded. The method of ascertaining the amount of squint is selected according to the character of the case, always when possible utilizing prisms. The operation is planned, so that there will remain a slight convergence immediately after the tenotomy of the interni or externi; but in vertical squint I aim to undercorrect. In all cases it is sought to secure such motility of the muscles as will so obviate their defects as to enable them to center the visual lines

upon an object within the fields of vision. The accomplishment of this frequently calls for the division of the operation between the muscles of the two eyes, even though an operation on one might make the eyes straight. The instruments used are a pair of scissors, curved on the flat, both points blunt, blades narrowed near their ends, firm enough to divide the tendon without springing, and so nicely adjusted as to cut the tissues to their very ends. The forceps are delicate, yet sufficiently strong, that they readily grasp and hold firmly the tendon. The blunt hook is curved nearly at a right angle and quite small, as it is used to lift but half of the tendon at once, because I operate from the center toward either side. The speculum and lid retractor are unimportant, if only they afford an unobstructed view of the field of operation, and cause the patient a minimum of discomfort. The lid retractor in the hands of a good assistant, is especially convenient when operating upon the superior or inferior recti.

The fixation forceps is rarely called for, except in cases requiring a general anesthetic, because under cocain the patient is able to hold the eyeball in the correct position. These instruments are sterilized, dried, soaked in absolute alcohol, wiped and placed on a clean tray just before using.

The patient lies in a half reclining chair, facing a good light, with head wrapped in towel moistened in bichlorid solution, and clothes covered with a clean apron to the neck. The operator, assistant and patient have been rendered aseptic by the method described.

The cocain solution, 4 per cent., made with distilled water and 16 grains of boric acid to the ounce, is dropped in the cul-de-sac of the eye to be tenotomized, repeated every few moments till the conjunctiva has become insensible, and during the several stages of the operation, as the case demands.

The assistant steadies the patient's head, prepared to remove with absorbent cotton any hemorrhage which may obstruct the field of operation.

In tenotomy of the internus, the operator sits or stands, facing the patient, who is directed to turn the eyeball strongly outward; the conjunctiva is seized with the forceps, so as to make a small vertical fold, directly over the insertion of the tendon. With the scissors this fold is divided, making a short horizontal opening of the conjunctiva. Through this opening the forceps grasp the tendon sheath forming a vertical fold similar to that made in the conjunctiva; this fold is divided, thus laying bare the tendon, which is seized by the forceps so as to make a horizontal fold, and by slight traction from the eyeball, exhibits its insertion. The division of this fold close to the sclerotic, by the scissors, makes a central opening into the tendon. The fibers on either side are now severed, by placing one blade of the scissors beneath, and one above the tendon but below the conjunctiva, and closing the blades one or more times as may be needed. Usually this can be done completely by the scissors alone, but if it fails, the little blunt hook is made to enter the wound in such a manner as to catch stray attachments, and permit their division with the scissors. The motility of the eye outward is now examined; if it equals that of the other eye, enough has been done, but if it retain the same motility as before the operation, then the occasion needs to be sought and removed. The behavior of the eyes when fixed upon an object at one-sixth of

a meter or less is important; if they diverge, we know that the effect is too great and must be limited by suture. If they converge as before the operation, the tenotomy has been imperfect; but if the eyes remain steady or slightly converged, the result will be satisfactory; or, still more certainly, if, when tested by prisms, at 6 meters, the eyes maintain a condition of vertical equilibrium—the misplaced arc of movement of the squinting eye has been replaced in its normal position.

But if the tenotomy has failed to adequately reduce the convergence, we have several courses of procedure; doing of a tenotomy on the other eye; severing more or less freely the attachments of the muscle or muscles; the use of sutures; advancement of the weaker muscle; or increasing the relative power of the defective muscles as in insufficiencies. In convergent squint I have never had occasion to use a suture to increase the effect of the tenotomy. In tenotomy of the externus, the eyeball is turned strongly inward in the horizontal meridian; the conjunctiva grasped by the forceps at about 7 millimeters from the external border of the cornea and the other steps taken as when operating upon the internus. About 2 degrees may be gained by a simple tenotomy of the externus, though this is uncertain and likely to diminish after a time. The use of sutures from the superficial fibers of the sclerotic, at the inner sclero-corneal junction, to the inner commissure, will enable the surgeon to greatly increase this effect. If both eyes be tenotomized, the sutures may be tied over the bridge of the nose, and the divided ends of the tendons made to unite with the sclerotic as far back as desired. I prefer the advancement of the weaker muscle to the use of sutures in divergent squint.

In tenotomy of the superior rectus, the eyeball is turned downward as far as possible, so as to bring its insertion fully in view. The assistant by a lid retractor lifts the upper lid, the conjunctiva is opened at about 8 millimeters from the corneal margin, and the further steps taken as in the other tendons. The insertion of this tendon is near that of the superior oblique, and slants outward and backward, points worthy of remembrance during the tenotomy. Tenotomy of the inferior rectus is done in the same manner as that of the other tendons, the insertion being about 7 millimeters from the corneal margin.

After each operation the position of the eyes, and the motility of the muscles are carefully studied, so that if the effect be insufficient it may be increased by some available method, or if it be too great it may be restricted.

The opening into the conjunctiva is so small and so located that it usually closes sufficiently without suture. The conjunctival cul-de-sac is cleansed with boric acid solution; the eye protected from light by a shade until the effects of the cocain have passed away, and then left open. The patient is directed to soak the eye in very hot water frequently, to relieve discomfort and promote repair of the wound.

An ocular tenotomy, done after the manner described, is nearly painless and bloodless, absolutely free from any danger, involves the least traumatism; gives very definite results; requires no after dressing; and secures binocular vision, if this be possible by a tenotomy.

103 Cass Street.

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THE SLIGHT EFFECT SOMETIMES OBTAINED AS THE RESULT OF FREE TENOTOMIES OF THE OCULAR MUSCLES FOR HETEROPHORIA.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY SAMUEL THEOBALD, M.D.

OPHTHALMIC AND AURAL SURGEON TO THE JOHNS HOPKINS HOSPITAL, AND TO THE BALTIMORE EYE, EAR AND THROAT CHARITY HOSPITAL. BALTIMORE.

I believe it is a generally recognized fact that in operations upon the external eye muscles for the correction of heterophoria or of strabismus, a given amount of "tenotomizing"—if one may use this convenient, but, perhaps, not altogether legitimate word—is by no means always followed by a corresponding and definite amount of correction. The same degree of section of the muscle and capsule in one case produces a marked effect, while in another, the result of a precisely similar operation is comparatively slight. No comprehensive and satisfactory explanation of this fact, so far as I am aware, has yet been offered, and I think it may be safely asserted that even the most experienced operator can not say with any assurance, in advance of a tenotomy, just what the effect of a given amount of cutting will be.

As a general principle, it may be asserted that the result of a tenotomy upon an ocular muscle will depend upon the extent to which the muscle's attachment to the sclerotic is set back. If the divided tendon re-attaches itself to the sclerotic, without slipping back—at the point of its previous attachment—the effect will be almost or quite *nil*; on the other hand, if it slips back considerably, the effect will be marked. In accordance with this generally recognized rule, when one wishes to obtain a decided effect from a tenotomy one does not limit the section to the tendon, but divides more or less freely Tenon's capsule, which permits a wider recession of the muscle; while, if a slight effect is desired, one includes in the section only the tendon proper. To this extent the effect of our operations is under control; but the fact still remains that the result of a given amount of cutting varies very greatly in different individuals. While, as has been said, we do not fully understand the reason of this, the matter is one as to which we are, at all events, not wholly in the dark.

It may be safely affirmed, I think, that, other things being equal, the smaller an eyeball is, and, perhaps, the more deeply seated it is in the orbit, the less will be the effect of the division of one of its muscles; the larger the ball and the more prominent its position, the greater will be the effect. Hence it follows that, as a rule, a tenotomy upon a hypermetropic eye may be expected to produce a less marked result than a similar operation upon a myopic eye. The explanation being that in the larger, and more prominent myopic eye the tendon recedes to a greater extent before becoming re-attached than it does in the smaller, and less prominent, hypermetropic eye.

My experience inclines me to the belief also that, usually, a tenotomy performed for the correction of an actual squint produces a relatively greater effect upon the muscular balance of the eyes than does one performed for the relief of heterophoria; and here, again, it is probably a question of the extent of the recession of the divided muscle, for this, it would

seem, is likely to be greater in the case of the contracted muscle of squint, than in the muscle of normal length with which we have to do in heterophoria.

The comparative size of the muscle operated upon, whether a thick, well developed muscle or the reverse, has also seemed to me to have an influence upon the result. For example, a tenotomy performed upon a slender internal rectus muscle, which has only been able to develop a convergent squint of intermittent character, will produce a more decided effect than one upon a well developed muscle, such as is usually found in the fixed type of convergent strabismus.

It seems probable, too, for some reason that we do not yet understand, that the muscles of certain eyes, when separated from the sclerotic, have a greater disposition to retract toward their orbital attachment than the corresponding muscles of other eyes; and this would tend to increase the effect of their division. The thickness and strength of Tenon's capsule, which doubtless vary in different individuals, would also probably exert an influence upon the recession of the muscle and hence upon the effect of the tenotomy.

While in strabismus we usually expect a better and more decided result from a tenotomy performed upon the internal rectus than from one done upon the external rectus, the striking instances of slight effect following free tenotomies for heterophoria which I have met with, have invariably occurred in operations upon the internal recti for esophoria.

In order not to consume the time of the Section, I shall describe briefly only two of the most striking of the cases of this character which I have encountered, but I may state that I have the records of others which almost parallel them:

Case 1.—Miss P., a school girl, about 16 years of age, was brought to me in November, 1893, for the relief of asthenopia. The ophthalmoscope revealed only a slight amount of hypermetropia, but showed marked negative symmetrical aberration of both eyes. By the vertical diplopia test there was esophoria at 20' of 11°; at 13' of 8½°. A later examination, a few days subsequently, gave, however, by the same test, only 7½° of esophoria at 20', and 7° at 13'. A mydriatic was used (hyoscymia hydrobromate) and revealed hardly .75 D. of hypermetropia. Under its influence there seemed to be a little astigmatism according to the rule, but this finding was not confirmed after the effect of the mydriatic disappeared. With paralyzed accommodation, the esophoria at 20' was 10½°.

On Dec. 8, 1893, the vertical diplopia test having previously shown esophoria at 20' = 9°, I did, as my notes state, a "pretty free tenotomy" of the L. internal rectus. Two days afterward there was esophoria at 20' = 1°, with orthophoria at 13'. May 3, 1894, with L. eye +50s, R. eye +37s, there was esophoria at 20' varying from 9° to 11°. At this time I prescribed glasses for constant wear as follows:

L. eye ⊖ .50s Prism 3° base out.

R. eye ⊖ .37s Prism 3° base out.

May 19, the vertical diplopia test gave, with these glasses on, additional esophoria at 20' of 10°, i. e., a total of 16°. I then did "a free tenotomy" of the R. internal rectus, dividing Tenon's capsule "almost as freely as for squint," as noted at the time in my record of the case. Two days afterward, without correcting glasses, I found esophoria at 20' = 7°; at 13' = 4°. A few weeks later there was esophoria at 20' = 11°.

The last examination of the muscular balance was made Oct. 31, 1894, and showed, by the vertical diplopia test, with full correction of the manifest hypermetropia, esophoria at 20' = 9°. Thus it will be seen that in this case a free tenotomy was performed upon each internal rectus (one of them involving a liberal division of the capsule) without appreciably reducing the original esophoria; for, it will be remembered that the esophoria at the first examination varied in amount from 11° to 7½° at 20'.

Case 2.—Mr. W., aged 26, artist, consulted me on account of asthenopia, in July, 1890. He was wearing at the time for each eye +50c 90°. Without correcting glasses the verti-

cal diplopia test showed esophoria at $20' = 10\frac{1}{2}^\circ$; at $13'' = 8^\circ$. There was no hyperphoria. The ophthalmoscope showed less than 1.D. of hypermetropia, and this was subsequently confirmed by the use of a mydriatic (a 2 grain solution of atropia). A later test, with full correction of the astigmatism and manifest hypermetropia, showed esophoria at $20' = 9\frac{1}{2}^\circ$; at $13'' = 8^\circ$.

July 24, 1890, I divided the L. internal rectus "completely." Two days later there was esophoria at $20' = 10\frac{1}{2}^\circ$; at $13'' = 7^\circ$. July 31, esophoria at $20' = 11\frac{1}{2}^\circ$; at $13'' = 7^\circ$; adduction at $20' = 35^\circ$; abduction $= 8^\circ$. August 2, I did a "free tenotomy" of the R. internal rectus, "dividing the outlying fibers of Tenon's capsule." Two days later there was still esophoria at $20' = 8^\circ$; at $13'' = 6\frac{1}{2}^\circ$ to 7° . October 14, with the glasses prescribed for the correction of his manifest error of refraction, there was esophoria at $20' = 6^\circ$; at $13'' = 2^\circ$. Without correcting glasses, there was esophoria at $20' = 7^\circ$; at $13'' = 4^\circ$. At $20'$ there was adduction $= 46^\circ$; abduction $= 10^\circ$. March 12, 1891, with his correcting glasses, there was esophoria at $20' = 7\frac{1}{2}^\circ$ to 8° ; at $13'' = 4^\circ$; no hyperphoria. As the result of gymnastic exercises with prisms there was, subsequently, a reduction of the esophoria of about $2\frac{1}{2}^\circ$, which, however, was probably not permanent. "In this case, as will be seen by a comparison of the tests made with correction of the manifest refractive error before and after the operations, there was, as the result of two free tenotomies (such as would have sufficed, in many cases, for the correction of a decided strabismus) a lessening of the esophoria at $20'$ of scarcely 2° , and at $13''$ of only 4° ."

Before concluding, it may be well to mention the manner in which the tenotomies were performed in these cases and in other similar cases which I have met with. Before the introduction of cocaine it was my habit to perform all tenotomies subconjunctivally; but, I soon found that with the eye under cocaine this operation was not so easy of performance, because of the tightening effect of the cocaine upon the conjunctiva. I, therefore, abandoned this method, and adopted the "button-hole" operation, which I have since employed in all cases. In performing this operation, I make a longitudinal incision through the conjunctiva directly over the attachment of the muscle, and then free the conjunctiva from the underlying tissue. Next, I seize the tendon with forceps, and divide it just at its point of attachment to the sclerotic. After the tendon proper has been divided, I introduce my crochet-pointed strabismus hook through the opening thus made and extend the incision upward and downward, dividing, more or less freely, as may be indicated, the lateral fibers of the tendon and Tenon's capsule. This was, then, the method in which the tenotomies were performed in the cases which I have related.

304 W. Monument Street.

THE LIMITATIONS OF TENOTOMY OF THE EYE MUSCLES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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If we assume parallelism of the visual lines to be the functional position of rest, maintained by unconscious innervation and divergence, the anatomic position of rest (Hansen-Grüt), orthophoria or equilibrium for far and near is a condition of adjustment or relatively equal tension or balance of nerve and muscular force, and is not in any sense a condition of repose or relaxation of the muscles as in sleep or in ether narcosis.

Heterophoria and Heterotropia, tendencies to deviation or deviations, are the result of spasm or supra-normal contraction of a muscle or set of muscles, or of weakness or insufficiency of their antagonists.

In this paper I will consider, very briefly, the abnormal relations of the visual axes, non-paralytic in origin, and the operative methods which theory and practice seem to demand for their adjustment.

1. *Esotropia or Internal Strabismus*.—Hypermetropia is the cause in 75 to 90 per cent. of all cases. The squint is manifest and "active" and depends upon the relation of accommodation and convergence. In recent cases the contraction of the internus is excessive and the abduction is of normal strength. In ancient cases the muscular structure has undergone molecular change and abduction has become weakened.

(a). *Concomitant or Alternating Squint*, fixation with either eye, the vision practically the same in each. Amblyopia is necessarily precluded. The deviation is upward and inward, the latter manifest, the former easily demonstrated by the relatively lower position of the false image. The obliquity of the squinting eye is convincing evidence of the associated and responsive action of the external muscles supplied by the third nerve to the stimulation of the accommodation, but it has no bearing on the result of treatment directed to the interni, since the upward deviation is transferred with the inward, when fixation is transferred, and since both eyes functionate, though not simultaneously, neither external rectus undergoes degeneration or indeed loses any of its abducting power. When the prolonged paralysis of accommodation followed by full correction of hypermetropia worn for a sufficiently long time have proved inefficacious, tenotomy of each internal rectus, dividing the operation equally between the two muscles, and without advancement of either externus, is the proper surgical procedure. The effect of the operation can be readily determined by the approximation of the false and true images, and when finally they have fused, the desire for binocular fixation or of fusion will maintain them single.

(b). *Constant Monocular Squint*, one and the same eye always used in fixation, the squinting eye amblyopic. The cornea of the amblyopic eye is turned inward and upward, owing to the combined action of the extrinsic muscles under the control of the third nerve. Outward rotation is limited. The external rectus is deficient in power and innervation, the muscle itself having become flabby, stretched and incapable of normal function. Tenotomy of either or both internal muscles is unavailing, without advancement of the external of the squinting eye. In addition, section of the superior of the same eye is often necessary. The operation, sometimes practiced, of extensively dividing the internus together with its lateral attachments, thus practically paralyzing the muscle, gives a temporary cosmetic improvement but is to be deprecated, since that eye in the course of a few months or a year will become divergent. We can rarely, if ever, in these cases restore the function of the squinting eye, and our operations may be the cause of annoying diplopia.

2. *Exotropia, or Divergent Strabismus*.—The common causes of external squint are: loss of convergence through deficient innervation or muscular weakness; and loss of convergence from mechanic and anatomic obstacles to adduction. The former

is found in those cases which arise independently of refractive error and can not be ascribed to it; in patients convalescing from exhausting illnesses; in neurotics or those who suffer from accommodative asthenopia from low degrees of heterophoria and astigmatism and whose general muscular and nervous system is responsive to slight abnormalities. It is seldom due to absolute supra-normal strength of the externi but innervational weakness of the interni; not a loss of muscular power of each internus, for the balls are susceptible of full rotation but a loss of convergence, probably of central origin.

In order to effect a cure, adduction must be raised to the normal standard. The innervation may be increased, I believe by nerve tonics, such as nux vomica and the muscular contractile power by prism exercise, but these means are unavailing and a waste of time unless binocular vision is present, at least in part. Surgical interference is necessary and we have an apparent choice of three procedures—tenotomy, advancement, or a combination of both. Tenotomy is objectionable since we are destroying instead of building up, weakening a normal set of muscles to a degree to correspond to an abnormal weakness of the antagonists, limiting abduction and perhaps giving crossed diplopia for near, and homonymous diplopia for far, and never restore equilibrium.

The mechanical and anatomic obstacles to convergence are the increased length of the eyeball in myopia and the divergence of the orbits and the upper and outward position of the eyes in utter relaxation of the muscles as in sleep. The divergence of myopia is passive and chronic and follows the inability of the interni, unstimulated by and unassociated with accommodative effort, to converge the lengthened balls. Tenotomy alone is useless. Correction of the myopia, demanding the use of the accommodation on near work, prism exercise and advancement of the interni are sometimes effective. Careful inquiry into the history of cases of divergent squint will sometimes develop the interesting fact that the present deformity is the result of an early operation for the opposite defect. In such cases the advancement of one or both interni, without section of the externi is to be recommended.

3. *Hypertropia*.—The causes of functional hypertropia have been but little discussed. The traditional internal squint of hypermetropia is, according to Stevens (*New York Medical Journal* February 17), to be explained by the associated hypertropia, but he fails to name a cause for the latter. In my opinion hypermetropia is responsible for both, on the assumption that the strain on the accommodation induces overaction of not only the internal rectus but of the superior and inferior recti and of the inferior oblique. The image of the squinting eye is always on a plane lower than that of the fixing eye. Hypertropia in heterophoria and in low grades of myopia where the accommodation is active, should theoretically be cured by advancement of the superior oblique. This is, however, impracticable. In concomitant squint, hypertropia needs no treatment; in constant squint, tenotomy of the superior rectus is often necessary. Hypertropia in myopia (a rare complication) may be traced to a relaxation of all the muscles under the control of the third nerve, when the superior oblique and the external rectus having no opposition the cornea is rotated outward and downward (hypotropia).

4. *Heterophoria*.—The same principles of therapeutics apply to the tendencies to turn as to the actual turnings. A very large proportion of the cases are eso-hyperphoria depending upon hypermetropia and astigmatism and require no surgical interference.

5. *Esophoria*.—A course of atropia or other mydriatic paralyzing the accommodation for some days, followed by the wearing of as near as possible, full correction, will often remove the symptoms for which tenotomy seemed to be indicated. Indeed, the presence of esophoria will often indicate latent hypermetropia. Guarded tenotomy of both interni will sometimes cure. It often may be repeated. Advancement is indicated when adduction is weak.

6. *Exophoria*, as exotropia, is a passive condition and can not be directly ascribed to an error of refraction as a constant cause and is due also to an innervational weakness of convergence. Tenotomy is powerless to effect more than a temporary cure. Advancement of the interni will often permanently cure.

7. *Hyperphoria* seldom demands operation, notwithstanding the extraordinary claims made by enthusiasts. It is to be treated by a correction of the error of refraction which in most cases is its cause. Partial or complete tenotomy is to be performed only when full correction fails. An operation is successful when we can determine binocular fixation for all distances and there is no limitation of adduction or abduction or of lateral movements. Tenotomy as formerly practiced—wide division of the tendon and lateral attachments on the squinting eye only, invariably leads to disfigurement by recession of the caruncle and conjunctiva, and to loss of movement on the side governed by the operated muscle, with homonymous or crossed diplopia or both. Landolt has urged for twenty years that advancement shall substitute tenotomy in all cases of insufficiency and in most cases of strabismus. He reserves tenotomy for these cases only in which advancement has proved inefficient. His reasons are given in his paper read before the Congress in Edinburgh in 1894, to which I refer the reader who is not already familiar with the transactions of the Congress; these reasons are logical and forcible and will no doubt influence those uncertain as to the choice of operation. In my own experience, most satisfactory results have been obtained, in patients in whom I had failed to give more than temporary benefit by tenotomy. My method of operating by advancement is that recommended and, I think, suggested by Savage of Tennessee, with a slight modification. The conjunctiva and capsule of Tenon are dissected away, and the muscle and tendon exposed as far back as may be necessary for the insertion of the sutures. The muscle is elevated on two hooks and freed from its surrounding connective tissue. One needle of a double-armed thread is passed from without inward through the upper, and the second needle through the lower border of the muscle and the thread is drawn tightly, intersecting the muscle vertically its entire width. Each needle is then inserted from above downward and below upward, respectively, through the upper and lower border of the tendon at its insertion—*without separating the tendon from the sclerotic*. Before drawing the threads tight, a small portion of muscle back of the tendon and in front of the suture is excised, in order to oppose fresh surfaces which will more rapidly unite, and to prevent the lump which Savage says is always made. The muscle back of the suture is then

grasped with fixation forceps by an assistant and brought forward to relieve the strain on the suture. When the suture is made taut, the knot is tied. No conjunctival suture is necessary.

254 S. 16th Street.

TENDON ADVANCEMENT AND TENDON RETROPLACEMENT.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY CHARLES HERMON THOMAS, M.D.

PHILADELPHIA.

Reference is here made to advancement of tendons as distinguished from tendon resection or tendon shortening. In the latter two, the stump of the partially severed tendon furnishes the point of attachment of the portion to be brought forward. Not so, however, in tendon advancement. This operation is required as a remedy for strabismus, insufficiencies, and for the results of old operations excessive in their effects. Tendon retroplacement is here recommended as a control procedure, in connection with complete tenotomy, and is to be practiced at the time and as a part of the original operation.

It may as well be said at once that in the opinion of the writer, the operation for tendon advancement, as described by Stevens and performed with the singularly delicate instruments which he has given us, may be substituted with advantage for all other operations heretofore described. The small conjunctival opening with its minimum of integumental traumatism, the almost total-subconjunctival location of the sutures, the unirritating character of the sutures owing to their small size, the ease and exactness with which it may be practiced, and the freedom from after-irritation during the process of healing leave little to be desired.

In a single particular only has any modification of Stevens' method seemed advantageous and that relates to the location of the stitch making the attachment to the globe. The conjunctival stitch which he recommends having occasionally failed, I have sometimes made a sclerotic attachment not involving the conjunctiva. A very small curved needle carrying the 000,000 thread of Stevens' is passed through the center of the extremity of the tendon to be advanced from without inward, and is carried forward to a point within the region denuded by the conjunctival incision and at the point selected for the attachment of the tendon and back of its original insertion. The needle is now made to enter and traverse the superficial layers of the sclerotic, tunneling a distance of 1 or 2 millimeters in length and barely deep enough to make a firm hold, the firmness of which hold may be tested after the emergence of the point of the needle by a lifting motion at the hand of the operator. The result is the tacking down of the tendon in a perfectly definite way to tissues of sufficient firmness to maintain the fixation of the parts involved until healing shall have taken place.

It is to be expected that the result obtained at the time of operation will closely approximate the result finally reached. I have frequently found a difference under these circumstances of not more than 1° or 2° . The usefulness of such an operation in cases of old post-operative deformities is manifest.

Tendon retroplacement is in a certain sense a control procedure applicable in tenotomy where accurate

dosage is essential. In such cases, it not infrequently happens that section of a tendon less than complete severance fails to produce a sufficient result, while a complete section results in an excess. For example: in a lateral heterophoria of 15° in each eye, not more than 8° or at most 10° can be obtained by partial section—an insufficient correction. A complete section may result in 20° to 25° of effect—an over correction. Under such conditions, the correction may be made quantitatively exact by first making the complete section and then at once advancing the tendon to the proper point, there tacking it down. If we endeavor, as I think most of us do, to make our corrections in equal quantities on both eyes, this procedure will be found not infrequently useful, at times indeed indispensable.

It will be seen that this, considered as a control procedure, differs radically from that often employed, in that the large conjunctival wound and the conjunctival suture are here discarded.

1807 Chestnut Street.

THE INDICATIONS FOR, AND THE ADVANTAGES AND TECHNIQUE OF, MUSCLE SHORTENING.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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In the judgment of the author of this paper, muscle shortening is indicated in all cases of heterotropia, regardless of the direction or extent of the turning. In many cases of low degrees of squint the shortening operation alone will effect a cure; while, in a greater number of cases, the shortening of the weaker muscle should be associated with a partial division of the tendon of the stronger muscle in order to the attainment of the best results. In cases of high degree of exophoria in which a partial tenotomy of both external recti does not reduce the exophoria within the range of possibility of completing the cure by rhythmic exercise of the interni, the latter should be shortened. In all cases of exophoria with less than 8° of abduction, shortening of the interni is indicated, not to be associated with even the slightest tenotomy of the externi. In high degrees of esophoria not reduced by a partial tenotomy of the interni within the limit of possibility of completing the work by exercising the externi, the latter should be shortened; while in the lower degrees of esophoria, the only operation indicated is the shortening of the externi. In any case of hyperphoria not reduced to 2° or less by a partial tenotomy of the superior rectus of the hyperphoric eye, the inferior rectus of that eye should be shortened. In all cases where shortening is indicated, except in hypertropia and hyperphoria, the operative effect should be equally divided between the corresponding muscles of the two eyes. The superior and inferior recti of a cataphoric eye should be operated on rarely if ever. Since the shortening of the recti muscles, associated with partial tenotomies of the opposing muscles can effect so much, a complete tenotomy of an ocular muscle can not be often indicated.

THE ADVANTAGES OF SHORTENING

a muscle, over the older method of muscle advancement, may be set forth in a few words: the former is more easily done, and is the safer of the two opera-

tions, in that torsion of the eye is not so likely to occur as a result of setting the tendon too high or too low, in case the externi or interni are the muscles involved, or too far out, or in, when the superior and inferior recti are the muscles in question. Should the knot come untied in the shortening operation, the patient's condition will not be worse after the operation than before, which can not always be said when the same thing happens in the attempt to advance a muscle. An apparent objection to the shortening operation is the knuckle of the muscle formed by the folding, but this disappears by absorption within a few weeks.

THE TECHNIQUE OF MUSCLE SHORTENING

was simple when first introduced, but has grown in simplicity as a result of a modification suggested and practiced by Dr. Tenney, of Boston. The original operation was performed as follows: the eye was cocainized; the lids were separated by a stop speculum; the conjunctiva was seized with fixation forceps a little behind the insertion of the muscle tendon, and two cuts with scissors were made, one vertical the entire width of the tendon and a little behind the insertion; the other below and parallel with the lower border of the tendon and muscle. The included portion of the conjunctiva was then dissected up and held out of the way. A puncture of the capsule of Tenon was next made, at the lower border of the tendon near its insertion, and another puncture at a corresponding point at upper border of the tendon, through which a strabismus hook was passed beneath the tendon, with which to control the eye. A silk thread was then armed with two needles, one of which was passed through the upper part of the muscle and capsule from without in, at a chosen distance behind the insertion, and, similarly, the other needle was passed through the lower part of the muscle and capsule at a point immediately in line with the first. Drawing on the two ends, a loop of thread was brought in contact with the capsule over the muscle. The passage of these needles was facilitated by lifting the respective borders of the muscle with fixation forceps. The next step of the operation was to lift the tendon by means of the hook and pass, first one needle and then the other, through the tendon from within out, at points one-eighth of an inch apart, bringing these needles out through the conjunctiva, a little in advance of the tendon insertion. The two needles were now removed and, by means of the surgeon's knot, the part of the muscle beneath the loop of thread was drawn up to the insertion of the tendon, thus shortening the muscle to a corresponding extent. The flap of conjunctiva was now allowed to fall down over the knuckle of muscle. The stitch thus taken was allowed to remain from four to six days, at the end of which time the muscle was firmly fixed, by adhesive inflammation, in its new relation.

The modification suggested by Dr. Tenney, in a personal letter, I at once adopted. As thus modified the operation is done as follows: a horizontal cut is made with scissors through the conjunctiva and capsule of Tenon, beneath the lower border of the muscle from the insertion of the tendon backward, to the extent of the shortening desired. Through this cut two strabismus hooks are passed,—one beneath the tendon at its insertion; the other beneath the muscle. By means of these hooks the muscle is lifted from the sclera. A needle is now passed through the con-

junctiva and the upper border of the tendon at its insertion and is carried back beneath the muscle to a point chosen just in advance of the second hook, where it is made to penetrate the muscle near its upper border and the superposed capsule and conjunctiva. The needle is then made to reënter the puncture in the conjunctiva made by it in its exit, is directed downward between the conjunctiva and the capsule and is brought out through the incision in the conjunctiva. Then the lower border of the muscle and capsule are seized with forceps and this needle is made to penetrate them from without in, and is again brought out through the horizontal incision. The needle is now passed through the incision beneath the tendon which it is made to penetrate at the lower border of its insertion and is brought out through the conjunctiva at a point in line with, and one-eighth of an inch below, the primary puncture. The two ends of the suture thus passed are now brought together by a surgeon's knot with enough force to bring the part of the muscle beneath the loop in contact with the tendon. The suture is allowed to remain from four to six days.

The suture plate, recently introduced by Dr. Chalmers Prentice, of Chicago, as modified and improved by Dr. George H. Price, will most likely be of much service in this operation, if for no other reason than that it will greatly facilitate the removal of the suture. The improved plate is made of aluminum, is five-sixteenths of an inch long and one-eighth of an inch wide, oval in shape. In this plate there are two holes one-eighth of an inch apart, through which the two ends of the suture are passed. In tying the suture, the plate, which has such a concavity as to fit the curvature of the eye, is brought in contact with the eye, and the knot is tied over it between the two holes. There is a transverse groove near one hole along which one blade of the scissors is passed when the suture is to be removed.

SLIGHT EFFECTS OF TENOTOMIES OF THE OCULAR MUSCLES, AND WHAT ARE THE INDICATIONS AND ADVANTAGES OF TENDON CONTRACTIONS?

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY GEORGE T. STEVENS, M.D.
NEW YORK.

1. *Technique of Tenotomies.*—I have placed my views so clearly on record respecting the general technique of tenotomies that it does not seem necessary to repeat what I have said. There remain for discussion these two questions:

1. Why are slight effects produced as the result of free tenotomies of the ocular muscles?

2. What are the indications and advantages for muscle shortening?

In regard to the first question, the slight effects sometimes resulting from free tenotomies, I shall venture the assertion that a tenotomy uniformly produces all the effect which we have a right to expect from it. If we hope to produce a definite effect, by operating on a muscle which is not the chief element in the condition for which we operate, we may expect disappointment. In other words, we shall not get the effect for which we hope, if we operate on the wrong muscle.

It is necessary always to take into consideration all the reasons, all the conditions which enter into the anomaly for which the operation is to be done. All cases of esophoria, for example, do not of necessity depend upon any anomalous relations of the external and internal recti muscles. We may have, and indeed we do have, many cases of deviation or of deviating tendency of the visual lines inward which depend, not upon a false relation of the lateral muscles but upon too great tension of the vertically acting muscle. As to exophoria, I suspect that, as an essential and original condition, it is of much less frequent occurrence than is generally supposed. Indeed, to an important but not to the full extent, I may express my present view on this subject by repeating what I said in a paper on exophoria in 1889 (*Archives of Ophthalmology*, xviii, pp. 4, 373), and in which I called attention to the fact that free tenotomies of the externi often produce less pronounced effects than might be supposed. I there gave as a reason, "that exophoria is not infrequently the expression of hyperphoria is a fact that can not escape the notice of the careful observer."

In the same paper, a thought which had more strongly impressed itself upon my mind than I was then ready to fully express, was stated as follows:

"When the relative physiologic power of the externi and interni are considered, we may well question whether exophoria is often a congenital defect." I did not then think that the available facts warranted any assertion, nor am I at present ready absolutely to exclude exophoria from congenital anomalies, but I feel warranted in saying that it is in every case safe to assume that it is an acquired condition, although careful consideration may at length lead us to adopt the view that a given case is an original and essential anomaly.

I have shown in papers which have been published from time to time during several years, how converging strabismus may often be relieved by proper relaxations of the overacting superior or inferior recti, and one who gives the subject careful study will be surprised to find how large a number of squinting people, squint in or out, not because of an excessive or of an insufficient normal tension of the lateral muscles.

I present here the photographs of two patients, each with marked converging strabismus; also a photograph of each of these patients in which it is plain to see that, whatever other anomalous condition may exist, or whether the best or the worst way has been adopted, neither of which questions is raised in this connection, a notable change has occurred in regard to the converging squint. In fact, it has been abolished; and yet in neither of these cases has there been the slightest interference with the lateral muscles, but in each case there has been a relaxation of both superior recti.

Now, let us suppose that in either of these cases a tenotomy of the internus had been done (as had been strongly urged by distinguished surgeons in both cases), is it not plain that a positive injury would have been done? But is it not also plain, and this is the bearing of these cases upon this question of free tenotomies and small results, that if these eyes were caused to swing in, by virtue of the action of the vertically acting muscles, no tenotomy of an internus, short of turning the balance of the eyes distinctly outward, would have served to prevent the

inward squint? After such a so-called "correction," comes, very naturally, the gradual divergence so often seen after squint operations.

But there is in all this an element of great importance which has been generally overlooked, although I have called attention to it more than once. This free tenotomy which has caused so little apparent change in the appearance of the eyes when directed straight forward, has caused a marked, and generally an unfortunate disability of the eye to rotate in the direction of the free tenotomy.

Time, in this discussion, will not permit me to go into detail in regard to these conditions, but I may in a few words call your attention to some important truths.

An unfavorable direction of the eyes with regard to the horizontal plane, in which by virtue of a preponderating action of the upward or downward drawing muscles of one or both eyes, equally or unequally, an excessive effort is demanded on the part of the opposing muscles, predisposes to a drifting in or out of the visual lines according to circumstances. If the disproportionate tension of the vertically acting muscles is exactly equal, esophoria or esotropia usually results. If there is excessive and unequal vertical tension, exophoria or exotropia often results.

This being the case, it becomes a matter of the first importance that we determine not only the absolute but comparative rotations of the eyes, not only from side to side, but up and down.

We have had until quite recently no sufficient means for determining these rotations. The judgment which we may form by watching the rotations is not to be relied upon. The perimeter is destitute of any considerable value for this purpose.

The instrument which I show you here and which I call a tropometre, serves in this respect a valuable purpose. It consists essentially of a telescope in which the inverted image of the examined eye is found at the eye piece, where either as an aerial image, or as an image upon a ground glass, its movements can be accurately observed. A graduated scale in the eye piece permits every movement of rotation in every direction to be exactly measured. For the purpose of convenience in being near the patient and of presenting no obstruction to the light which should fall upon the examined eye, a right-angled prism or an obliquely placed mirror is adjusted at the distant end of the telescope, permitting the examination from the side instead of from the front.

Now, if we study the vertical actions of the eye muscles in connection with the lateral, we shall find that we have rarely, indeed, I think I shall not be betrayed into an exaggeration if I say that we have never to make very free tenotomies in any direction, for even in cases of extreme squint inward or outward, when we have accomplished the first stage of correction, which should be that of establishing equal and proper rotations up and down, there will remain so little to do that a complete tenotomy of an internal or external rectus muscle can never be required. In short, if we attend to all the elements which enter into the production of a lateral squint, instead of directing our attention exclusively to one muscle, and that generally the wrong one, we shall never have occasion for great operations.

Now let us turn our attention to the question of indications and advantages of tendon advancement.

The question turns first upon the purpose for which

the operation is to be done. If it is for the purpose only of "straightening a cross eye," which is the purpose so often, then I have no interest in its discussion. It makes little difference how it is done. It is a subject belonging neither to science nor to high art.

But if it is done with the definite and intelligent purpose of establishing binocular vision *at all normal points and under all normal circumstances*, we have a question of the highest scientific value and calling into service some most delicate and beautiful principles.

Many years ago I advised, when there appeared a necessity of making a very free tenotomy, to divide the effect between a moderate contraction of one muscle and a moderate tenotomy of its opponent, doing each upon both eyes, thus leaving the tension of the two opposing muscles as nearly as possible equal in sum to the original tension, but with the amount so divided as to bring about the desired effect. Superficially this appeared to be good logic and sound practice. As a matter of fact, it was neither the one nor the other.

We must recur to the principles which I have already discussed in regard to tenotomies. We must first ascertain exactly why an eye deviates in this or that direction; and then, if surgical operations are required, we should inquire whether the tensions are too great or too small. And, exactly here, upon the answer to this question, should the selection of a method be determined. How are we to know? Does the fact that, for example, in converging strabismus the eye rotates too far in and not far enough out, tell us what to do?

I know of but one method of solving the question absolutely. We may do this by the tropometre.

Let us, for illustration, assume that the temporal rotation should normally be 45° and the nasal 50° of an arc. This would give us the sum of a normal rotation in the lateral directions of 95° . Then, suppose that the upward rotation should be 40° , and the downward rotation 48° , the sum would be 88° . Now, should we find in a given case that the sum of these rotations should largely exceed the amounts given, it would be an indication for tendon shortening. I have found the percentage of these cases very small. The eyes of such people are usually, if not always, very prominent—almost goggled. The movements can be seen to expose large tracts of conjunctiva and the eyes swing in or out, according to the conditions of fixation.

By far the greatest number of those who have lateral deviations show no such excess of rotations. They are in the great majority restricted to three-fourths or even two-thirds of the normal rotations. To tie up such muscles and to increase the already excessive tension may be to improve the appearance of a patient; it certainly adds nothing in a rational way to an actual correction of the disabilities of rotation. I do not question the claim that eyes may be brought into closer relations in certain directions by such forcing, but I greatly question the wisdom of the method.

We may then sum up an answer to the questions which have been presented in a few words:

Free tenotomies have slight apparent effect when the muscle operated on is not the muscle at fault, and tendon contractions are advantageous only when they are directed against a condition of muscles posi-

tively shown to be loose, not by the failure of the eye to rotate in a single direction, but by a marked excess in the sum of rotations in opposite directions.

To draw a useful lesson from these few suggestions, I would say that a case of strabismus convergens or divergens is to be studied from the standpoint of the tensions of all the eye muscles, and that a very large proportion of these, and especially those of high degree, are the manifestations principally of vertical tensions.

If the rotation upward of the eyes, as shown by the tropometre is materially less than 40° or 45° , while the downward rotation materially exceeds 50° or 55° , no correction for the lateral deviation should be made until the rotation upward equals 40° and hyperphoria is absent. Or, if the upward rotation is excessive in comparison to the downward, an analogous correction is first to be made before an internal or an external rectus is cut.

If the rotations in all directions are evidently too great, indicating an absence of proper muscular tension, tendon shortening may be resorted to, which will be very rarely. If the sum of the rotations is not excessive, tenotomies only are called for.

33 W. 33d Street.

TO WHAT EXTENT SHOULD RECENTLY SUGGESTED SYSTEMS OF MUSCULAR EXERCISE DISPLACE TENOTOMY IN THE TREATMENT OF HETEROPHORIA?

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HIRAM WOODS, M.D.

BALTIMORE.

One's conception of the physiologic importance of an abnormality necessarily enters into his estimation of therapeutic measures. The wide difference of opinion upon the importance of heterophoria makes it advisable to state one's position before reviewing therapeutics. Briefly, I think heterophoria, like refraction errors, often is comfortably borne. Further, I am in accord with Dr. Duane¹ that we must find what heterophoria means. "Whether it is a spasm or paresis, accommodative strain or anatomic conditions that are the cause of the heterophoria." In some one of his papers Dr. Stevens has said that the surgical correction of a functional abnormality is a matter of grave responsibility. In a word, the whole matter is a question of diagnosis, and a mistake may be very serious. Exophoria is not always weakness of the interni. The same is true of faulty tendencies in other muscles. Free tenotomies sometimes produce slight effects, and careful tenotomies sometimes produce disastrous and great effects. The surgeon who escapes such an experience is to be envied. In 1893, Dr. Savage² gave out his "Rhythmical Exercise." At the Pan-American Congress in September of the same year, Dr. Gould told us we had "all been on a surgical debauch," and followed his indictment with his treatment based upon the theory of "Innervational Abnormalism."³ It was interesting to note the avidity with which these measures were seized upon where these distinguished writers have established influence. From the South and West came cures by rhythmic exercise when everything else had failed.

¹ Annals of Ophth. and Otol. July, 1894.

² Ophth. Record, May, 1893.

³ Medical News, Nov. 18, 1893, and Annals Ophth. and Otol. Jan. 1894.

Around this neighborhood, "handicapping by prisms" reigned supreme. The meaning of it all was that there is a widespread conviction that tenotomy is not always a safe remedy for heterophoria, nor the balance test the whole diagnosis. Personally, both measures appealed to me as rational. I have never felt that it was in accord with scientific work to restore muscular balance by weakening the stronger muscle. To bring the weak to the physiologic standard of the strong seemed the correct procedure. This is what these plans proposed to do. Again, I had met cases where, with faulty tendency by equilibrium test, there was wanting what Dr. de Schweinitz⁴ gives as a necessity for tenotomy, "distinct preponderance of the opposing muscle." In looking for this preponderance, with esophoric balance, the variableness of adduction had led me to abandon it as a test. I was satisfied that adduction was nothing more than positive relative range of convergence, and largely a matter of cultivation; moreover that it bore no constant relation to balance, for with high exophoria it was often high also. This bit of observation, with the influence of certain writers, had led me into an error, which, I believe, is common. I mean the extension to abduction of the same reasoning applied to adduction. The latter is variable, can be easily increased in a variety of ways, and bears no constant relation to the distance equilibrium test. It has a connection with accommodation of uncertain and variable nature. None of these, it seems to me, are true of abduction. It varies, if at all, within very narrow limits; it is rarely, and with difficulty, increased by any system of exercise with which I am familiar; it has no necessary physiologic nerve connection with another function, from which the patient must learn to divorce it; in a word, it forms, with distance equilibrium test, and associated refraction, the keystone of diagnosis. It is, I believe, always low when esophoria means intrinsic weakness of the externi, always high when exophoria demands surgical treatment. In either esophoria or exophoria, without low or high abduction, there is something else; and a tenotomy before this something is discovered is a hazardous undertaking.

Answer to the title question must come through answer to another: What does clinical experience teach can be accomplished by the two methods of exercise mentioned? and, farther, it is to be remembered that faulty lateral balance does not always mean intrinsic muscular weakness. At the hands of Drs. Duane⁵ and Eaton,⁶ Dr. Gould's plan has undergone investigation from the standpoints of originality, physiologic correctness of nomenclature and usefulness. Each of these writers thinks that the method is an adduction developer; a promoter of positive relative convergence. Of this there can not be the slightest doubt. Adduction can be doubled or tripled often in five minutes. So far, then, as defective adduction causes exophoria, it is a remedy for exophoria. In its clinical use I note: 1, adduction when low can be developed most rapidly when associated with low or normal abduction (3° to 8°). This condition is not true interni weakness, although the balance test is usually exophoric. It is only inability, from causes little understood, to separate convergence from accommodation. 2, defective relative range of convergence may cause asthenopia. By way of illustration:

Case 1.—Student 21 years old. Asthenopia on near work. Refractive condition Hm +1 D., Ht. under homotropin, +1.5. Muscles; at 20', exophoria 1°, Ab. 3°, Ad. 10°. Near exophoria 10° with naked eye, 14° with Hm. corrected. Gould's method raised adduction to 24° in five minutes. Allowing a normal excess of exophoria for the near over the distance balance of 2°, there was left a near exophoria of 11 prism degrees, or 3 meter angles. This was 1.5 m.a. for each eye. In other words, the muscular error for the near, corresponded exactly to the accommodation in dioptries for distant vision. Hm (1 D.) was ordered for constant use, and Gould's method continued for a few days. Adduction was easily developed to 30° and stayed there. Behind the glasses, near exophoria fell in three weeks to 3°.

I noted this same condition in another case, a medical student 23 years old. He had Hm +0.5 D., Ht. +1.25. Muscles, at 20', exophoria 1°, Ab. 4°, Ad. 14°. Near exophoria 11°. Prolonged work was an impossibility. The calculation for meter angles shows nearly the same relation to H. as in Case 1. Gould's method made adduction 30° in a few minutes. It was continued for a few days, and the Hm. was corrected. Behind these glasses, near exophoria fell to normal in three weeks.

Three possible causes of the asthenopia suggest themselves: 1, hyperopia. Uncomplicated hyperopia of 1.5 D. total in healthy young men, with p.p. acc. of 6 or 6.5 cm. is not apt to produce asthenopia. 2, the low abduction. Convex spherical glasses are often of great service in weakness of the externi. In such cases, however, there is usually low exophoric balance at 20', with either the same or orthophoria in the near. High near exophoria is not a symptom of this condition. 3, defective relative convergence. The usual near balance is 2° to 5° in the direction of exophoria, compared to distance balance. Dr. Noyes⁶ thinks this is not abnormal. Dr. Theobald⁷ had developed from it a useful method of diagnosing accommodative asthenopia in young persons. In each of the above cases the excess of near exophoria, over this normal, equalled the difference between A and C imposed by refraction error. Under exercise which broke up the hard and fast artificial connection between A and C, symptoms disappeared, and near exophoria gradually lessened behind convex glasses; just the opposite of what is usual. The conclusion seems justifiable that defective positive relative convergence was the cause of asthenopia. I have treated similar cases with abducting prisms for near work. Such a course is often successful, but it only treats a symptom. Gould's method breaks up the cause of asthenopia, and refraction correction prevents its return.

A third note I make for the clinical use of Gould's method is that in exophoria, with high abduction, development of adduction, without attacking the overstrong externi, sometimes relieves. In the case of a man 21 years of age, without refraction error, and with asthenopia, I found exophoria at 20' of 1° to 3°, Ab. 10°, Ad. 12°. Near exophoria 9°. It took several days to develop adduction to 30°, but then a cure was effected. Exercise was continued for several weeks. Apparently this was a case where the intrinsic muscular error, overstrong externi—was easily carried as soon as the interni were taught to work. In favor of this method, the above is all I can say. In esophoria it has failed me utterly. Abduction has not increased. In one case of hyperphoria it seemed to do good; but it is distinctly inferior to Savage's rhythmic exercise. In exophoria with high abduction, it has only exceptionally relieved asthenopia, though it developed adduction from 10° or 15° to 50° or 60°. The trouble was excessive ex-

⁴ Diseases of the Eye, p. 544.

⁵ JOURNAL AMERICAN MEDICAL ASSOCIATION, Sept. 1, 1894.

⁶ Diseases of the Eye, Edition 1890, p. 195.

⁷ Transactions Am. Ophth. Soc., 1891.

ternal contraction. In several such cases I have had to order abducting prisms or do external tenotomy. Still, the method was useful as a diagnostic means, to throw the responsibility on the strong externus, and acquit deficient adduction. Some one I think advocated its use after external tenotomy. This seems rational.

Savage's rhythmic exercise has not received, in this part of the country, the attention it merits. It is, as Eaton⁵ has said, a physiologic method of strengthening muscles. I have had considerable experience with it, using for esophoria prisms from 3° to 5°, and for hyperphoria from 1° to 2.5°. These are a little stronger than originally advised by Savage. I value it highly in these classes of cases: 1, in hyperphoria, usually of low degree, where supra- and infra-duction are not far apart; for instance 2° to 2½°, 1° and 1.5°, etc. This form of muscular error, is I believe, quite a common source of asthenopia. For my own part, I want a bigger margin than 3-4° when cutting a vertical muscle. 2, in low esophoria, with abduction of 2.5° to 4°, unrelieved by refraction correction, it has in a few cases developed abduction a little. It is, however, confessedly slow and such cases do better, it seems to me, with adducting prisms. 3, when opposite muscles are deficient in contractile power, irrespective of balance test; for instance, a condition like this; esophoria 2° with Ab. 4°, Ad. 12°, developing hardly at all by Gould's method, and no light thrown on the matter by near test. Such cases are not frequent but they occur, and are due to general muscular asthenia.

Rhythmic exercise seems to me the only rational treatment we have. In the case from which the above measurements were taken, it gave excellent results. As a developer of adduction it is slower than Gould's method.

To answer the title question, I would conclude that: 1, Savage's rhythmic exercise should displace tenotomy in the treatment of low hyperphoria, when supra- and infra-duction are not over 1° to 1.5° apart; 2, when, irrespective of balance, all the muscles are wanting in contractile power; 3, when a weak externus, with only 3° or 4° abduction, (5° being regarded as the normal minimum) seems to cause trouble, and there are wanting the conditions which make internal tenotomy justifiable.

I would conclude that Gould's method will: 1, almost certainly give relief in the considerable class of cases where exophoria and low adduction exist without high abduction; 2, that even when exophoria is associated with high abduction, adduction should be developed by Gould's method before operating, to determine whether it is excessive externus or defective internus action that is causing asthenopia.

In esophoria with low abduction, or hyperphoria with a difference in vertical duction of 3° or more, refraction correction or prisms, bases toward the weak muscles, having failed to relieve, operation is as a rule necessary. The ideal treatment for heterophoria, due to intrinsic muscular weakness, is a system of exercise which can be depended upon to develop very weak muscles to the strength of their antagonists. It has not yet been discovered, so far as I know.

816 Park Avenue.

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

ELECTRO-VIBRATION OF THE TURBINATED TISSUE.

Read in the Section on Laryngology and Otolaryngology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY J. MOUNT BLEYER, M.D., F.R.A.M.S.

Member of the Royal Academy of Medicine of Naples, Italy; Corresponding Member to the Academy of Medicine of Mexico; Corresponding Member De La Société D'Electrotherapie, France; Member American Medical Association; Surgeon to the New York Throat and Nose Hospital; Surgeon to the German West Side Clinic; Medical Editor to the Electrical Review, Electrical Society, New York City, etc.
NEW YORK.

In this paper I shall attempt to present the useful purpose of faradism, as observed by me, in treating this form of disease involving certain conditions of the turbinated tissues, which from time to time we have been treating according to the prevailing fashion of the moment, now medically, then again by the more radical means of surgery, the cautery, the saw, the snare, involving a tissue destruction to which, in some instances I have been for a long time opposed; and which I also availed myself of in the hope that some day I would hit upon a better plan of procedure, more physiological and less often accompanied with results ranging from beneficial to positively bad, if not, to say the least, lastingly harmful.

I believe, from the results of two hundred cases treated by the method as I shall describe without going into the details of each individual case, I have found a method for the treatment of simple hypertrophied turbinated tissue that is far better than either the medication treatment or surgery, or both combined. It is faradic massage.

The time has come when those of us who have given years to the careful study of the curative power of electricity must plead for tolerance among our colleagues, and an impartial hearing. Electricity has many uses, and I am sorry to say many abuses, which in no few instances come from so-called specialists, ranking high as leaders in the slowly growing science of electro-therapeutics.

Electricity is like copaiba in emphysema, a good remedy in bad company.

The good account faradism has rendered of itself in this instance is due to the fact that we have studied and carefully observed its physiologic action and have just begun to bring it under the control to which all remedies are subject, that of intelligent dosage. This has been rendered possible by the recent improvement in faradic machinery.

By means of induced currents (faradic electricity or interrupted current) very powerful currents can be obtained, but currents which only last a short period of time. If we wish to apply the induced currents therapeutically or for experimental purposes, we must find means of generating them in quick succession. An apparatus for this use is called induction apparatus or a faradic battery. To be more explicit: the essential parts of an induction current machine are spirals with iron cores, which are moved quickly past magnetic poles. An ordinary faradic apparatus would then consist of a primary coil, having an iron core, and a secondary coil which is wound over the primary coil. Through the primary coil a galvanic current is passed, the make and break of which follow rapidly upon each other. In order to produce this phenomena which is necessary for the rapid interruptions of the current in the primary coil, an automatic circuit break is provided. This may be simply

a vibrating armature of an electro-magnet, alternately energized and de-energized, which armature in vibrating alternately makes and breaks the primary circuit. Such arrangements are usually in small induction coils.

The three illustrations below inserted explain the principal points regarding the construction and physics of an induction machine. (Fig. 1.)

1. Illustrates a galvanic current which sweeps around the primary coil C. while (a) converts the core into a magnet, N.S. and (b) induces a momentary reverse current in the secondary coil C'.

2. The sudden magnetizing of the coil itself induces a reverse current in the secondary coil, which strengthens the galvanic induced current within this circuit.

3. The magnetized coil attracts the soft iron head of the spring to itself, and so breaks the current flow.

4. This stopping of the current flow stops the magnetizing influence upon the core, and a direct current is induced in the secondary coil by the breaking of the primary current, strengthened by that induced by the de-magnetization of the core.

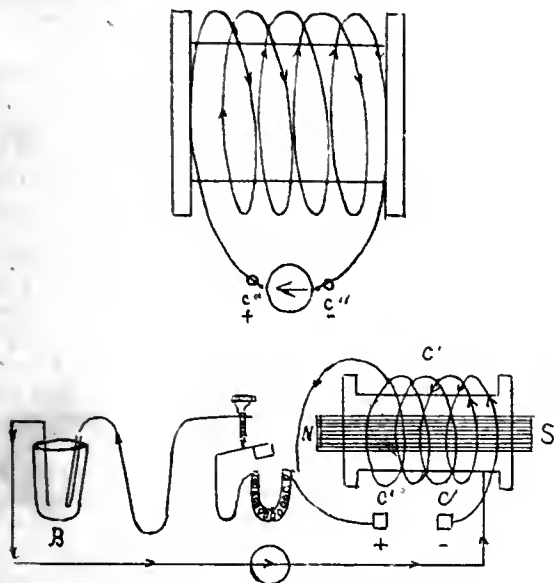


Fig. 1.—Faradic Apparatus, showing its Outlines and Principle of Construction.

5. The magnetic force holding the hammer being removed, it returns by another current, passes, and by these vibrations the process is repeated in such rapidity as the strength of spring and magnet admits.

Definition of Induction.—What is induction? What are induction coils? By common consent this term is employed as a name for an apparatus invented by Munson and Neef and subsequently by M. Ruhmkoff, consisting of a bobbin wound with a short coil of stout wire, over which is wound a secondary coil of very fine wire of many thousand turns, well insulated from each other, the whole fitted with a central core of iron. The name is not happily chosen. It should have been inductive coils, since the word "inductive" means "leading, persuasive, producing," and the use of these coils is to produce a high tension electric current from one having a low tension. The term inducing coils, would have been still more correct since inducing is part of the verb induce, a word meaning, "to influence, to persuade, to actuate, to impel, to allure." The appropriateness of these terms

to the electrical instrument under consideration will be seen as we proceed in explaining the principle of their construction, and their mode of action. The word "induction" on the other hand, comes from the verb "induct" which means "to introduce, to bring in, to put in possession;" none of which apply appropriately to the action of the inducing or inductive coil. Now scientists have given different definitions for the term "induction," but most of them are not clearly defined. Perhaps it will be more easily understood if put in the following words:

THEORY OF INDUCTION.

Every theory respecting induction is based on the assumption that there existed two electricities, one positive and the other negative, both of which were fluids. The fluid theory has been abandoned by electricians, because modern observations of electrical effects have rendered the theory no longer tenable. The other theories of two electricities, that is, two kinds of the same thing, such as positive and negative, answering to the terms male and female, is also fast passing away. We still speak and write of electricity as being positive and negative, but we use these terms most to distinguish the backward or forward movement of the current, than to employ the existence of two separate and different forms of energy. Some of the newest theories respecting induced currents of electricity are based on the as-

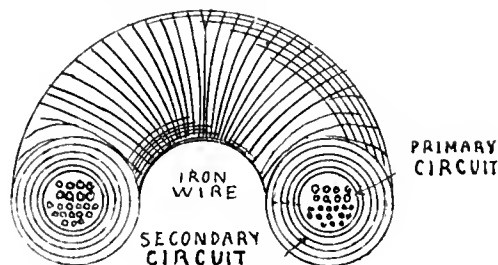


Fig. 2.—Section of ring-shaped Secondary Generator or Coil.

sumption that all bodies are enveloped in a fluid, to which the name of ether has been given. The electric current, in passing through a conductor, disturbs the arrangement of its component parts and these in turn are said to disturb the ether, which then transmits the disturbance to contiguous bodies. Whether this theory is based on fact or on fancy we can not here determine, but the fact remains that there is such a disturbance set up in bodies near to electric conductors, and these are especially observable at the instant when the current of electricity is interrupted, as when the electric circuit is broken. The observed effects go to show that the interruption causes a kind of eddy or back-wash in the current, which is felt by other bodies susceptible to its influence and observed in them as a current flowing in an opposite direction to that of the inducing current. The inducing effects are more strongly shown in conductors actually in contact with the insulating substance; but they are also observed in conductors separated by air spaces only from the inducing conductors. This goes to show that either the air or some similar invisible conducting medium transmits the inducing effects of one conductor to another conductor.

PRINCIPLES OF INDUCTION.

Before we proceed further in the study of the induction or inductivity, it will be advisable to

notice a few of the principal facts or laws governing its action. These, when well understood, will guide us regarding the construction of coils and the faradic machine, or induced current apparatus.

The inducing conductor and the conductor to be induced must run parallel, side by side. The inductive effect is weakened when they cross each other, and may be neutralized by a transverse position. The bare conductors must not touch each other, but must be separated by an insulating medium. If two conductors are in contact at any part of the circuit, or are insufficiently insulated, they combine in forming one conductor conveying the primary current in one direction only, and consequently there will be little or no inductive effect observed. The turns of the conducting wires of a coil should not only be wound regularly, side by side, to get the best effects, but should also lie close to each other, separated only by the thin insulating medium.

Since each turn exerts an inductive influence on its neighbor, and this influence is weakened by over-insulation and want of continuity, it will be seen further on, when we consider the relative values of insulating mediums, that the best of these are conductors of electricity, when the tension or pressure of the current is sufficiently high to overcome their resistance. Therefore in planning the insulation of the wires and the parts of a coil, regard must be had to the tension of the current employed in working it, for if we employ a current of higher tension on an imperfectly insulated or badly arranged coil, with a view to obtaining better effects from it, the extra current forced through the coil will overcome the resistance of the insulation and break it down.

Whenever this occurs in a coil, the inductive effects cease because all the imperfectly insulated turns are absorbed.

The inductive effects of a current are observed, at least these manifestations:

1. When the insulated conductor is wound as a wire around a mass of soft non-magnetic iron, the current of electricity passing through this conductor induces magnetism in the iron and converts it into a magnet while the current is passing. The effect here manifested as magnetism only exists while the current is passing through the conductor, and when the current is broken.

2. When the insulated conductor is doubled on itself, or wound into a spiral or made into a coil with or without a core of soft iron, the inductive effect of one turn of wire on another is manifested at the terminal of the battery or other generator of electricity (when the circuit is broken) by a bright spark, which increases the brightness with the turns made by the wire. A similar spark is observable at the terminals of a wire around or laid parallel to the conductor in the main circuit, when the necessary conditions are present. This effect is only observed at the instant of breaking contact with the battery, or, in other words, on the instant of the rupture of the main circuit wire.

3. When a wire is thus made into a long spiral with several coils close to each other, and the bared metal parts near the battery terminal are held in the naked and moist hands of a person, that person will experience a tingling sensation in the nerves of the fingers at the instant when the current is broken and also when contact is made again with the battery. This manifestation of induction is also only momentary,

but can be repeated as often as contact is made or broken. When a long coil of fine wire is wound on and over the main coil, the tingling sensation can be felt at the terminal of the second coil when contact is made or broken at the terminal of the first coil.

There are, therefore, three distinct manifestations of electric current induction, or the inductive effect of the electric current observable, viz., the magnetic, the calorific and the physiologic. All these three effects can be found, described, and its experiments shown in detail in all works on physics.

SOME OF THE PHYSIOLOGIC ACTIONS OF INDUCED CURRENTS.

The duration of induced currents has marked influence upon their physiologic effects. The constant current of a battery only affects our system when a great many elements are used, and the weaker constant currents only affect very sensitive parts; our nervous system, however, is very sensitive to rapid electric changes. The induction current, therefore, produces far more powerful shocks than the primary current, because the duration of the former is far shorter than the duration of the latter. The difference of duration in induced currents when massive cores or bundles of wire are introduced in the coil, explains the marked difference in their physiologic effect. By introducing solid matter, the duration of the induced current is increased; by introducing a bundle consisting of many fine wires, the duration of the induced current is lessened, therefore the physiologic effect is far more powerful; this has been proved to us by Magnus beyond a doubt, and bears important relation to the action of such an induced current in its physiologic action. The effects which are produced in general in any given cases under treatment by electricity are: stimulating and tonic effects, general and local; these belong to both galvanism and faradism, but especially to the latter, which acts as a stimulus, partly upon the contractile tissues, both directly and through their motor nerves, partly by its sensory nerves and partly in a reflex manner through the vasomotor system, producing increased vascular activity in the parts which it reaches. These effects are, to a certain extent, shared by other modes of stimulation, as for instance, by massage, by treatment with hot and cold douches followed by friction with a rough towel, etc.; but electricity has certain advantages over these active modes of stimulation, especially in all paralytic affections, from its greater power of inducing muscular tissue construction, and by its vibratory and stimulating action upon the nerve filaments for quite a distance of their length, and from the ease with which it can be directed to any required parts or centers in the body.

The effect which peripheral stimulation exerts upon the central organs plays an important part in electrical treatment and affords the best explanation of the benefits which follow, even in cases where the treatment has been applied to the peripheral parts only.

THE DIRECT EFFECT UPON THE SENTIENT NERVES BY THE INDUCED CURRENT.

The healthy sentient nerves, which are the nerves of sensation, are observed by the aid of the microscope to be arranged in their peripheric termination much like fine moss, or the pile of fine uncut silk velvet. If this vibratory action of the induced currents is brought to bear upon the nerves in the nose, the

sensation received by the membrane during the passage of the current is as if painfully scratched.

The induced current in a given bearable quantity and intensity has a greater effect upon the sentient nerves, in proportion to the frequency of the interruption of the current, *up to a certain degree*—which, for instance, may be about all the nerves can bear; but if the vibrator on any machine is screwed up a trifle, so as to make the interruptions extremely fine and rapid, then the current is more easily borne, and not only so, but it then becomes almost or quite pleasant. But I am of the belief there is in this case more indirect effect, *i. e.*, reflex action, because this current more nearly resembles the continuous galvanic current. A pretty rapidly interrupted current has more effect on the sentient nerves than very slowly interrupted currents, because it is the law of their action to feel or retain the effects of an impression for some little time after being acted upon. So where a sentient nerve that is in health is subjected to the action of a single blow of an induction current, if of low tension, there is almost no sensation; but if these blows or shocks are then repeated faster and faster, the sensation will likewise increase, because

of different rates of vibration, the more important is their perfect control. The increased rapidity of interruption and the ability to control it gives a wide scope to the efficiency of the current, increases its sedative power, and renders the application of effective currents possible to the most sensitive tissues, certain results, especially decided vasomotor effects, being produced by rapid interrupted currents which are no longer perceptible to the sensory nerves.

Dr. Engelmann and myself have placed two new appliances constructed on similar principles, mine having some other advantages which will hereafter receive extra description, capable of giving us high rates of interruption, together with a perfect control of those interruptions. Vibrations from 1 to 100,000 per minute are obtainable. I am also of the same belief with Dr. Engelmann that 50,000 interruptions to the minute is ample for all therapeutic uses in connection with the primary and secondary coils as now used in practice. By the use of these mechanical devices, the rapid interruptions which they give are a most valuable means placed in our hands. We can employ strong efficient current without discomfort.

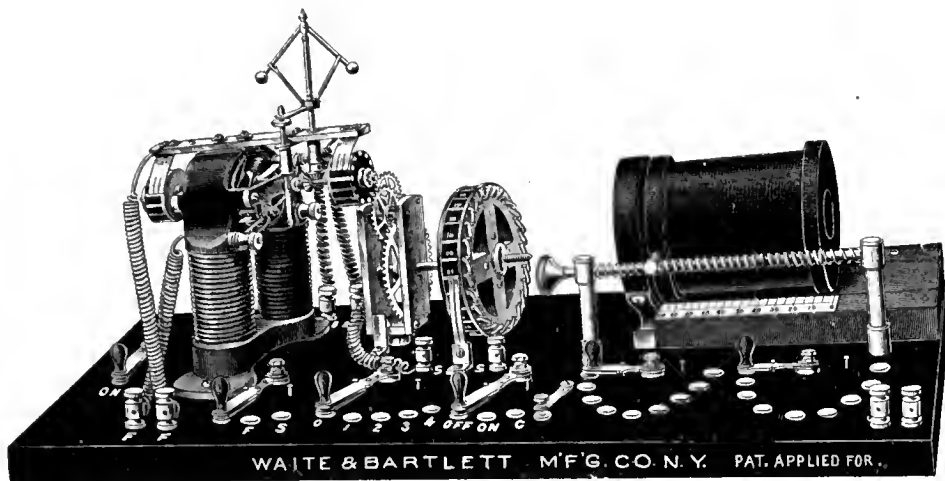


Fig. 8.—Engelmann's New Faradic Machine, with Variable and Controllable Interrupter and Alternator, of High Tension.

the sentient nerve is not now in its normal state, *i. e.*, when it receives the second and third and succeeding shocks, but is in an excited condition.

There is no doubt that the rate of vibration is one of the most important factors in determining the therapeutic effect of the induction current, and not merely as it was formerly treated, a mechanical necessity for the production of such currents, and a very secondary part in the apparatus, as it has always been and still is in all faradic instruments. However, regularity of vibration or interruption is essential to a serviceable therapeutic current and to obtain this we must not only have an interrupted action with far greater regularity than the old-time vibrator as ordinarily constructed, but, in addition, the vibrator must be controlled by a separate force entirely distinct from the coil current, as it is in the apparatus.

The remarkable results of vibratory action have been sufficiently demonstrated of late, and the varying effects of such vibration of various mediums upon different nerves are the subject of physiologic and therapeutic experiment. The more varying the effect

Electro-vibratory massage is the art of applying an intermittent, induced or interrupted current—(faradic electricity) with a specified amount of makes and breaks—periods or interruptions by means of an electrode directly to the hypertrophic turbinated tissue within the nasal cavity, or other parts to be treated by this method. As a contrast to electro-vibratory massage usually spoken of, is the act of applying intermittent pressure and strain to the muscles and other accessible tissues. The means employed are rubbing, kneading and light pounding, combined ordinarily with more or less additional stimulation of the skin—as by the friction and slapping. This manipulation furthers the removal of lymph from the parts, which is especially needful when the lymphatics flow is sluggish through lack of muscular exercise; it apparently quickens the blood circulation through the part and furnishes gentle vasomotor exercise; it acts possibly as a direct trophic stimulus to muscular and sustentacular tissues; by stretching the ligamentous structures it maintains or increases suppleness; in the abdomen it stimulates and aids peristalsis and as a general

stimulation of sensory nerves it may affect favorably the nutrition of the central nervous system.

In the foregoing part of this paper, under the heading of the physiologic actions of the induced current, I have rehearsed in detail the effects and therapeutic value.

It has demonstrated itself to me in all cases that electro-vibration acts directly on the part undergoing the vibration. It influences the circulation in the veins and lymphatics, and at the same time acts as an anesthetic where congestions are present, as in acute and chronic inflammations, which will at once make itself evident to the operator. The gross physiologic action by applying these high rate vibrations to the turbinated tissues is simply hastening the absorption of the inflammatory processes, and thereby reducing the size of these bodies which occlude the meatuses.

By this system which I have been practicing for ten months and applied in over two hundred cases, I can only say that results are most satisfactory to myself and to my patients. A very important effect is noticed by the patient immediately after the first séance, that the turbinated bodies have been reduced and breathing is possible through the meatus which previous to the application was occluded. The secretions are more abundant and the entire head has a feeling of clearness, which is due to the reduction of the tissue, emptying of blood vessels and lymphatics,

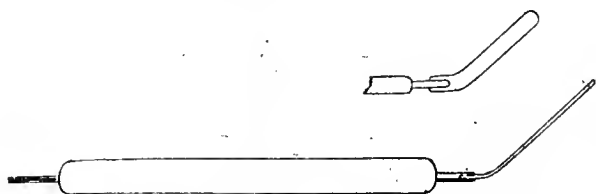


Fig. 4.—Author's Electrodes for Electro-Vibration.

and the effects of an impression left by the high speed interrupted current on the sentient nerves for some little but appreciable time after being acted upon. Different sensations are felt by different individuals—as pinching, prickling and, most often experienced, a burning sensation as above described. These are most of the physiologic and clinical facts connected with electro-vibration, which I tried to describe as graphically as possible.

Cases must be selected for the treatment by this method.

THE PRACTICAL PROCEDURE OF ELECTRO-VIBRATORY MASSAGE.

For example, let us take a hypertrophied inferior turbinated body of the left side of a patient, to operate on; the physician must be fitted out with a proper plant, viz., a first class induction machine, capable of giving no less than from 4,000 to 6,000 interruptions per minute or more. I use generally 10,000 to 15,000, produced by the Engelmann or author's interrupter.

Electrodes of different diameters and curves. These are the chief instruments for the proper carrying out of this form of vibration. The patient is seated before a reflecting mirror, with the head in a comfortable position. A speculum must be used in order to apply the electrode over the body or tissue to be treated. When the electrode is once placed over the hypertrophic turbinated body, the current is slowly graduated in strength, with the high speed of inter-

ruption at once. Allow the electrode to remain in one position over the tissue treated for the entire séance. Do not reintroduce the electrode without stopping your current, or your patient will receive a shock, which is to be avoided; but start as you began, by turning on the graduated or tolerant current with its high speed frequencies, each sitting to last from twelve to fifteen minutes and repeated daily, for the first week, and every other day after that.

If the patient is sensitive about the nasal cavities, a 5 per cent. solution of cocain is advisable. Regarding the time in which cures are effected, that varies according to the extent of the hypertrophy. Some are cured in from ten to twenty sittings, or from six to eight sittings. Every case must be individualized. No set rules can be laid down.

It is best to start on the inferior turbinated tissue first, in order to give room to the traveling of electrodes. All obstructions to the entrance of the electrode must be removed previously. Some patients will be found very sensitive in the beginning, to the induced current. This is also noticeable with all other forms of massage employed in this cavity. The current travels the sensitive distributed nasal nerves which can not be avoided. You will often find in the beginning of the first few seconds of treatment, the patient wishes to have the electrode withdrawn, but soon submits and thinks no more of it. Should much resistance on part of the patient exist, cocain will relieve all reflexes.

After each sitting, a strong solution of alum dissolved in albolen, or some other compound of its kind, is applied to the massaged parts and well rubbed in by means of a probe wound with cotton. In children, where the inferior turbinated tissue is found, as a rule, hypertrophied, electro-vibratory massage has given the best account of itself.

There are no contra-indications for the use of this method. I have used it in all forms of disease about the pharynx and nasal passage and recommend the same to my colleagues.

The electrode, of which a cut is here given, is one of the many used for the application of this treatment. In some cases it is admirable to use soft material, as sponge and cotton, fixed into a conducting holder.

460 Lexington Avenue.

ELECTROLYSIS BY A CURRENT CONTROLLER FOR THE REDUCTION OF SPURS OF THE NASAL SEPTUM.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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It is unnecessary to describe spurs or excrescences of the septum narium further than to say that they are outgrowths of cartilage or bone, or of both combined, which project from the septum into the lumen of the nostril, thereby causing obstruction to nasal respiration and drainage. In size, contour and exact location they are of infinite variety and the symptoms which they produce vary correspondingly in nature and degree, being at times so grave as regards complete occlusion, deformity, pressure effects, and

the induction of neuroses, as to demand removal by whatever means, and again occasioning merely a sense of inconvenience or annoyance. Customarily, excrescences are removed by surgical means, by the knife, saw and drill, and these methods are still to be indorsed for the majority of cases. In skillful hands they are more rapid, more precise, and in the case of large bony spurs, it would seem, more effective than is electrolysis. But the surgical method is sanguinary, and while many patients bleed but little, a considerable number suffer from profuse and troublesome hemorrhage and there is no way of telling in advance which ones will bleed, or when they will bleed. Such cases usually demand packing of the nostril, either at once by the operator or by any accessible physician, if the hemorrhage occur later, as during the following evening or night, and the packing if not done with antiseptic material can lead to infection of the middle ear and this in turn to supuration in the mastoid process.

It is true that both profuse hemorrhage and infection can be avoided with reasonable certainty by the insertion in all cases, immediately after the operation, of an antiseptic packing of iodoform gauze, or by the closed treatment of the nostril by the antiseptic method of Roe, either of which, however, subjects the patients to some inconvenience and annoyance and causes sensitive ones to interrupt business or seclude themselves for a day or two. Neither the danger of possible hemorrhage nor the inconvenience of a tampon is comparable to the benefit conferred by the operation in a case of major degree, but they do seem disproportionate to the ends sought in many cases of minor degree. For these reasons, others, as well as myself, have sought in electrolysis at least an occasional substitute for the knife.

Concerning the physics of electrolysis, it is only necessary to state that it is a process of chemie disintegration of tissue under the influence of an electric current by which water and salts are separated into their component parts, oxygen and acids being attracted to the positive pole and hydrogen and the bases to the negative pole.

A resumé of the previous literature of the application of electrolysis to the treatment of nasal spurs need be but brief; most of the publications have been in French, are recent, and have not been freely circulated in this country. Miot¹, of Paris, was the originator in 1888, and following him Garel², of Lyons, reported his results in thirty cases, but my attention was first drawn to the method by Moure³ at the Ninth International Medical Congress at Berlin in 1890, where he read an elaborate paper on the subject and described minutely the technique. Moure and Bergonie⁴ have since embodied their studies in a monograph published in Paris in 1892, and Moure⁵ again in 1894, before the Eleventh International Medical Congress at Rome, discussed in a paper the "Comparison between Electrolysis and other Methods of Treatment for the Destruction of Deviations and Spurs of the Nasal Septum."

Moritz Schmidt in his book, "*Die Krankheiten der oberen Luftwege*," published in 1894, confirms the

efficacy of the method as advanced by the French operators, a significant fact which goes far toward removing the sense of skepticism with which the subject was first viewed in America. Among others may be mentioned Peyrissac, Meyer and Heryng, all cited by Newcomb.

Only two papers by American authors have come under my observation. One by Newcomb⁶ of New York, with a report of two cases and an excellent review of the bibliography and technique; the other by Ballenger⁷ of Chicago, with a report of three cases.

All of these operators have employed, as the source of the electricity, a primary galvanic battery of about 30 cells. The supposed necessity for this troublesome and unreliable apparatus has prejudiced many against the electrolytic method. Allowed to stand unused for a time, it is often found that the acid fumes have corroded the metallic parts and the battery fails to work, or the cups leak, or the liquid slops over, or it otherwise exhausts one's time and temper. To obviate these annoyances would mean to enhance the utility and availability of the method by electrolysis, and I therefore present this preliminary report of the results which I have secured by the use of the Edison electric light circuit and the McIntosh current controller.

The Edison current is characterized by the conditions best adapted to electrolysis, that is moderately high tension or voltage, the volt being the unit of electro-motor force, and comparatively low current strength or amperage. The Chicago Edison current has an E. M. F. of 110 volts, or about double that of a battery of 50 Daniells cells, one Daniells cell being selected as the standard, having an E. M. F. of 1 volt. The amperage depends on the amount of resistance in the circuit and it is so reduced by the resistance of lamps, controller, and human tissues as to be measured in milliamperes or thousandths of an ampere. The current strength necessary for electrolysis of nasal spurs is from 15 to 25 milliamperes, measured with the resistance of the spur in the circuit, and to supply this current from fifteen to twenty-five cells of a galvanic battery would ordinarily be used with a corresponding E. M. F. of from 12 to 20 volts or more. It is evident, therefore, that the Edison circuit, while correct in kind, is far too intense in degree and must be reduced.

Mr. Neiswanger, electrician to the McIntosh Battery & Optical Company, on request, has furnished the following description of the current-controller which I have used:

"The controller works on the 'shunt' principle. The machine circuit consists of a succession of coils, nineteen in all, joined in series and having a united resistance of 209 ohms. The patient may be placed in a shunt to one or more coils. The coils vary in size, but are so proportioned as to modify the voltage in tenths and hundredths. The sliding contacts are arranged in two rows. The one on the left is connected with the larger coils, and consequently each coil in this row divides the E. M. F. in the machine circuit by ten. The one on the right is connected with the other row of contacts, and each coil divides the E. M. F. by one hundred. The two rows may be used singly or together."

The accompanying diagram illustrates the essential parts of the instrument:

To elucidate: the controller is so constructed that if placed in direct connection with the 110-volt circuit, and the left-hand or decimal slide be advanced to 1, enough coil resistance is removed to

¹ Revue Mensuelle d'otologie et de Laryngologie, cited by Garel. (Loc. cit.)

² Annals des Maladies de L'oreille, du Larynx, etc. Tome xv. 1889. pp. 638.

³ Verhandlungen des x Internationalen Medicinischen Congresses Band iv.

⁴ Du Traitement par Electrolyse des Deviations, etc., Paris, 1892.

⁵ The Journal of Laryngology, Rhinology and Otology, May, 1894.

⁶ Medical Record, Aug. 5, 1893.

⁷ The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 10, 1894.

secure a current intensity of .1 of 110 volts, equal to 11 volts. In like manner, if advanced to 2, .2 of 110 volts is secured, equal to 22 volts. If, now, the right-hand or centesimal slide be advanced to any given contact, say 4, there will be added .04 of 110 volts, or 4 volts, equal now to 26 volts.

But the decimal division of an initial 110-volt circuit is still too painful on advancing the contacts, so I have resorted to the expedient of placing a 16 candle electric lamp in the circuit ("in series") the resistance of which reduces the original E. M. F., aside from the action of the controller, to an initial current of 55 volts, or sometimes of placing two lamps in series in the circuit which reduces the initial current to 27 volts.

The result is that, with one lamp in the circuit, on advancing the decimal slide of the controller to 1, enough coil resistance is removed to secure a current of .1 of 55 volts, or advancing to 2, .2 of 55 volts, equal to 11 volts. And on advancing the centesimal slide, there will be added at each successive coil contact .01, .02, .03 or .04 of the initial 55 volts, or

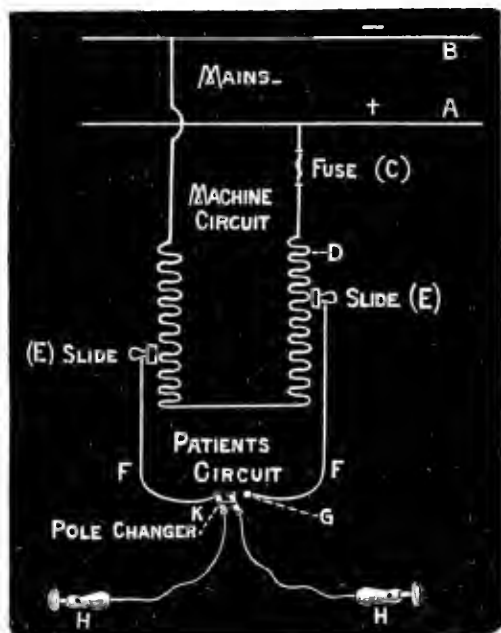


Fig. 1.

if stopping at 4, equal to 2 volts, which added to the 11 volts of the decimal slide, makes in all 13 volts. This is the arrangement of the mechanism with which I have treated most of my cases.

In one case herewith reported, I placed two 16 candle lamps, in series, in the circuit, which reduced the initial electro-motor force with which the controller had to start, to 27 volts, and with the advance of the decimal slide to 1, 2 and 3, each point represented .1 of 27 volts, and each successive contact of the centesimal slide an addition of .01 of 27 volts. In this manner a finer subdivision of the voltage is made and, possibly, less shock occasioned as the contact is moved from coil to coil.

The lamp must be placed "in series" and not "in multiple," Figs. 2 and 3. The degree of reduction in the E. M. F., when thus placed, was accurately determined by means of a volt meter.

The controller has been constructed and has been thoroughly tested with a view to absolute safety. A fusible wire that burns out when the current exceeds

500 m.a. is placed in the machine circuit; the supports for this fuse being two inches apart, it is impossible for the largest commercial currents to "arc" across, or jump from post to post. In addition, connected with the Edison circuit to which I attach the controller are two fusible plugs, one in the house and one on the street, which serve to protect the Edison mechanism against the results of accidental connection, when grounded, of their own and other more highly charged wires, *c. g.*, arc lighting and trolley wires. Moreover, the one or two 110 volt lamps which are placed in the circuit to reduce the initial voltage would serve as additional safety appliances against the largest commercial currents, for they would be burned out, and being arranged in series, the circuit would then be interrupted. Any or all of these, it would seem, would prevent anything like a fatal charge ever accidentally reaching the patient, but the main reliance against what might prove a painful shock is placed on the controller fuse itself, which I am assured is of delicate and accurate construction. Mr. Neiswanger, of the McIntosh Battery & Optical Co., states that he made the following tests before an assembly of physicians and electricians at Rochester:

1. One thousand seven hundred volt alternating current, three fuses preceded the controller, of which the first two burned out on making the contact.

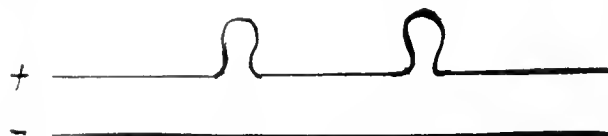


Fig. 2.—Lamps "in series."



Fig. 3.—Lamps "in multiple."

2. One thousand seven hundred volt current, one fuse preceded the controller; both it and the controller fuse burned out.

3. One thousand seven hundred volt current connected directly with the controller; both sponge electrodes held in one hand, fuse burned out instantly without communicating any charge to the experimenter.

The character and arrangement of the needles still presents a fruitful field for the labors of those especially possessed of mechanical abilities. Two methods are in vogue, the monopolar and the bipolar, although the latter is now preferred by Moure and his followers. By the monopolar method, a single needle attached to one pole, preferably the positive according to Moure, and the negative according to Garel, is inserted into the spur, while a large plate electrode of chamois, constituting the negative pole, is held on some indifferent portion of the body, as between the shoulder blades or on the upper arm.

By the bipolar method, two needles, one representing the positive and the other the negative pole, are both inserted into the spur, so that the current passes only from one needle to the other within the tissue to be destroyed, although the spur for a short space on all sides of the immediate area of insertion will be affected by the electrolytic action. The needles which I have used in the cases herewith reported are made of irido-platinum and are soldered to light

parallel copper bars, fashioned like a galvano-cautery electrode, for insertion into a cautery handle. I have not, however, used a handle, but fastened the instrument directly to the conducting cords for the sake of lightness and easier adjustment. The needle tips are 8 m.m. in length, 2 m.m. apart, and are quite thin. They are in fact rather delicate and too short for the larger spurs, so I have had constructed a heavier and longer pair made of irido-platinum, mounted in a similar manner and attached straight, to a delicate handle. These needles are nearly as stiff and hard as steel and have almost, perhaps not quite, an equal penetrating power. They are about 20 m.m. in length. (Fig. 4.)

The needles, instead of being permanently fixed parallel with each other, might be attached to separate holders and then introduced, each at any desired point in the spur, but this arrangement is awkward. At times it might be desirable to have one or both needles slightly curved, in order to more closely follow the contour of a curved excrescence. If parallel needles are used, they may be inserted either perpendicularly or horizontally, or at any angle between these positions, whichever conforms best to the shape of the spur.

Moore employs ordinary sewing or sailmaker's needles of steel, regarding the oxidation of the positive needle, when of steel, as immaterial if a new one be used at each treatment. Not being able to secure a satisfactory adjustable needle holder which would carry two points, I have used needles of platinum, hardened by admixture with iridium, which not being

to interfere with it by the surgical method, yet the patient is much improved by its reduction. The slough did not separate, as a whole, but seemed to liquefy, and be in part discharged and in part absorbed without complete destruction of the mucous membrane, which has therefore been reproduced in the process of cicatrization more perfectly than is usual after the cutting operation. This is an advantage as the tendency to incrustation, so frequently observed after the surgical method, due to the poor quality of reproduced mucosa will be avoided. It is an advantage, however, which does not invariably follow electrolysis, since if the slough produced be large it will separate as a whole, with corresponding complete destruction of the surface mucosa.

Case 2.—Mr. A. G. M., has been under treatment for hypertrophic rhinitis and adenoid vegetations which are now remedied. He still complains of inability to breathe through the right side of his nose which disturbs his sleep. The cartilaginous septum is deflected to the right and, in addition, situated toward the base of the convexity is an excrescence which projects sufficiently forward to approach the partially collapsed ala and so close the nostril. By the removal of the excrescence without interference with the deflection, enough space could be gained for comfortable respiration. The patient is of a nervous disposition and slight operative measures cause him involuntarily to flinch so badly that the surgical method might involve unusual difficulties.

February 23. Electrolysis by means of the Edison current and McIntosh current controller, one 16-candle lamp in the circuit. The same needles were used as in Case 1, being inserted 8 mm. into the anterior segment of the spur for eight minutes, then withdrawn and re-inserted the same distance behind, into the next adjoining segment of the spur for six minutes. With each insertion the decimal slide was



Fig. 4.—Author's Needles.

oxidizable, can be permanently soldered to a delicate holder and are then always ready for immediate use.

It is the consensus of opinion that the bipolar method is equally efficient and less painful and troublesome than the monopolar, and also that with the bipolar method not more than two needle tips, one representing each pole, should be used.

Case 1.—Mr. W. M., medical student, is under treatment for hypertrophic rhinitis, and has also an excrescence from the base of the cartilaginous part of the septum, not of large size but which materially diminishes the lumen of the nostril.

Feb. 22, 1895, electrolysis by means of the Edison current and McIntosh current controller, one 16 candle lamp in the circuit. Bipolar method with irido-platinum needles 8 mm. ($\frac{3}{8}$ in.) in length, attached in a single holder 2 mm. apart. The decimal slide of the current controller was pushed to 1, and the needles were then inserted into the anterior segment of the spur. The slide was then advanced to 2, which equals a current of 11 volts, the milliampère meter registering 15 milliampères; ebullition of gas; crackling sounds; not painful. The current was then increased by pushing the centesimal slide gradually to 4=13 volts, registering 17 milliampères. Now painful but tolerable. Continued seven minutes. The needles were then withdrawn and re-inserted one-half inch farther back in the posterior segment of the spur and the process exactly repeated for seven minutes. One drop of blood only on withdrawing the needles the first time.

March 1. He reported having suffered no discomfort from the treatment.

March 14. The slough has not yet separated.

March 26. Result very satisfactory, the spur having disappeared, all except an insignificant remnant close to the nasal floor.

Remarks.—This was an experimental case. The excrescence was of small dimensions and chiefly cartilaginous. I might not have deemed it necessary

advanced to 2, and the centesimal slide to 3, which equals about 13 volts, the milliampère meter registering at different moments from 15 to 25 milliampères. Pain was felt only on making the contacts, chiefly on increasing the decimal slide from 1 to 2. A whitish discoloration, shading off to blue, was observed around the needles, and thus guided, an inspection of the opposite side was maintained in order to guard against ultimate perforation.

March 11. The slough from the previous treatment has separated leaving a large concavity with projecting edges back and front of it which must be removed. Electrolysis to the anterior edge, care being taken not to perforate because the needles, superficially inserted, are nearly opposite the point of greatest concavity. Therefore a current of much less intensity, E.M.F., 7.5 volts, 7 milliampères was applied for seven minutes. Result satisfactory.

March 29. Electrolysis to the posterior edge or segment, the same quantity of electricity as at the first sitting being used.

April 9. Final result entirely satisfactory, the excrescence having been removed quite as perfectly as if it had been done by the surgical method.

Remarks.—The treatment was unusually tedious in this case, three sittings being required, because unusual care was necessary not to produce a perforation by too extensive an effect at any one time. It has been asserted as a disadvantage, that perforation is especially liable to result from electrolysis. This case satisfied me that it could be avoided by proper care in any case in which it would be avoidable by the surgical method.

Case 3, for the sake of brevity will not be recorded in detail. Mr. M. J. H., age 25, suffered from pulmonary tuberculosis in a state of arrest, but he complained at this time of nasal obstruction due to an excrescence, of the kind which begins anteriorly and runs upward and backward, following the sutural line of the vomer and cartilaginous plate of the sep-

tum and terminating opposite the middle turbinal. Both cartilage and bone entered into its composition and the result of electrolytic treatment was fairly satisfactory, the spur being very much reduced in prominence but not wholly removed. The reduction in volume of the spur was probably commensurate with the proportion of cartilage contained in it.

Case 4 was less successful. Mr. E. R., aged about 19 years, has been under treatment for hypertrophic rhinitis, adenoid vegetations and hypertrophy of the tonsils, which are now remedied. He has also a septal spur of the kind which begins anteriorly and runs upward and backward, terminating opposite, and projecting into, the middle meatus of the right side. Likewise a smaller chiefly cartilaginous excrescence on the left side, anteriorly at the base of the septum.

March 20. Electrolysis to the spur of the right side; 11 volts, 20 milliampères for four minutes, when the patient so nearly fainted that it was necessary to discontinue the treatment. The needles would not penetrate thoroughly into the spur, the bone seemingly being of ivory hardness.

March 22. Electrolysis to the smaller cartilaginous excrescence on the left side; 11 volts, 12 milliampères for five minutes; the patient again complaining of faintness and pain the treatment was abbreviated.

April 22. The larger spur is practically unchanged; the smaller cartilaginous one has disappeared but the space has not yet entirely healed.

April 27. Electrolysis again attempted on the larger spur, the heavier needles for greater penetrating power, and the method with two lamps in the circuit for the more gradual application of the current being selected. This treatment was also a failure for the needles could not be made to penetrate adequately, and beside the patient nearly fainted after three minutes of a current of only 8 volts and 10 milliampères.

Remarks.—This case demonstrates that the electrolytic method has its limitations. As one would expect, difficulty will be encountered in inserting the needles into those spurs and ledges which are composed largely of bone of ivory-like hardness, which would seem to limit the method in its greatest degree of usefulness to excrescences which are composed mainly of cartilage, or to those of bone in which it will suffice to remove the cartilaginous surface, together with whatever of adjoining bone can be influenced without inserting the needles directly through hard bone itself. However, the cases of spur from the nasal septum for which the electrolytic method of reduction is applicable are very many and with the efficiency, convenience and compactness of the McIntosh current controller which adapts the Edison electric circuit to its use, I consider it a valuable addition to our resources. Still other cases are under treatment, the result of which additional experience will be communicated at an early date in another paper.

Venetian Building.

TREATMENT OF PELVIC PUS CASES BY ABDOMINAL SECTION—REPORT OF SIXTY-SIX CASES, WITH REMARKS.

BY J. WESLEY BOVÉE, M.D.

WASHINGTON, D. C.

In this resumé of my work in abdominal section for the relief of various suppurating diseases in the female pelvis, whatever I may offer as deductions is given for what it is worth. Previous to 1891 this class of surgery was little known in this city and, I might almost say, not at all practiced. So that four years practically covers the amount of time over which ranges the experience of Washington abdominal surgeons in celiotomy in cases of pelvic pus.

A large majority of the series have been operated upon in the presence of quite a large number of medi-

cal students and physicians, and have been in the free wards of Columbia and Providence Hospitals. From the nature of the environments of such patients, their general condition is usually very bad. Add to this, the effects of such devitalizing pathologic conditions, as are noted in another part of this report, and you will easily understand how feeble is the framework upon which we hope to effect a regeneration. I am very certain that a number of patients who were saved by operation, would have soon died had non-surgical treatment alone been employed. I am more positive of this, because of certain other cases that were admitted to the hospitals and died before operation. In this belief I know that I am antagonizing the statement of the lamented Goodell, "that very rarely will these pus cases die if not operated upon." During my service at Columbia Hospital for Women, have been admitted cases I have considered too weak for operation the day of admission; I have directed the resident physician to prepare them next day for operation, provided they were living, and they have died in the meantime. Other cases have refused to submit to operation and have died within a short time outside.

These cases have led me to appreciate how near the life-margin were a number of those in this report before operation. You will, therefore, readily understand that a series of such cases does not indicate a series of selected cases operated upon for a fine record rather than saving of endangered lives. Had I been jealous of my record, I could easily have declined operation in some cases that died afterward. In fact, seven of my mortality list were cases that were considered far more liable to die than to recover.

My first case of this kind was done March 17, 1891. It was a puerperal case, delivered in Columbia Hospital. Puerperal septicemia followed and a large abscess in the abdomen was detected. High fever and a rapid feeble pulse with other dangerous symptoms being present, abdominal section was done the forty-second day after labor. By the hospital people it was thought she would die with or without an operation, and I afterward learned the hospital superintendent engaged a special nurse for two days, expecting the patient to live no longer than that. The uterine wall had been bored through on the left side just above the ovarian ligament, the cavity of the Fallopian tube had become a part of the abscess cavity, which extended nearly to the spleen and was separated from the intestines by a great mass of exudate. The abscess sac was removed and the uterine wound cleaned and sutured. She made an excellent recovery and is now robust and well. This was, I believe, the first case of the kind successfully operated on in this city. Twice since, have I operated (Cases 3 and 29) in cases of puerperal septicemia in which putrid infection was present, both patients dying. I believe this variety of cases is the worst the abdominal surgeon has to deal with. As it is considered a fatal condition, the saving of even a small percentage of cases of puerperal putrid infection by celiotomy should be considered quite successful. When you open a women's abdomen and find the broad ligament, lymphatics, intestines and other adjacent structures saturated with pus, as was one of my cases, you can not but realize how little we can do to prevent a fatal termination. But we must hope to find most puerperal septic cases in a

more favorable condition. In the very bad cases I am not sure that abdominal surgery is advisable. I am convinced cases like No. 3 should not be subjected to operation. In this case, the ovaries were large free pus sacs, the Fallopian tubes apparently normal, and the lymphatics between the ovaries and uterus, great pus channels. The autopsy revealed the uterus, kidneys and intestines riddled with pus. Case 29 lived two weeks and died twenty-four hours after a hurried second operation which revealed the posterior wall of the uterus entirely sloughed away and the intestinal wall reservoirs of pus. This pus is highly infectious and the patient rapidly succumbs to the poison.

I have done no simple exploratory operation in pus cases and have never abandoned a case. As a result, the number of deaths from operation is greater than it otherwise would be. The question of leaving an appendage in suitable cases has been presented to me in a practical manner but a few times, double disease being present in nearly every case. I have when possible, left an ovary, or a portion of one, that the menopause might not be brought upon the patient suddenly while she is recuperating from the depression of vitality due to disease and suppuration. The patient does not feel unsexed if menstruation continues.

The right appendage, has in a large majority of my cases, been the most severely diseased, and very often I found the vermiform appendage so intimately adhered to a right suppurating mass as to require its removal. In a few cases it was slightly adhered to the uterus or Fallopian tube and not removed.

Pyosalpinx on both sides occurred in thirty cases, and on one side only, in seventeen cases, making forty-seven cases, or 71 per cent. of the series in which pyosalpinx, technically speaking, was present. Pus was present in the tube, however, in sixty-five cases. Double tubo-ovarian abscess was found nine times and in twelve cases this condition was on one side only—much more frequently than I had supposed it is found.

Ovarian abscess was found in fifteen cases, being double four times.

Deaths.—The mortality rate of all cases was 16 per cent. Case 2 was a very bad one and would, perhaps, have died had the most skilled abdominal surgeon done the operation. Owing to lack of experience my conception of the pelvic conditions may have been exaggerated and possibly I would now successfully operate in similar condition. She survived the operation but five hours, dying from shock.

Cases 3 and 29 have been previously mentioned as suffering from putrid infection. Case 10, tubo-ovarian abscess and broad ligament cyst of the opposite side has already been referred to. She took ether badly; the pulse was 150 as the operation was about to begin. It was considered a temporary effect of ether and the operation proceeded. Strychnia and brandy were generously given hypodermically during the fifty minutes the operation consumed. The cyst was principally on the right side, though it had lifted up the peritoneal coat of the uterus entirely and dipped down into the left broad ligament and Douglas pouch. It contained three quarts of clear fluid and was not entirely removed. A left tubo-ovarian abscess, badly adhered, was removed. Her pulse was 180 at the finish and the patient continued in shock until her death, thirty-three hours later.

Case 12, hydrosalpinx and pyosalpinx. The adhe-

sions in this case were such as are seldom found. When anesthetized the appearance of the abdomen reminded one of a uterine fibroid reaching nearly to the umbilicus. This proved to be a hydrosalpinx, formidably adhered and very large. Its enucleation was an exceedingly difficult task and led to severe bowel tears. A Fallopian tube containing six ounces of pus was removed from the opposite side. I erred in stopping to suture the intestinal wounds, as the operation was thus prolonged to ninety minutes and the patient did not react from the shock before her death seventeen hours later.

Number 14, had had a criminal abortion performed and the removal of double tubo-ovarian abscess was followed by panic. The patient clamored to go home and declared she would die if kept in the hospital. Despite these features of the case I expected her to recover. She suddenly expired, however, on the third day after an effort to get out of bed. She probably died from embolism.

Case 21 was one of double pyosalpinx and a right ovarian abscess containing four ounces of foul-smelling pus; a bad case with general adhesions. The operation required thirty minutes and a drainage tube was used three days. Until the ninth day she progressed as favorably as any patient could be expected. During that day she had a severe pain in the region from which the ovarian abscess was removed. Suspecting bowel adhesions to be the cause, salines and other remedies were administered, but the bowels did not respond satisfactorily; the abdomen was meteoric; the intensity of the pain continually increased and her expression was anxious. On the fifteenth day vomiting, not stercoraceous, set in and that afternoon I reopened the abdomen and found three loops of small intestines fastened by general adhesions into the right half of the pelvic cavity. The amount of adhesions that had formed in fifteen days in spite of salines and other drainage was remarkable. The intestines were liberated and punctured to allow escape of gases. She was flushed out with normal salt solution and a hot rectal enema of salt. Epsom salt and whisky administered. She lived about thirty minutes. When vomiting began, I realized I had postponed the second operation too long, but tried to make amends by operating even at that late stage.

Case 35 was an emergency case, a prostitute and opium habitué, suffering with intestinal obstruction, almost constant stercoraceous vomiting and an abdomen filled with pus. The next morning after entering Providence Hospital I saw her and urged abdominal section which she absolutely refused. She decided to go to Baltimore next day, a trip I knew she could not possibly take, and she was given morphia in large doses. That night a telephone message from the hospital announced her desire for operation. The following morning her condition was such that an operation seemed cruel. Nevertheless I opened the abdomen under ether. As soon as the peritoneum was incised about six ounces of pus escaped. The intestines and omentum were separated from the inferior surface of an ovarian abscess extending nearly to the liver. From the character of adhesions, I suspected a dermoid cyst. It was aspirated, but as this process seemed too slow, a Tait's trocar was used to empty it of about three quarts of horribly offensive pus. A ruptured pyosalpinx was found and removed and another containing four ounces of pus was re-

moved from the other side. Nearly a gallon of pus was removed from this patient. The operation was hurried, but the patient died a few minutes after its completion. During the operation she seemed likely to die at any minute and I did not expect her to be taken from the table alive. I have since learned she had had an abortion about four weeks before the operation.

Causes.—I do not think that social condition and age have much bearing upon the etiology of these conditions, except that puberty and the menopause usually limit the time. Then, too, so long as otherwise respectable women resort to criminal abortion to rid themselves of prospective trouble incident to child-bearing and child-caring, they, as well as the various species of prostitutes, will be liable to pelvic suppurative inflammations. The relative number of cases due to gonorrhea is thus far speculative. A diagnosis by staining or cultures can hardly be expected in gonorrheal pyosalpinx or ovarian abscess of long standing.

Abortion is a frequent cause, as are various kinds of debauchery. In fact, I believe many cases might be traced to these, could a correct history be procured. I believe, however, that many cases of suppurative inflammation of women's tubes and ovaries are not due to sexual contact in any way, but rather to injuries from accidents, "taking cold" during a menstrual epoch or unusual hard work and exposure. Add to these a debilitated condition and we have the true causes of many cases. While gonorrhea lurks, for long periods of time, in the uterine mucosa, we often have endometritis in the virgin and it may easily extend to the Fallopian tubes, causing under favoring circumstances a purulent inflammation.

Anesthetics.—To produce anesthesia, ether alone was used in fifty-two cases; chloroform alone in two, and chloroform followed by ether, or *vice versa* twelve times. Where no contra-indications to either anesthetic exist, I prefer to begin with chloroform and if operation extends beyond thirty minutes, to substitute ether at the expiration of that time. For prolonged anesthesia I prefer ether. I am led to believe that the danger of producing renal hyperemia by anesthetics extends to the employment of chloroform. Case 64 was one in point.

Rupture of pus sacs during removal is a dangerous complication of celiotomy and should be studiously avoided. In weak patients the fight against disease germs by the peritoneum will be made easier for our patients, by preventing the leakage among the pelvic and abdominal viscera, that often follows such ruptures. We should be constantly on our guard to do so. Unfortunately we can not often prevent such rupture from taking place. We can, however, usually wall these pus collections off from the surrounding structures by gauze plaques; thus preventing contamination. Of course, there are many cases of sterile pus, but how are we to be sure of such conditions previous to the attempt at removal. In thirty-four of my cases, rupture occurred.

Adhesions were present in sixty-four cases and were very bad in forty-nine. Great care is necessary in dealing with them. The posture of Trendelenburg is undoubtedly of great assistance in separating bowel adhesions, as well as in checking hemorrhage from vessels of considerable size. In employing this auxiliary we should bear in mind that the abdominal viscera is placed nearly under the diseased pelvic

structures, and leakage of pus among the intestines is thus facilitated. Nor should we lose sight of the fact that quite large vessels may be left open during enucleation in this position, only slight bleeding occurring, and when the horizontal position is resumed severe hemorrhage follows. It is probably best not to use this position beyond fifteen minutes. Great care is necessary to prevent injuries to the bowels in separating them from the masses to be removed. This occurred in nineteen of my cases, in five of which the bowel wall was torn completely through, the wounds stitched and complete recovery followed. Many times the recovery of the patient is greatly imperiled by the delay incident to suturing a number of small tears in the outer coats of the bowels and in such cases it is often best not to prolong the operation to cover these surfaces.

Hemorrhage from various causes often occurs during these operations. In a few of my cases it was due to the slipping off of ligatures from large or too short pedicles. In such cases it has been my practice to pick up the stumps of the ovarian and uterine arteries with artery forceps, whip-stitch the cut surfaces of broad ligaments between them and then to ligate these vessels separately and stitch them together. In patients of low vitality the loss of even a small amount of blood may endanger their lives. In such cases the hypodermic injection of normal salt solution has been resorted to with great satisfaction. In Case 33, severe hemorrhage occurred in a vein low in the broad ligament. One pint of this solution was thrown into the bowel and the abdomen flushed with it. During the following twenty-four hours she received, under the skin, a total amount of sixty-two ounces and made a good recovery. Case 57 was given six and one-half pints. We should avoid using too much at one time and placing too much in one place. I have had small sloughs form from these causes. When practicable, it should be injected into some medium-sized vein.

The use of sterilized hot water or salt solution in flushing out the pelvic cavity was followed in sixty cases. This is almost indispensable where pus has escaped during the operation or there is considerable oozing from adhesion wounds. The stimulating effect of flushing was not found so valuable as had been supposed.

Drainage.—I am very partial to the use of the glass drainage tube. It was employed in forty-one cases on an average of two days. I believe the time-honored maxim: "When in doubt, drain," is a safe one to follow, notwithstanding many abdominal surgeons consider its use as evidence of slovenly surgery. Unless the nurse be well trained, however, the danger accompanying its use counterbalances its advantages. I did not use vaginal drainage in any case, as I consider it inferior to abdominal. It is almost impossible to keep the vagina sterile. We are only to remember the odor and discharge that comes from the wound in the top of the vagina a few days after vaginal hysterectomy, to appreciate the liability to infect the pelvic and abdominal cavities if an opening from the vagina into the peritoneal cavity be left for drainage. The newly-made track through the abdominal wall, it seems to me, should be much better.

High temperature previous to operations was common. In some cases it was high at the time of the operation. In four cases that recovered, the temper-

ature ranged from 103 to 106 degrees for several days previous to operation, and in three that died, it ranged equally as high.

In such cases it was noticed that after the operation the temperature usually dropped rapidly the first day and, later, gradually to normal or thereabout. A transient, slight rise often occurs after operation, even in cases that have been normal in that respect. It is usually unimportant, being due to cathartics, stitch-hole abscesses or nervous irritation. There must be something more than moderate fever to indicate danger.

Additional Operations and Complications.—In eight cases, endometritis was such a marked complication that curettement and packing of the uterus was done just before the abdomen was opened. In Cases 21 and 29, both fatal, a second celiotomy was done.

Intestinal obstruction was present in Case 21 after the first operation and in Case 35, making a primary operation imperative. Abdominal fistula followed in three cases for various periods. I may perhaps attribute to Dame Fortune the fact that, so far as I know, I have had in these sixty-six cases no pelvic hematocele or mass of exudate (other than three abdominal fistula cases); no fecal fistula, no uterine injuries and no tear completely through the bladder wall. Two cases of peritonitis occurred, Nos. 21 (incident to intestinal obstruction) and 53.

After-Treatment.—The patients are usually kept in bed twenty-one days and if any complications be present at the expiration of that time, their getting up is postponed. Often, if the patient is restless the first night after operation, one-twentieth to one-tenth of a grain of morphia is administered hypodermically, which relieves sufficiently pain and relaxes nerve tension to produce a night's sleep with the result of having a refreshed patient next morning. This is a great gain in desperate cases where we look to the first two days' history as an indication of the ultimate result. It is not sufficient to cause bowel paralysis. The second day an attempt is made to move the bowels by salines and purgative enemata. When this has been effected once or twice and the patient is little disturbed, our prognosis should be favorable. The use of strychnia both before and after operation, by the mouth and hypodermically, is of great value. It is the best heart tonic and hypodermically is an excellent stimulant.

The examination of urine is of the utmost importance before any severe surgical operation can be performed. We can not be too particular about its condition. It is not sufficient to have the specific gravity, reaction, and absence or presence of albumin in a given specimen. We should know the amount voided in a full day, and in addition, too, the amount of urea and urates, also whether epithelium from kidneys or ureters is present. We must ascertain whether the kidneys are acting well as eliminators, whether the *débris* of tissue waste is being carried off. We must not be misled by a trace of albumin as the only pathologic ingredient, for it often comes from the vagina instead of the bladder. Catheterized specimens are most reliable for examination. A trace of albumin often occurs when large collections of pus are present.

SIXTY-SIX CASES IN WHICH CELIOTOMY WAS DONE FOR PELVIC, PUS-FORMING DISEASES.

Case 1, I. M., age 22, single; puerperal septicaemia, tubo-uterine abdominal abscess, removal of left appendage and cornu of uterus March 17, 1891, glass drainage three days; recovered, operation forty-two days after delivery.

Case 2, L. F., age 30, single; putrid infection, multiple abscesses, removal of both appendages Feb. 15, 1892, glass drainage; died in sixty-three hours.

Case 3, Mrs. —, age 30, married; double pyosalpinx and double ovarian abscesses, removal of both appendages in pieces April 26, 1892, glass drainage; died in five hours.

Case 4, Mrs. N., age 30, married; double pyosalpinx, removal of both appendages June 2, 1892, no drainage; recovered.

Case 5, Mrs. M., age 40, married; double tubo-ovarian abscesses, removal of both appendages Sept. 11, 1892, glass drainage two days; recovered.

Case 6, L. W., age 23, married; double tubo-ovarian abscesses, removal of both appendages April 22, 1893, glass drainage two days; recovered.

Case 7, M. W., age 27, widow; double tubo-ovarian abscesses, removal of both appendages May 18, 1893, glass drainage three days; recovered.

Case 8, E. D., age 27, married; double pyosalpinx and large pelvic hematocele, removal of both appendages and hematocele June 12, 1893, glass drainage two days; recovered.

Case 9, S. C., age 34, single; double pyosalpinx, removal of both appendages June 19, 1893, no drainage; recovered.

Case 10, A. R., age 42, married; right broad ligament cyst and left tubo-ovarian abscess, removal of both appendages and nearly all of cyst June 22, 1893, glass drainage one day; died in thirty-three hours of shock.

Case 11, Mrs. M., age 32, married; double tubo-ovarian abscess, removal of both appendages July 3, 1893, glass drainage two days; recovered.

Case 12, A. G., age 22, single; hydrosalpinx and pyosalpinx, removal of both appendages July 13, 1893, glass drainage; died of shock in seven hours, a very bad case.

Case 13, J. L., age 31, widow; left tubo-ovarian abscess and right pyosalpinx, removal of diseased parts July 27, 1893, glass drainage one day; recovered.

Case 14, A. C., age 25, married; double tubo-ovarian abscess, removal of both appendages August 29, 1893, glass drainage two days; was panic-stricken and died suddenly on third day.

Case 15, Mrs. M., age 23, married; double pyosalpinx, removal of both appendages August 30, 1893, no drainage; recovered.

Case 16, L. D., age 18, married; left suppurating dermoid cyst of ovary and right tubo-ovarian abscess, removal of both appendages Sept. 7, 1893, no drainage; recovered.

Case 17, M. M., age 26, widow; left tubo-ovarian abscess and right ovarian abscesses and pyosalpinx, removal of both appendages Sept. 14, 1893, gauze drainage a few days; recovered.

Case 18, S. H., age 23, married; pyosalpinx and ovarian abscess, removal of both appendages Sept. 25, 1893, no drainage; recovered.

Case 19, M. W., age 18, married; double tubo-ovarian abscess, removal of both appendages Nov. 9, 1893, glass drainage one day, gauze two days; recovered.

Case 20, K. W., age 27, married; ovarian cyst and pyosalpinx, removal of both appendages Nov. 13, 1893, no drainage; recovered.

Case 21, L. G., age 23, single; ovarian abscess and double pyosalpinx, removal of both appendages Nov. 16, 1893, glass drainage one day, gauze two days; died on fifteenth day after second operation.

Case 22, L. J., age 27, married; left pyosalpinx and right utero-tubo-ovarian abscess, removal of both appendages Nov. 20, 1893, glass drainage two days and gauze; recovered.

Case 23, C. J., age 30, married; ovarian abscess and double pyosalpinx, removal of both appendages Nov. 23, 1893, glass drainage two days; recovered.

Case 24, L. B., age 21, widow; double tubo-ovarian abscess, removal of both appendages Dec. 11, 1893, glass drainage one day; recovered.

Case 25, S. S., age 22, single; double pyosalpinx, removal of both appendages Dec. 28, 1893, no drainage; recovered.

Case 26, E. S., age 18, married; double pyosalpinx, removal of both appendages Jan. 8, 1894, no drainage; recovered.

Case 27, N. S., age 24, married; double pyosalpinx, removal of both appendages Jan. 8, 1894, glass drainage one day, gauze two days; recovered.

Case 28, C. A., age 30, married; pyosalpinx and tubo-ovarian abscess, removal of both appendages Jan. 18, 1894, glass drainage one day, gauze two days; recovered.

Case 29, Mrs. G., age 35, married; putrid infection, removal of both appendages Jan. 28, 1894, glass drainage two days; died in fourteen days after second operation.

Case 30, Mrs. H., age 25, widow; double tubo-ovarian abscess, removal of both appendages Jan. 29, 1894, no drainage; recovered.

Case 31, L. L., age 22, married; double pyosalpinx and left ovarian abscess, removal of both appendages Feb. 5, 1894, no drainage; recovered.

Case 32, Miss K., age 26, single; ovarian abscess and double pyosalpinx, removal of both appendages Feb. 5, 1894, no drainage; recovered.

Case 33, L. A., age 22, single; large ovarian hematoma and double pyosalpinx, removal of both appendages March 8, 1894, no drainage; recovered.

Case 34, Miss M., age 19, single; double pyosalpinx, removal of both appendages March 20, 1894, no drainage; recovered.

Case 35, Mrs. S., age 32, married; double pyosalpinx and ovarian abscess and intestinal obstruction, removal of both appendages April 2, 1894, glass drainage; died in a few minutes; nearly one gallon of pus removed.

Case 36, Mrs. G., age 30, married; multilocular ovarian cyst and double pyosalpinx, removal of both appendages April 19, 1894, glass drainage two days; recovered.

Case 37, Mrs. D., age 38, married; dermoid ovarian cyst, ovarian cyst and double pyosalpinx, removal of both appendages April 26, 1894, no drainage; recovered.

Case 38, Mrs. M., age 39, married; ovarian cyst and pyosalpinx (pregnant), removal of both appendages May 17, 1894, no drainage; recovered; delivered Dec. 24, 1894.

Case 39, H. D., age 25, widow; double pyosalpinx, removal of both appendages May 21, 1894, glass drainage one day; recovered.

Case 40, Mrs. J., age 23, single; double pyosalpinx, removal of both appendages May 28, 1894, no drainage; recovered.

Case 41, Miss M., age 22, single; ovarian abscess and double pyosalpinx, removal of both appendages May 31, 1894, no drainage; recovered.

Case 42, Julia B., age 40, widow; right ovarian cyst and left pyosalpinx, removal of both appendages Aug. 27, 1894, no drainage; recovered.

Case 43, A. H., age 19, married; double pyosalpinx, removal of both appendages Sept. 12, 1894, no drainage; recovered.

Case 44, R. P., age 31, married; double pyosalpinx, removal of both appendages Oct. 17, 1894, no drainage; recovered.

Case 45, H. J., age 20, single; tubo-ovarian abscess and ovarian cyst, removal of both appendages Oct. 25, 1894, glass drainage two days; recovered.

Case 46, P., age 32, widow; omental dermoid cyst, double ovarian abscess and right pyosalpinx, removal of both appendages and dermoid Nov. 5, 1894, glass drainage two days; recovered.

Case 47, Mrs. C., age 20, widow; pyosalpinx and tubo-ovarian abscess, removal of both appendages Nov. 28, 1894, glass drainage two days; recovered.

Case 48, V. T., age 30, single; right pyosalpinx, removal of diseased part Dec. 20, 1894, glass drainage two days; recovered.

Case 49, E. F., age 19, single; ovarian abscess and double pyosalpinx, removal of both appendages Jan. 14, 1895, glass drainage two days; recovered.

Case 50, M. F., age 22, single; left parovarian cyst and right pyosalpinx, removal of both appendages Jan. 20, 1895, no drainage; recovered.

Case 51, Mrs. D., age 21, married; ovarian abscess and double pyosalpinx, Jan. 28, 1895, glass drainage two days; recovered; curetted May 20, 1895.

Case 52, Mrs. W., age 27, married; tubo-ovarian abscess and salpingitis, removal of both appendages Jan. 31, 1895, glass drainage three days; recovered.

Case 53, H., age 19, widow; double pyosalpinx, left ovarian abscess and endometritis, removal of both appendages and endometrium March 10, 1895, glass drainage; died, acute septic peritonitis.

Case 54, M. G., age 25, single; double pyosalpinx and double ovarian abscess, removal of both appendages March 10, 1895, no drainage; recovered.

Case 55, A. P., age 35, single; double pyosalpinx and double ovarian cysts and uterine fibroids, removal of both appendages March 14, 1895, no drainage; recovered.

Case 56, M. S., age 33, married; double tubo-ovarian abscess, removal of both appendages March 21, 1895, glass drainage thirty-two hours; recovered; left abscess contained twenty ounces of pus.

Case 57, H., age 25, married; pyosalpinx, ruptured tubal pregnancy and endometritis, removal of both appendages and endometrium March 23, 1895, glass drainage thirty-six hours; recovered; septic infection due to attempted criminal abortion.

Case 58, J. B., age 27, single; pyosalpinx and tubo-ovarian abscess, removal of both appendages April 7, 1894, glass drainage; recovered.

Case 59, J. W., age 38, married; pyosalpinx and pelvic abscess, removal of both appendages April 15, 1895, glass drainage; died of shock, nineteen hours later, mitral regurgitation.

Case 60, Mrs. S., age 23, married; double pyosalpinx, ovarian abscess, ovarian cyst and endometritis, removal of both appendages and endometrium May 1, 1895, glass drainage two days; recovered.

Case 61, I. S., age 23, single; pyosalpinx and tubo-ovarian abscess, removal of both appendages May 4, 1895, glass drainage thirty-six hours; recovered; aepic; case emaciated.

Case 62, C. M., age 24, single; double pyosalpinx and ovarian cyst, removal of both appendages May 13, 1895, glass drainage two days; recovered.

Case 63, L. J., age 24, single; pyosalpinx and tubo-ovarian abscess, removal of both appendages May 22, 1895, glass drainage one day; recovered.

Case 64, M. B., age 24, married; double pyosalpinx, removal of both appendages May 30, 1895, glass drainage; died in twenty-two hours; autopsy showed one kidney useless and the other acutely congested, suppression of urine.

Case 65, L. M., age 18, single; double pyosalpinx and ovarian abscess, removal of both appendages June 6, 1895, glass drainage one day; recovered; bowel badly torn.

Case 66, L. D., age 21, single; double pyosalpinx, removal of both appendages June 17, 1895, no drainage; recovered.

IS THIS LEPROSY?

PRESENTATION OF TWO CASES.

Read before the Fiftieth Annual Meeting of the Ohio State Society at Columbus, Ohio, May 16, 1895.

BY J. C. McDOUGAL, M.D.

NEW LEXINGTON, OHIO.

I am glad that I am able to present these two very interesting cases for your examination; for the unusual circumstances under which they have developed render it important that a correct diagnosis be made, and to that end only do I direct my present inquiry and solicit your every aid.

Hannah M. Garey first came under my observation in December, 1894, when she was examined by the New Lexington Pension Board. Drs. P. A. Gordon and G. W. Clemson participated in the examination. She had applied for pension as a dependent child of Geo. W. Garey, a deceased soldier of the 187th Regiment Ohio Infantry, and at that time she presented the following manifestations of a disease we diagnosed as anesthetic leprosy: the left hand and lower forearm were swollen and rather firmly thickened, the hand and wrist being about twice the normal size. The distal phalanges were all lost, except from the little finger and thumb, and the stumps were all healed. The thumb nail was deformed and discolored. The hand was being amputated at the radio-carpal articulation by a narrow, encircling, ulcerative process, and the work was so near completion that only the ulnar vessels and some of the tendons remained. Both surfaces were covered by granulations, were bathed with extremely foul-smell-

ing pus and were yet held in close apposition, except at the bordering skin, where some retraction had taken place in the healing process which had begun.

The right hand and fingers were somewhat swollen and clubbed and all the distal phalanges except those of the little finger and thumb were lost. The wrist joint was somewhat deformed because of an unnatural prominence of the head of the ulna on the dorsal side. Both feet were swollen and thickened and this condition also involved, to some extent, the legs, being more marked in the left. From the left foot the first and second toes were entirely lost, the third toe was off at the proximal phalangeal joint and the fifth toe all lost. On the plantar surface of stump of great toe was a thick dark crust covering an unhealed ulcer. In the middle of the left sole was an ulcer the size of a silver half dollar which reached deep into the foot, and from which there came a very offensive discharge. From the right foot the great toe was lost, the second and third were off at middle of proximal phalanx and the fourth was pointed upward so that it was considerably out of line with the others. The little toe was not affected, except that it was involved in the general thickening of the foot. All the affected members were more or less anesthetic, the thermal anesthesia being especially marked.

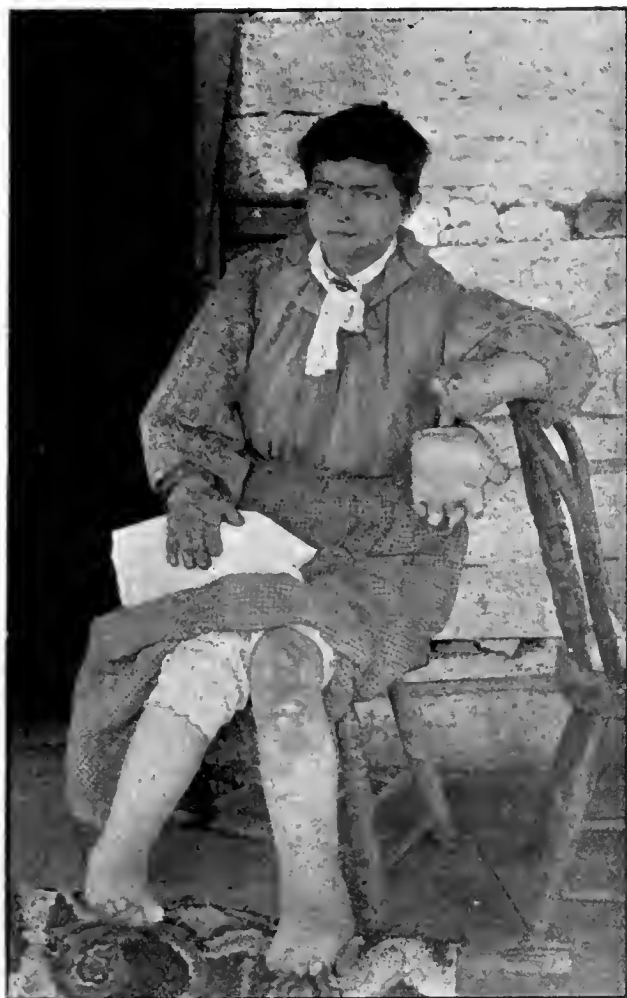
There was a blister, the size of a silver quarter, on the back of right arm just above the olecranon. The end of the tongue had been destroyed by ulcerations that had healed; the left side of lower lip and both wings of nose had suffered loss from the same cause and were consequently deformed, and the lower jaw had likewise suffered loss of bone, teeth and gum. Her eyes looked weak and blinking and her vision was poor.

She is 18 years of age and this malady began to manifest itself, so her mother states, by abscess formations in her legs when she was about fifteen months old. In two or three years the toes began to ulcerate and come off, and then the hands became involved. The flesh ulcerated from the fingers leaving the blackened dry bones exposed, and these she persistently drummed on the tables and chairs until her mother cut them off with shears. She menstruated moderately regularly from the time she was 14 years of age until one year ago, when menses ceased. The plantar ulcer had been a perforating one, so that when the mother used poultices—as she did—on the top of the foot they would run through, unless the foot rested on something to stop the plantar opening.

January 18 of this year, I saw her again in company with Dr. McTeague. At that time she was sweating freely, though the house was cold, and her pulse was accelerated. She complained of pain in neck and left leg from which she had been suffering much. Her mother said she had lately fallen several times, limp and motionless, and that she had been having some sort of choking spells. The hand was still further separated so that it hung downward when the arm was raised. On the back of the hand was an extensive gangrenous blister, due to the pressure of splints used to hold the hand in position. The epidermis covering the remainder of the hand had been recently shed, and replaced by the formation of new. The blister on elbow had healed, and the skin marking its location was papery and harsh and completely insentient to touch or pain. The

plantar ulcer was healing, and covered by a thick, black, offensive crust.

I next saw her February 15, 1895. At this time there was a large ulcer, with sharply defined edge, on the back of hand, corresponding in size and location to the blister seen on former visit. Since my previous visit there had appeared for the first time in the history of the case—so far as we were able to learn—an eruption on the left side of neck and on the front of left leg. The eruptive spots were not raised, were dark yellowish-brown in color on the leg and darker on the neck. They were thickly set and made with the surrounding skin a dappled appearance, which shows fairly well on the leg in the photograph. Since the appearance of the eruption there have been no choking or fainting spells. The plantar ulcer,



after a duration of about five years, was now healed. At this time the negatives were obtained from which the photographs were made, and the hand was removed and sent away for bacteriologic examination.

Her younger sister Hattie is 8 years of age, and has been afflicted for about three years. Her feet are clubbed and legs stocky. The great toe of left foot is off at middle of proximal phalanx. There is a dark crust on lower part of stump. The distal phalanx of second toe is lost. The right great toe is like the left. The nail is lost from second toe and the ulcer which was present on the top of toe—as you can see in the photographs is now healed. The

little toe has been entirely destroyed and a healthy stump remains. There is some anesthesia of feet and legs. There was a moderately indurated swelling on outer front side of leg just above the ankle, which has almost disappeared.

The hands, you see, are also affected. They are thickened and chubby. The thumb nails show evidence of disease. The ends of index fingers are off and here an apology for nails is offered in the existence of small, dark, horny thickenings on the centers of ends of fingers. On the radial side of the wrist the skin is rough, and here are a number of small wart-like elevations. You will notice a number of blisters on the palmar surfaces of her hands. These are accounted for by the fact that she is fond of parching corn in a skillet on the cookstove and her touch can not appreciate a destructive degree of heat, and consequently her hands are frequently burned. You have seen that she is unable to appreciate any difference between the feeling of a bottle filled with hot, and another filled with cold water. Her eyes are red and tearful. Her voice is coarse and croaks, and she has a croupy cough at night.

Both girls have suffered at times from painful nerves, and when deep abscesses formed, or when amputations began in the bones they suffered from them. But the ulcerations, though reaching deep into the tissues or even destroying a member, have not been painful.

Hannah walked with little discomfort on the plantar ulcer, and during the later stages of the destructive process that robbed her of her hand she suffered none, and laughed when it was being cut away.

The mother insists that these ulcerations are always the result of some accidental injury. They sometimes heal kindly after a variable duration, and sometimes go on to complete destruction of the part.

These sisters have never been outside the State of Ohio. Both parents and all the grandparents were natives of Ohio and belonged to healthy long-lived families. The parents were married in 1866. There are eight children and all are healthy except Hannah the fourth born, and Hattie the last born. The mother is 44 years old, and healthy. The father was pensioned for sunstroke. He is reported as having died of some brain trouble March 10, 1893. He had an offensive discharge from the nose and an eruption on upper lip and end of nose. This trouble developed shortly after marriage and was never recovered from. Physicians, who had treated him for it, called it catarrh and eczema. The 187th Regiment Ohio Infantry, of which he was a member was stationed during the few months it was in service at Nashville, Tenn., and at Dalton, Kingston and Macon, Georgia.

This is about all of practical importance I know, concerning these unfortunates. Then let us see "where we are at," and whether or not the probabilities are that a mistake has been made in attributing lepra as the cause of all these manifestations.

The most comprehensive discussion on the subject of leprosy I have found, is given by Prince A. Morrow in his system of Genito-Urinary Diseases, Syphilology and Dermatology. It contains the apparent truth of all I have been able to read on this subject.

For the purpose of comparison, permit me to recite here the most prominent and distinguishing symptoms of the anesthetic form of leprosy as given by him: the phenomena are essentially those of mul-

tiple neuritis, consisting principally of disorders of sensation and nutrition. The first cutaneous manifestations of nerve leprosy are usually in the form of bullæ or erythematous spots. They may not appear, however, for years later, and they may even fail altogether. Analgesia and thermo-anesthesia may be present with or without impairment of the tactile sense. Most of the cutaneous lesions encountered in nerve leprosy, before the mutilating stage sets in, are due to the blunted sensibility. The deadened nerves give no warning through the perception of pain of the inroads of heat, cold, or other external source of injury. A patient often receives severe injury as a scald or burn, unconsciously, or a pin may be thrust into the flesh without causing pain. Sensibility to puncture, however, is variable, not only in different parts of the body but in contiguous spots; the same is true of sensitiveness to temperature. There are frequent phenomena of disassociation. Some have no perception of cold, but feel heat, and *vice versa*. There is also slowness in the transmission of sensation. Although the most frequent sites of the spots are the legs about the ankles, they may be found on the backs of the arms and shoulders, the elbows, the back, the abdomen, the nates and the face; they are rarely seen on the palms and soles, and never on the scalp. Another form of eruptive lesion is the pemphigoid. The blebs are always located more particularly on the hands and feet, on the posterior surface of the elbows and the anterior surface of the knees. Many years may pass and the patient with the exception of an occasional innocuous eruption or neuralgic pain, may have no disorder of sufficient importance to awaken his suspicions as to the exceeding gravity of the disease with which he is afflicted. Pemphigus blebs locate on the phalangeal articulations and ulcerate, uncovering the deeper tissues, whose consecutive disease leads to the elimination of the bone and to extensive mutilations.

One of the most characteristic lesions is the so-called plantar ulcer, which is especially liable to occur in patients who habitually go barefoot. The bones of the fingers and toes may be lost without ulceration by a process of osseous absorption affecting one phalanx after another, or the phalanges may become the seat of gangrene, which extends until a mark of demarkation is found and the member is spontaneously amputated. The reparative process is usually prompt and complete, the stump healing perfectly; when the loss of the phalanges is only partial, the stumps may stand out at every conceivable angle, and often in the most distorted positions.

Now, by the light of this symptomatology—the most prominent landmarks given on the subject, let us look at these cases. Even though they have not true leprosy they suffer some disease so nearly like it in all its apparel of symptoms as to afford me ample apology for choosing the inquiry I did as the subject of my paper. I certainly have never seen a single case of typhoid fever that corresponded more closely in its symptomatology to the classical description of that disease than do these cases to the descriptions I read of anesthetic leprosy.

It would seem superfluous in this connection to consider eruptive diseases of the erythematous type, and the various pigmentary affections of the skin which may simulate the earlier stages of leprosy, but in which mutilations, sensory disorders or marked nutritional changes do not occur; and so would it

seem superfluous to exclude by differential diagnosis those ulcerative or mutilating diseases whose evolution is unattended by dysesthesia or other disturbances of sensation; nor yet would I feel justified in occupying time in excluding diseases of the nervous system attended with disturbances of sensation, but which are not accompanied by mutilations. Such diseases may furnish one or more symptoms analogous to one or more of the symptoms encountered in the evolution of leprosy, but it is far more difficult to find points of resemblance between them and the disease here manifested, than points of difference.

Reynaud's disease or symmetrical gangrene is, we think, excluded by the fact that anesthesia is limited to the ischemic or cyanotic spots about to become gangrenous, and the gangrene is usually limited to a small area of the pulps of the fingers, or fingers and toes; extensive mutilations do not occur, and a peculiar characteristic of Reynaud's disease is the symmetrical distribution of the local symptoms, whether situated upon the trunk or extremities.

Morvan's disease or syringomyelia (*identical*) may bear a most deceptive resemblance to nerve leprosy that has developed only in the upper extremities. But syringomyelia may be excluded in these cases by the single fact that it never affects the lower extremities.

I received a copy of the report of the bacteriologic examination of a portion of the amputated hand, which I will read:

Treasury Department, Office of the Supervising Surgeon-General, Marine-Hospital Service.

WASHINGTON, D. C., March 28, 1895.

To the Supervising Surgeon-General, U. S. Marine-Hospital Service.

Sir:—I have the honor to make the following report on a specimen from a supposed case of leprosy, submitted for examination by Dr. C. O. Probst, Secretary of the Ohio State Board of Health.

The specimen presented for examination is a portion of the left hand, including the little and ring fingers. The entire member is thickened to about twice its natural size.

On the dorsum of the hand is an extensive superficial ulcer with sharply defined and irregular margin. At the wrist, the ulceration has extended deeply through the tissues, amputating the hand at this point. A similar process seems to have affected the tip of the ring finger.

Sections were made and studied from several different places. Four were taken from the edge of the ulcer, two from its center, and one through the skin and thickened subcutaneous tissue, including the nerve going to the little finger.

All the sections disclosed a general hypertrophy of the parts and a large overgrowth of connective tissue. Some of the specimens from the edge of the ulcer showed the histology of the specific granulomata. A thickening of the blood vessel walls was noticed in the subcutaneous tissue.

All the sections were stained for lepra bacilli, with negative results. Those sections containing giant cells were also stained for tubercle bacilli. None were found.

The disease, therefore, in my opinion is neither leprosy nor tuberculosis, which, by exclusion, throws some weight upon the suspicion of syphilis.

Very respectfully,

(Signed) M. J. ROSENAU, P. A. Surgeon, M.-H. S.

Respectfully forwarded to the Supervising Surgeon-General.

(Signed) J. J. KINYOUN, P. A. Surgeon, M.-H. S.

(Copy.)

As granulomata occur in the new tissue growths of leprosy and also in tuberculosis, as well as in syphilis, we do not understand the report to state the specific granulomata to be pathognomonic of syphilis.

Because no lepra or tubercle bacilli were found, he concludes the disease is neither leprosy or tuberculosis, and therefore must be syphilis.

Relative to this, I again quote Morrow (New York

Medical Journal, July 27, 1889) who says: "The bacillus is not found in the chronic sores or necrosed tissues and bones of the anesthetic leper. Numerous and repeated examinations of sections of an amputated finger showed no bacilli." The same author in his text-book published in 1894—only last year—states with his first sentence on the diagnosis of the anesthetic form of leprosy: "While the identification of the lepra bacillus in the tissues is rarely practicable in nerve leprosy, yet the invariable presence of, anesthesia in established cases constitutes a diagnostic element of almost pathognomonic value." And similar statements are made by other authors. Did not, therefore, our esteemed bacteriologist go beyond the pale of scientific knowledge in expressing this opinion; and into the realm of speculation in concluding it was therefore syphilis?

I think that we have in these cases such a history and combination of symptoms as have never been approached in any case of syphilis any of you have ever seen in practice, or have ever read in a report. It is true the father had a disease of the nose which, so far as the description we have of it goes, might have been syphilis, lupus, or some other disease. But as the first symptom of leprosy is so often an affection of the nose we think we are justified, in the light of these subsequent developments, in our impression that it was of leprosy character; and that somebody, somewhere and at some time, probably in the sunny South during the war, communicated to him this leprosy malady, and that he is the source from which came this wreckage. Admitting that syphilis might show itself by such unprecedented manifestations in a single case, it multiplies the improbabilities a hundred fold that two such unusual cases should occur together and be alike—for considering the difference in duration they are as nearly alike as two cases of any disease usually are. If this be syphilis, is it inherited or acquired? If inherited, how did the other children escape it? There are three children older than Hannah, and three between Hannah and Hattie who are healthy, evidently free from any taint, as is also the mother. If acquired, again I ask why should all but two escape, for syphilis is many times more contagious than leprosy? The mother, more endangered than the rest, would almost certainly have contracted it.

It must be admitted that there is much to be said in favor of the view that these cases are actually lepra. We have the spontaneous amputations in both the upper and lower extremities, the plantar ulcer, the dysesthesia, the pemphigoid eruption on back of elbow with its resultant anesthetic scar; the thick, black, hard offensive crusts that form on the ulcerous sores, the distorted direction of the toes, the ulcerations of the nose and mouth, the weak eyes and peculiar voice, and the eruptive colorations. It is the exception and not the rule that so many evidences of the disease are found. Moses, of old, would have dealt with them as lepers on the discovery of far fewer and less characteristic symptoms than these, and without his camp would their habitation have been.

If I have wearied you with a paper of too great length, I have done so because impressed with the practical importance of the subject. For there is no doubt but that leprosy is on the increase, not only in other countries, but also in our own. If what I have shown you is leprosy, let us do what we can to set aside all ignorant fear of the malady. In the face of

a disease which has for ages been accounted one of the most dreadful of plagues, it is not surprising that the public should be stricken with panic. On the other hand, let us profit by the experience of the past and urge the adoption of measures that will be certain to prevent its spread. If what you have here seen is not leprosy, let us free these people from the odium of such suspicion. If it is syphilis, let us cure it. And if neither, let us find out, if possible, what the disease is that has thus wrecked the life of one, and so threatens another with the same fate, and in which decomposition, by such a frightful anticipation, has wrought its work without waiting for the grave.

STATE PROVISION FOR EPILEPTICS.

Read before the Medical Society of Virginia, Sept. 4, 1895.

BY WILLIAM FRANCIS DREWRY, M.D.

FIRST ASSISTANT PHYSICIAN CENTRAL STATE HOSPITAL; MEMBER AMERICAN MEDICO PSYCHOLOGICAL ASSOCIATION; AMERICAN MEDICAL ASSOCIATION; MEDICAL SOCIETY OF VIRGINIA, ETC.
PETERSBURG, VA.

The purpose of this paper is to direct attention to that neglected and abandoned class of defectives, known as epileptics, and I plead from the standpoint of physician, humanitarian and political economist, for a betterment of their condition. It is, however, beyond my power to convey in written words, a proper idea of the abject wretchedness of many of these unfortunates. I hope others may be convinced, as I have been, that no other afflicted beings are in such urgent need of special institutions for their care and treatment.

Epilepsy is to the physician, the statistician and the sociologist, alike, an unknown and unknowable factor. As a concomitant of idiocy,¹ insanity and crime,² this blight upon the human race assumes enormous proportions.

PROGNOSIS.

The etiology and pathology³ of epilepsy being so little understood, the treatment must be more or less empirical. However pessimistic it may seem, the prognosis of the disease, so far as permanent recovery is concerned, is seldom favorable.⁴ No disease is more intractable to therapeutic measures alone. The larger one's experience with it becomes, the deeper this conviction is fixed. Few chronic diseases, however, are more amenable to improvement, provided judicious treatment, prophylactic, medical and moral, is faithfully carried out. The insidiousness of its inception, the subtlety of its progress, its practicable incurability, its hereditary nature, its demoralizing effects, combine to make it one of the most dreaded maladies. And, in the language of Sachs: "The frequent development of dementia, idiocy or of epileptic insanity, in epileptics, makes the outlook gloomier still."

PREVALENCE OF EPILEPSY.

It is certainly a very widespread disorder. No accurate data can be procured upon which to estimate the proportion of epileptics to the general population. For obvious reasons, little reliance can be placed on the census reports. In this country the usually accepted ratio is 2 per 1,000 of the population. Some authorities, however, think it is much greater than that.⁵ One hundred and thirty-five thousand epileptics! What an enormous army of unfortunates distributed throughout our land, a great majority of whom are in a more or less helpless con-

dition. Supposing 10 per cent.⁶ of these are insane and cared for in hospitals, there would still remain 122,000 of these afflicted beings hidden away in private families, brooding over their fearful malady, or confined—merely sheltered, fed and clothed—in the poorhouses, or wandering about in hopeless, abject misery—all waiting for some sympathetic soul to lead them to a happier condition of life.

EPILEPSY IN VIRGINIA.

Virginia has her proportion of these defectives. In the three hospitals for the white insane there are 115 and in the hospital for the colored insane 85, or a total of 200

After repeated and persistent efforts, I ascertained that in forty out of sixty county poorhouses heard from, there are forty-five white and fifty-three colored epileptics, or a total of ninety-eight. In the county poorhouses not heard from, and in the city almshouses, there are probably as many more. The actual number, then, known to be in the State hospitals and in forty of the county poorhouses is 298. Add to this, the probable number in the city almshouses and in the rest of the county poorhouses, and the number of epileptics now being cared for in our public institutions would certainly reach 400.

Now, as to the number of epileptics outside of institutions—those scattered throughout the State in their own families—there is no means of knowing. In order to arrive at something like an approximate estimate of the number, I sent communications to 200 representative physicians distributed in every county throughout the State, asking the number of these patients in their respective localities (or practices) and the probable proportion to the general population. I received responses to about half of my letters. Ninety-three physicians reported an aggregate of 340 or an average of 3.5 for each. Ten of these physicians had no cases at all. Supposing the 107 who did not respond, had no cases, then the average for each of the total number, 200, would be 1.7 per cent.⁷ In brief, for every two physicians there are probably three epileptics. In some localities the disease is scarcely known, while in others it is quite common. I use in my calculations only the information gathered from those physicians who do not practice near each other, so that it is barely possible that any case was reported more than once.

The prevailing opinion among the ninety-three practitioners from whom I heard, was that there were three epileptics to every thousand of the population, or nearly five thousand in the entire State. Even if this estimate is twice as large as it should be, the fact would still remain that epileptics constitute a very large part of our defective classes. In my opinion the number would certainly reach 3,000.

MEDICO-LEGAL ASPECT OF EPILEPSY.

In the medico-legal aspect of epilepsy a singular indifference exists, yet the victims of this disease constitute an uncertain and dangerous element in society.⁷ Many breaches of the law and of the peace are closely connected with a vitiated epileptoid condition ranging from masked epilepsy to the genuine *grand mal*. The mental aberration in epilepsy may vary from the slightest deflection to the most profound dementia or furious mania. The epileptic dyscrasia betrays itself in sundry peculiar ways, and no one can tell when or how a sudden insane impulse may possess the erratic victim of fits. Some of the

most revolting crimes have been committed by epileptics,⁸ not, however, through the innate depravity and wickedness of the individual *per se*, but owing to the strange protean manifestation of his disease. MacDonald, in his "Abnormal Man," is right when he says that they should be separated from other prisoners and treated medically.

MISFORTUNES OF EPILEPTICS.

The life of an epileptic is, to a great extent, a secluded one, because a cruel irony of fate has ordained that the suddenness, the irregularity and the distressing character of the attacks often interfere with his plans and expectations. Shunned and neglected, left to himself to ponder over his hopeless malady, he grows up in ignorance, idleness and misery. The very nature of his affliction debars him from enjoying equal privileges and advantages with his more fortunate fellow-beings. The avenues of employment open to others are frequently closed to him.⁹ Deprived of many social advantages, opportunities for acquiring an education or a trade, denied the privileges of the church and places of amusement, many epileptics eventually deteriorate mentally, physically and morally, becoming, finally, charges upon the public.

BURDEN ON THE FAMILY.

A victim of fits is an unconcealed skeleton at home, an object of ceaseless anxiety, requiring constant oversight. He is a menace to the happiness and comfort of any family. His presence is disturbing and distressful. How horrible and despairing to loving parents is this specter of a hopeless epilepsy! At home it is, for obvious reasons, impossible to give the attention and treatment that the welfare of these patients demands. Even in the families of the rich, they are deprived of the advantages essential to their well-being. But a large proportion of these families are already in poverty and absorbed in struggles for a livelihood, hence the caring for a dependent who can contribute but little more than nothing to his support, becomes a heavy and grievous burden.

On account of the peculiar and distressing character of their infirmity, epileptics are refused admission to general hospitals.

POORHOUSE AN IMPROPER PLACE FOR EPILEPTICS.

They should not be classed with paupers, because, in most instances, if opportunities are offered, they are able and willing to earn a livelihood. To the other inmates of the almshouse, epileptics are certainly very objectionable and sometimes dangerous. Moreover, these institutions, being without resident physicians, experienced nurses and hospital equipments, are not prepared to give the care and treatment these patients, from the peculiar nature of their disease, should have.

THE INSANE ASYLUM NOT THE PLACE FOR EPILEPTICS.

They are not, unless their disease is allowed to go on unchecked, which, unfortunately, is too often the case, devoid of intelligence. It may be that only about the time of the attacks they are incapacitated for the ordinary duties and privileges of life, while during the intervals they may possess even marked intelligence and mental capacity. History records some remarkable instances of this kind.¹⁰

Any one who has had any practical experience with epileptics and the insane knows that it is unwise to mingle them, such association being injurious

to both classes. *Every principle of humanity and justice revolts against this indiscriminate commingling of lunatics, paupers and epileptics in the same institution.*

THE STATE THE BEST GUARDIAN OF EPILEPTICS.

What to do for this needy and troublesome class of the population is a question worthy of our deepest consideration. Protection and aid to the victims of the malady, as well as to society in general, demand that provision of some kind be made for their care.

The State government is well adapted to deal with the subject and should be called upon to take it in hand, and should be urged most earnestly to give it that attention which its importance truly demands.

In the onward march of charity, benevolence and civilization, human suffering of almost every other kind has received governmental aid, and it is a reproach upon this age of progress and enlightenment that almost nothing has been done to alleviate the pitiable condition of epileptics. It is pleasing, however, to know that in some quarters of the globe interest in them has been awakened, and that this interest is gaining ground.

The question naturally arises, what is the wisest method of giving this much-needed help to epileptics?

INDUSTRIAL COLONY FOR EPILEPTICS.

After years of experience and actual operation, it has become a recognized fact that the special requirements of epileptics are nowhere so well met as in the so-called farm-colony. The prime objects of such a colony are to give each beneficiary the advantages of the most scientific medical treatment, the most humane custodial care, means of regular productive employment and facilities for acquiring an education or a trade. To accomplish these objects, palatial structures are not necessary. Plain, inexpensive pavilions, or cottages, natural and homelike to most of the inmates, shops and other buildings for various industries, a hospital for the sick and the infirm, halls or gymnasiums for recreation and amusement, chapels, schoolhouses, etc., all arranged on the village plan, and attached thereto a large farm, properly equipped, meet the requirements admirably. For those who become insane, isolated buildings of a suitable character should be provided. In such an institution, the beneficiaries would not suffer the ignominy attached to the pauper class, for they would be in a degree, producers and not absolutely dependent.

ORIGIN OF THE EPILEPTIC COLONY—CARE OF EPILEPTICS IN OTHER COUNTRIES.

The pioneer in this noble philanthropy was a French clergyman,¹¹ who, in 1848, conceived the idea of grouping the indigent epileptics of his parish in pleasant, homelike buildings, erected on a farm, where medical treatment, agreeable industrial pursuits in the open air, regular habits, proper diet and hygienic surroundings would, he thought, prove efficacious in lightening the burdens of the afflicted inmates.

Inspired, doubtless, by the worthy example set by this beneficent man of God, and encouraged by the success attained in France, another Protestant clergyman¹² was instrumental in establishing, in 1869, the now justly celebrated Bielefeld epileptic colony, in Germany. This colony, after which many others have been, to a great extent, modeled, consists now of a farm of 1,350 acres, upon which are dotted here

and there, in irregular but picturesque manner, amid groves and gardens, orchards and vineyards, cottage homes adapted to the various grades of patients, 1,200 in number, whose lives are passed in useful occupations, pleasant diversions, learning trades, going to school and in making other efforts to become useful and happy citizens. For the men there are thirty or forty different avocations, and for the women a dozen or more. This diversity of occupation furnishes ample opportunity for each beneficiary to engage in whatever best suits his taste and requirements. Infirmarys for the sick and feeble, and separate buildings for those who become excited or insane are provided. The labor of the patients contributes so much to the support and growth of the colony that it has become, in a great measure, self-sustaining. Says Peterson: "For nobility of conception and success in results, this wonderful charity has nowhere an equal."

Within the last two decades a number of these "colonies of mercy" have sprung up in Germany, France, Holland, Switzerland, England¹³ and Sweden,¹⁴ all of which are doing a grand work for suffering humanity.

CARE OF EPILEPTICS IN THIS COUNTRY.

This country, progressive in almost everything and abounding in charity, has been singularly slow in recognizing her duty to the thousands of epileptics scattered everywhere throughout our land. True, a few humanitarian associations and legislative enactments have for their object the mitigation of their wretched condition, but there is little tangible proof of our real sympathy for these afflicted and abandoned fellow-creatures.

The first decided step made on this continent and probably in the world, in the humanitarian care of epileptics, exclusively by the State, was made by Ohio. She opened, in 1893, her hospital for epileptics. The plans adopted contemplate the erection of thirty-six buildings for patients, a number of shops to provide opportunities for the industrial and educational training, as far as practicable, of all the indigent epileptics in the State. In time more land will be purchased in order to enlarge the facilities for employment of the inmates and to supply the institution with all needed vegetables, fruits, etc. Already nine pavilions have been completed, and are occupied by 500 patients, whose condition, I am informed by the authorities, has very much improved under the care, proper diet, systematic medical treatment, proper hygienic surroundings, regular exercise, all of which they have the benefit of daily. The medical treatment is conducted by experienced physicians, who are making careful scientific investigations that will in time bear good fruit. The Ohio Hospital for Epileptics, sane and insane, is a recognized success and blessing.¹⁵

With high resolve and determined purpose, Drs. Frederick Peterson and W. P. Letchworth, backed up by the State Board of Charities, were instrumental in getting the New York Legislature of 1894 to recognize the State's obligation to these unfortunate people. The result was the establishment of the Sonyea colony for epileptics, which with its 1,800 acres of fertile land, abundant water supply, healthy surroundings, cottages, workshops, schools, churches, etc., possesses excellent advantages for the proper accommodation of several hundred epileptics. The objects

of this great colony are to "provide gratuitously the humane, curative, scientific and economical treatment and care of dependent sane epileptics." It is thought that this institution will in a few years become self-supporting.

The last Legislature of Massachusetts, just and generous, authorized the establishment and maintenance at the public expense of a hospital home for epileptics.

The hospital cottage at Baldwinsville,¹⁶ Mass., though a private benevolent institution for non-insane epileptic children, receives a liberal donation from the State.

In California,¹⁷ Pennsylvania,¹⁸ Maryland,¹⁹ Minnesota and Michigan,²⁰ limited provision, on the industrial and educational plan, has been made at the respective State institutions for the feeble-minded, for the care of sane epileptics. Illinois, Wisconsin and other States are being urged by their respective medical societies and boards of charities to erect separate institutions for epileptics.

VIRGINIA'S DUTY TO HER DEPENDENT EPILEPTICS.

Will Virginia, upon whose soil was erected the first hospital on this continent exclusively for the care of the insane, and who built the first and still has the largest asylum for insane negroes in the world, be any longer derelict in her duty to her poor epileptics? Will she refuse to respond to the cry of these unfortunates? I believe not.

The State care of epileptics is a subject worthy of the most serious and earnest thought and is of the deepest interest to all the people. Whether this care should consist in a hospital, pure and simple, or a colony on the plan I have outlined, or whether special accommodation should be provided at institutions for other defectives—the insane or the feeble-minded—are questions for mature consideration.

SUGGESTIONS.

In an article published in the *Virginia Medical Monthly*, September, 1894—"Care of Epileptics on the Colony Plan,"—I advocated the State care of all dependent epileptics, in an institution exclusively for them. I reiterate the opinion expressed in that paper, viz., that a farm-colony, conducted on the industrial and educational plan and provided with every facility for the most scientific medical treatment of the patients, as sketched in the foregoing pages, would meet the requirements better than any other method yet suggested. *It is feasible, it is economical, it is humane. It has been tried elsewhere and demonstrated beyond question to be a practical success.*

Who should reap the benefits of such an institution?

1. The epileptics now confined in the hospitals for the insane. By removing these, 200 in number, sufficient room would be gained at the institutions to accommodate probably all the insane of the State in need of care and treatment, at least for a year or two.

2. All the epileptics now in the county and city poorhouses—certainly as many as 200.

3. Dependent sane epileptics, each county and city to have at the colony a number of patients proportioned to its population.

4. A limited number of pay patients, probably, who may be in pressing need of special treatment and care.

5. Both white and colored epileptics—separate and distinct provision being made for each race.

To determine the question of epilepsy, proper legal proceedings should be had as in the cases of insanity. The State, however, is sadly in need of a better law regarding the commitment of the insane.

THE DUTY OF PHYSICIANS.

Our lawmakers need to be reminded of the necessity and humaneness of special provision for epileptics. Let us, Fellows of the Medical Society of Virginia, with a broad and comprehensive devotion to the general good and to individual happiness, use our best efforts in the creation of a just public sentiment regarding this matter and, as far as lies in our power, try to "raise the fallen, cheer the faint and heal the broken-hearted." Public sentiment, the potent power that accomplishes great deeds of mercy and benevolence, never arrays itself against the afflicted and suffering. Only the ignoramus or the narrow-minded bigot will dare discourage any effort to help such unfortunates. If there be any such, tell them the old proverb: "Whoso stoppeth his ears at the cry of the poor, he also shall cry himself, but shall not be heard."

It is not, I believe, Utopian to hope that in the near future our State will awaken to a recognition of her duty to her epileptics, and see the wisdom of making that provision for them which is clearly demanded by every consideration of justice, equity and philanthropy.†

† Immediately after the reading of the above paper, some discussion took place and the following resolution was offered and unanimously adopted:

Resolved, That it is the sense of the Medical Society of Virginia that the State should make some special provision for its dependent epileptics.

Resolved, That an epileptic institution (or colony), conducted on the industrial plan, commends itself to this society.

Resolved, That a committee of five be appointed by the Chair, two of whom shall be the present President (Dr. R. J. Preston) of this society and the author of the paper (Dr. William F. Drewry), who shall present this matter to the next Legislature of Virginia and try to induce that body to give it that attention it justly deserves.

REFERENCES.

1 Dr. E. A. Osborne, Superintendent of the California Institution for the Feeble-Minded, is authority for the statement that in his experience, epilepsy exists as a predisposing or complicating cause of feeble-mindedness in over 60 per cent. of all cases. [Institution Bulletin, Feb. 1, 1894, page 13.] Mr. Miller, Superintendent Nebraska Asylum for Feeble-Minded, says he believes that epilepsy in some form permanently enfeebles more minds than all other complications. [Charitable Observer, Jan. 1, 1894.]

2 According to Richter, most crimes, especially murder, burglary, common theft, embezzlement, resistance of State power, come by epileptics or in those with a tendency to epilepsy. [A. MacDonald in "Abnormal Man," October, 1898, pages 51 and 77.]

3 Hirt, in his admirable book on "Diseases of Nervous System," says: "The structure as well as the physiologic functions of the human brain are, up to the present time, so little understood that we are far from having any sure basis upon which to lay the foundations of a cerebral pathology. Epilepsy is a fundamental neurosis, the seat of which is still unknown."

4 The best authorities, Peterson among them, think that no more than 1 per cent. of idiopathic epilepsy in general practice get well. Sachs has seen but very few cases of absolute cure of genuine epilepsy.

5 Osborne and others.

6 Peterson thinks that the proportion of insane epileptics to the sane epileptics is very small, much less than 10 per cent. [JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept. 30, 1893.]

7 In an admirable paper on the "Provisions for Epileptics," read at the National Conference of Charities and Correction, 1894, Hon. W. P. Letchworth, of the New York State Board of Charities, said that there are charity workers, whether medical or lay, who have found it almost impossible to obtain employment for those who suffer from fits, with the result that the workhouses, alms-houses, and lunatic asylums become the only places where these unfortunate people can be received.

8 It has been repeatedly stated by writers that Handel, the great musician; Dostojewsky, the author of "The Idiot;" Petrarch, the poet and writer; Napoleon Bonaparte and Julius Caesar, the renowned soldiers; Mahomet the Prophet; St. Paul, the great apostle, and the erratic Byron, were all sufferers from this "thorn in the flesh."

9 Rev. John Bost, a Lutheran preacher, was the name of this great benefactor. His institution is still in a flourishing state and reflects much credit upon its creative genius.

10 Von Bodelschwingh, a Protestant pastor, started his institution in Westphalia with one cottage and a garden, and twelve patients.

11 Dr. William Alexander, aided by the liberality of a wealthy citizen of England, established in 1889, the Maghull Home near Liverpool, where a limited number of epileptics receive care and treatment in accordance with the most advanced theories. The results of this praiseworthy movement have been so gratifying that efforts are being made to enlarge its capacity.

12 In Surrey, the Countess of Meath, prompted by her generous and benevolent spirit, has established a pleasant refuge, having a capacity for about fifty, for epileptic girls and women.

In London there are one or two hospitals where recent cases of epilepsies are received or given special treatment.

The National Society for the Employment of Epileptics has purchased a farm in Buckinghamshire, upon which there are in course of erection, suitable cottages to accommodate several hundred (eight hundred, I think), sane epileptics. Separate provision will be made for adult males, adult females and children. Here will be provided "a home for those necessitous epileptics who are able and willing to work, but for whom their friends are unable to procure employment on account of the affliction which bars their admission into ordinary fields of industry."

¹⁴ In 1892 there was built at Wilhelmssro, in Sweden, the nucleus of a home for epileptic children. The methods adopted there are those in vogue in La Force, France.

¹⁵ There is only one State hospital exclusively for epileptics in this country—the one at Gallipolis, Ohio. In 1890 a bill favorable to the establishment of a hospital for epileptics was passed by the Ohio Legislature. The corner stone was laid Nov. 12, 1891. To General Brinkerhoff, President of the State Board of Charities, belongs the greatest credit for this noble charity, for he was untiring in his efforts to get the authorities to recognize the wants of the epileptics of his State.

¹⁶ This was the first charity institution for epileptics in this country. It was opened in 1882 as a private benevolent establishment, with nine patients. Now there are more than one hundred little sufferers domiciled there.

¹⁷ About one hundred epileptic children are cared for in the Home for the Feeble-Minded. The able Superintendent, Dr. Osborne, writes that "the demand for admission of epileptics has been steady, persistent and far in excess of our means to provide for their care."

¹⁸ The St. Clement's Hospital for the care of indigent sane epileptics of Philadelphia, maintained chiefly by private donations, has been in existence for three or four years, and is doing a good work on a small scale. Steps are now being taken, looking to the "organization of a colony-farm convent to Philadelphia, on which can be erected necessary buildings, including an infirmary, workshops and separate small cottages wherein the patients, according to their mental and physical conditions, can be cared for in the most approved manner."

At the Elwyn School for Feeble-Minded, about one hundred epileptic children are being cared for in a separate building. The State Lunacy Commission, in 1893, urged the Legislature to make separate suitable accommodation for epileptics, upon an industrial basis.

¹⁹ The Maryland Institution for Feeble-Minded will soon erect a building especially for poor epileptics. Under the auspices of the King's Daughters, a small farm colony for epileptics is being conducted near the city of Baltimore.

²⁰ Michigan has begun the erection of farm cottages for her epileptics and feeble-minded, to be conducted on the industrial plan.

Surgeon-General Sternberg's Annual Report.

The Report of the Surgeon-General of the Army for the year ending June 30, 1895, presents a statement of the disbursements made from various appropriations and then discusses matters of interest to the Medical Department. The following is a synopsis of the report:

Medical and Hospital Supplies.—During the past year a new edition of the Supply Table of the Medical Department was issued, in which such changes were made as seemed called for by the progress of medical science. Medical and surgical chests issued some years ago for field service were refitted and modified in their arrangement as suggested by experience in their use. Recently published medical works were sent to military posts with the view of keeping medical officers informed of current advances in medicine and surgery. The old system of weights and measures has been disused and the metric system substituted. The use of the latter was made obligatory on medical officers from Jan. 1, 1895. Post surgeons have been directed to set aside in their hospitals a special room as an operating room, or when necessary to submit estimates for the construction of such a room. The necessary appliances for fitting up these operating rooms in accordance with the requirements of modern aseptic surgery will be provided. With a similar end in view the supply department is issuing iron bedside tables with non-absorbing tops of heavy glass for use in the wards.

During the year a board of officers was convened by me to investigate and report on the form of litter found to be best suited for Army use, having in view economy, simplicity of construction, durability, lightness and adaptability for the services required. This board devised a new model which differs from that formerly accepted in weighing only seventeen instead of twenty-four pounds. The slings accompanying it are simple and detachable. It is considered that this new litter will simplify the litter drill and not only lessen the burden of the bearers, but contribute materially to the comfort and safe carriage of those who have to be transported by them.

Library.—There were presented to the library during the year, 517 books and 7,792 pamphlets and journals. Total number of books now in the library, 117,263; of pamphlets, 193,031. Volume xvi of the Index Catalogue includes from

"W" to "Zythus" and forms a volume of 1,104 pages. It completes the first series of this work. The manuscript of volume 1, new series, is nearly ready for the printer, the usual appropriation having been made for this volume.

Army Medical Museum.—The total number of specimens in the museum at the end of the fiscal year was 32,889, of which 623 were received during the year. The museum was visited during the year by 52,091 persons.

Army and Navy General Hospital, Hot Springs, Ark.—The officers' division contains 16 beds, the average occupancy of each for the year being only 120 days. The greatest number of officers under treatment at one time was 10. The men's division contains 64 beds. Eighty-four men were treated during the year, 33 of whom continued under treatment at its close. Of the 51 completed cases, after deducting 6 known to have been discharged at their posts later, the percentage of recoveries was 70.6. Pulmonary cases are not improved by treatment at this hospital.

Medical Officers.—There were 98 medical officers reported as having been on duty with scouting parties and on other field service during the year.

Promotions during the year: Two deputy surgeons-general with the rank of lieutenant colonel, to be assistant surgeons-general with the rank of colonel; two surgeons with the rank of major, to be deputy surgeons-general with the rank of lieutenant colonel; two assistant surgeons with the rank of captain, to be surgeons with the rank of major; eight assistant surgeons with the rank of first lieutenant, to be assistant surgeons with the rank of captain. Deaths: none. Retirements: one assistant surgeon-general with the rank of colonel; one assistant surgeon with the rank of captain, for disability.

Army Medical Examining Boards were convened for the examination of officers for promotion to the grades of assistant surgeon with the rank of captain, and surgeon with the rank of major; but no board was necessary for the examination of candidates for position in the Medical Department of the Army as the number of assistant surgeons in service had not been reduced to 110, the number allowed by the Army Appropriation Bill for the year ending June 30, 1894.

Hospital Corps.—The character of the personnel has improved. Great care is taken to investigate the character and previous record of every man offering for enlistment, reenlistment or transfer from the line, with a view to maintain a high standard of sobriety and efficiency. A considerable reduction in the number of privates has taken place during the year, owing to the abandonment of a number of military posts. On June 30, 1895, there were only 530 privates as compared with 585 at the end of the preceding year. No examination for appointment as hospital steward was held during the year as the number of stewards available for assignment from discontinued posts rendered such examination unnecessary; nor is it probable that an examination for the position of hospital steward will be held during the current year. Thirty-three candidates for assignment as acting hospital steward were examined in October, 1894. Twenty-three were found qualified and have since been detailed; ten failed to pass. Owing to the greater number of casualties in the corps of acting hospital stewards it is probable that an examination for a few vacancies will be held during the coming fall.

The companies of the Hospital Corps at Fort Riley, Kansas, and Washington Barracks, D. C., not only afford opportunities for instruction which can not be given at the posts, but serve as depots from which men can be drawn in emergency to supply the needs of active service. This advantage was particularly shown in the railroad riots of the year.

Examination of Recruits.—The number of applicants for enlistment and reenlistment during the year was 16,586; white 15,625, negro 911, Indian 50. Of these 7,481, or 45.1 per cent, were accepted, including 44.4 per cent. of the white, 54.8 per cent. of the negroes and 94 per cent. of the Indians. Of the whites 51.4 per cent. were rejected, while 4.2 declined enlistment; of the negroes 43.2 were rejected and 2 per cent. declined. Diseases of the eye caused the rejection of 7.77 per cent. of the applicants; under weight and imperfect physique 11.46; minority 1.43; general unfitness and undesirable 3.13; bad or doubtful character or unsatisfactory references 3.14; imperfect knowledge of the English language 1.66; illiteracy 0.67.

In every thousand of the accepted recruits there were 927 whites, 66.7 negroes and 6.3 Indians; and of the 927 whites 607.8 were natives of the United States; 94.64 of Ireland, 94.24 of Germany, 31.68 of England, 16.97 of Canada, 15.50 of Sweden, 11.89 of Denmark and 11.23 of Austria. The average age of the whole number was 26.8 years. The average height

was 67.38 inches; that of the native American 67.50, of the foreign born 67.18, of the negroes 67.21. The average weight was 145.88 pounds; native whites 145.06, foreign born 146.77, negroes 149.19. The expansibility of the chest was from 34.27 to 37.17 inches; native whites 34.08 to 36.99, foreign born 34.63 to 37.57, negroes 34.25 to 36.83.

Identification of Deserters.—From January 2 to August 17, 1895, the whole number of identifications was 66, including 8 cases of men who had left the service. The 66 represented the "repeating" element of 2,493 recruits whose outline-cards had been examined; i.e., of every thousand recruits enlisted from civil life 26.47 were identified through the outline-card records as deserters, military convicts or otherwise bad characters.

Health of the Army.—The health record of the Army for the calendar year, 1894, is a most satisfactory one. Taken as a whole, it may be said to be the best annual record ever consolidated from returns sent in by U. S. Army medical officers; for although the death rate is a fraction higher than the lowest rate ever recorded, the other rates are by far lower than they have ever been before in the history of our Army. The number of admissions per thousand of mean strength was only 1,089.73 as compared with 1,289.04 during the calendar year 1893, and with 1,376.89 the average of the years of the previous decade. The rate of admission for injuries was as large as usual; but the reduction in the number of cases of disease was most gratifying, the admission rate having been only 845.42 per thousand of strength as compared with 1,048.01 and 1,121.06 respectively for the previous year and the years of the previous decade. The rate of non-efficiency or constant sickness was only 34.49, contrasting favorably with former reports, 40.15 in previous year and 42.51 as the average of the previous ten years; and the average number of days lost on account of disability by each man of the Army was only 12.6 as against 14.7 in 1893 and 15.5 in the previous ten years. That this reduction in the sick rates was not effected by the discharge of sick men on certificates of disability is readily seen, for the number of men so discharged was less than in any previous year, 13.30 per thousand of strength including 2.89 for injuries, as against 14.93 in 1893 and 26.48 as the average annual rate of the ten years immediately preceding. The lessened rates can be attributed only to the greater care in the selection of recruits and in the preservation of the men from insanitary influences subsequent to their enlistment.

The death rate from all causes was 6.69 per thousand of strength as against 6.91 and 8.22 for the previous year and decade. The death rate from injury was 2.13, so that the rate from disease was 4.55 as compared with 4.01 of the previous year, 3.95 of the year 1889 the lowest recorded rate for disease, and 5.64 the average rate of the years of the previous decade.

Infectious diseases, general and local, gave an admission rate of 273.51, or one-fourth of total admissions, while causing one-third of the non-efficiency, showing in this that although the rates have been much reduced this year there is considerable room for improvement by the suppression of infection. To the high rate of these infections, venereal diseases contributed 80.43 per thousand of strength, while malarial diseases gave only 74.72, a notable fall from 114.50, the average of the previous ten years. Injuries took second place as causes of admission with a rate of 244.21; diseases of the digestive system third, with 237.23; and of the respiratory system fourth, with 79.76.

As disabling factors the general and local infections were most prominent, causing 12.07 of the Army rate of non-efficiency; 5.03 of this was due to venereal affections, and only 1.88 to malarial infections. The constant disability due to injuries was equal to 7.88 per thousand of strength.

The absolute number of discharges for disability was 368 as compared with 413 in 1893. Eighty of these were caused by injury; 49 by diseases of the nervous system; 44 by consumption; 43 by diseases of the locomotor system; 86 by venereal disease, and 34 by diseases of the organs of special sense.

The deaths numbered 185 as compared with 191 in the previous year. Fifty-nine of these were due to accidents; 49 to infectious diseases, general and local; 20 of these were due to typhoid fever and 17 to consumption; diseases of the nervous system 24, of the respiratory organs 19, of the circulatory system 15. Eight deaths were caused by alcohol and its direct results.

The mean strength of the Army during the year according to medical reports was whites 22,904, negroes 2,086, Indians 380; total 25,376. The admission rate of the negro troops was considerably less than that of the white soldiers, 811.60

as compared with 1,116.44; and this lower rate was due to the relative freedom from disease, for their admission rate for injury was as high as that of the white troops. Their number constantly sick was 25.93 per thousand while the corresponding rate among the whites was 35.18; and the average number of days lost by each on account of sickness or injury was respectively 9.5 and 12.8. The rate for discharge also was lower among the negroes, 9.40 as compared with 13.56 among the white troops. There was little difference in the death rate of the two races. This is the most favorable showing yet made by the statistics of sickness among the colored troops of our Army.

The number of Indians was so small that it is unnecessary to dwell on their statistics. Their death rate was exceedingly high, 20.27 per thousand, due as in previous years to consumption, pneumonia and injuries.

Health of the Military Departments.—The admission rates of the military departments varied from 713.49 per thousand of strength in the Department of Columbia to 1,470.94 in the Department of Texas. The light sick rate of the negro troops mentioned above, was particularly marked in the Departments of Dakota and the Colorado, where the admission rates were only 656.31 and 665.63 respectively. In the Department of the Platte, on the contrary, the negro admission rate, 1211.12, was higher than the Army average. In Texas, which had the highest admission rate, and in the Columbia, which had the lowest, there were no negro troops. The two departments last named had also the highest and the lowest rates of non-efficiency or constant sickness, 50.27 and 23.56 daily sick per thousand of strength. The Departments of Dakota and California had 28.79 and 30.68; the rates of the other departments did not differ much from that of the Army as a whole. The death rates varied from 4.80 in the Department of the Colorado to 13.99 in Texas. In the Departments of Dakota and California the death rates were lower than the average of the Army, 6.69; in the other departments they were higher. The rate of discharge for disability was lowest, 6.76, in the Department of the Platte, and highest, 24.22, in the Department of Texas. In the others it did not vary much from the average. The Department of Columbia had the best record for the year; the Department of Texas the worst.

The Highest and Lowest Rates at Individual Posts.—As noted in summarizing the statistics of sickness in the military departments, the post of Key West Barracks had the highest admission rate, 2,226.89 per thousand of strength. This post was reestablished in 1893, during which year its rate was but slightly in excess of that of the Army. The high rate of the past year was due to an epidemic of dengue. Only two other posts had the admission rate for the year in excess of two entries per man of the average strength, Camp Eagle Pass and Fort Myer. During the previous year no less than ten posts had such excessive rates and among them were three of the largest in the country, Columbus, Jefferson Barracks and Davids Island. Columbus Barracks had the highest rate of non-efficiency, 66.66 per thousand of strength. This, however, must be considered as a great improvement in the record of this station as, in the five years immediately preceding, its rates varied from 71.98 to 92.74. Three other posts had more than 6 per cent. of their strength constantly sick; Key West Barracks, Camp Eagle Pass and Fort Hancock. The first in 1893 had a rate but slightly larger than the average of the Army, but the others have always had high rates. Among the larger posts, Fort Custer, Vancouver Barracks, Fort McPherson and Madison Barracks had the lowest admission rates during the year; and among the smaller posts, Forts Mason and Trumbull. Fort Custer and Madison Barracks had the smallest rates of non-efficiency among the larger posts. The constant sickness at the first named was less than 1 per cent. Forts Yellowstone, Trumbull, Stanton, Canby and Mason had the best records in this respect among the smaller posts.

Diphtheria.—At Fort Yates, sixteen cases were reported from the old and crowded infantry barracks, while the men in the light and roomy cavalry barracks were exempt. Every year for several years back, diphtheria of a deadly type has visited one or more of the families of enlisted men at West Point, N. Y. This year has proved no exception. In one family the mother and six children were affected; one of the latter died on the morning after medical attendance was called in. In another family four children were affected. Of these eleven cases, ten recovered under treatment by antitoxin.

Typhoid Fever.—During the calendar year 152 cases, of which 20 were fatal, were reported. This does not differ from previous annual reports. Fort Sam Houston had 31

cases, Fort Sheridan 24, Fort Leavenworth 11. Regarding the disputed question as to the nature of the fever sometimes reported as "Texas fever," Major L. M. Maus has contributed a study of the cases at Fort Sam Houston which leads him to the conclusion that the fever so reported is an atypical enteric fever. A case of this Fort Sam Houston fever imported into Fort Clark was studied by Major H. S. Kilbourne and shown to be one in which enteric fever was complicated with malarial infection. Captain W. B. Banister reports the fevers at Fort McIntosh as enteric. The reports of these medical officers are of interest and value.

Anthrax.—Lieutenant C. C. McCulloch furnished reports of two cases of this rare and fatal disease in the human subject. The persons affected were civilians in Rio Grande city.

Diarrheal Diseases were not unusually prevalent. Camp Eagle Pass and Forts Hancock and Clark had the highest rates. The cases at the last mentioned post were complicated with malarial infection.

Malarial Diseases.—The admission rate was 74.72, as compared with 93.64 in 1893, and 114.50 the average annual rate of the preceding decade. Usually the Department of Texas has the highest rates, but during the past year the Department of California had the highest relative prevalence. The exposure of the troops during the railway riots of July and August, 1894, was undoubtedly the cause of this increased prevalence in the Department of California.

Rheumatic Affections.—The rate for these affections was somewhat less than during the previous year. The cases were evenly distributed in the departments.

Veneral Diseases.—The admission rate for these diseases in the Army was 80.43 for the year, causing a rate of 5.32 constantly sick per thousand of strength and occasioning 36 discharges and one death. The admission rate is higher this year than it has been for a long time. In 1893 it was 73.08; in 1892, 76.73; in 1891, 72.46; in 1890, 75.22; and the average annual rate for the decade ending with the last mentioned year was 79.09. Although the number of admissions was greater than usual during the past, the number discharged for disability was considerably less, 36 as compared with 53.53, 46 and 71 respectively in the four years immediately preceding. These diseases were less frequent among the negroes than among the whites or Indians, the admission rates being respectively 47.46, 82.21 and 152.85. One-seventh of the whole number of cases owed their origin to syphilitic infection and had an average duration per case of 40.17 days; one-sixth to chancre infection with an average duration of 34.71 days, and over two-thirds to gonorrheal infection with an average duration of 20.70 days.

Alcoholism.—The prevalence of alcoholism in the Army continues to decline. The admission rate for the past year was 30.94 per thousand of strength as compared with 33.97, 37.23, 40.01, 40.73 and 41.41 in the five preceding years and with 56.65 in the decade ending with 1889. Again, in 1890 no less than seventeen posts had more than 10 per cent. of their average strength under medical care for drunkenness; in 1891, eleven posts; in 1892, ten; in 1893, seven, and during the past year only four. Captain W. H. Arthur reduced the statistics of alcoholism at Vancouver Barracks by dealing with drunkenness as with acute poisoning. The stomach was emptied by the stomach pump and washed out with a warm 2 per cent. soda solution, after which the patient was given a bowl of hot beef extract with cayenne pepper. He was then generally able, although perhaps unwilling, to go to duty.

Consumption.—Seventy-five men were admitted to sick report during the year for consumption; 44 were discharged and 17 died. The admission rate per thousand of strength was 2.96, as compared with 2.85 in 1893, 4.34 in 1892. During the past three years consumption has been more prevalent in the Army than usual, on account of the susceptibility of the Indians to this disease.

Injuries.—The admission rate for injuries per thousand of strength was 244.21, with a total of 80 discharges (26 of which were for hernia) and 59 deaths. The rates for the various races did not vary much from the average, nor does that of the past year differ much from those of the preceding decade. Ten homicides were reported—5 whites, 3 negroes and 2 Indians; 18 suicides—15 whites, 1 negro and 2 Indians.

The Influence of Age, Arm of Service, Nativity, and Length of Service on Liability to Disease.—The report contains a series of tables based upon the statistics of the calendar years 1890-95, which show the relation of certain specified diseases and classes of disease to arms of service, length of service, age, and country of birth of the soldiers comprising the Army. The figures given in the tables are the average

annual rates per thousand of strength for the period stated. The change in the *personnel* of our small Army takes place so rapidly on account of the short term of service, discharges by purchase, desertion and other drains that the ratios may be regarded as the annual rates of an army of 135,338 men instead of the average annual rates of one of 27,067 for a period of five years. These tables are therefore of greater value than those formerly published, although the absolute numbers under many of the headings are yet too small to give satisfactory ratios.

Troops on Active Service.—During the period of the railroad riots, July 3 to 18, 1894, 10 troops of cavalry, 4 batteries of artillery and 23 companies of infantry operated from a camp on Lake Front, Chicago, Ill. A hospital of 20 beds was established. The wards were floored and furnished with field cots, blankets and mosquito bars. Outlying detachments serving without attached medical attendance were visited daily by a medical officer who held sick call and telegraphed to the field hospital for an ambulance in case it was found necessary to send in any of the sick for care and treatment.

About the same time 2 companies of cavalry, 5 of artillery, 1 of infantry and 3 of the Marine Corps were concentrated at Sacramento, Cal. The dining room of the railroad depot was converted into a hospital. This command suffered much from malarial fevers in August.

Classification of Diseases.—Until recently, the classification of diseases and injuries used by the Surgeon-General's office was based on that of the College of Physicians and Surgeons of England. This system which was adopted a number of years ago is now inconsistent in many points with our present knowledge of the causation and processes of disease. Such divisions and subdivisions as zymotic, miasmatic, enthetic, zoogenous, etc., belong to a past era in the progress of medical knowledge. A new system of classification of the causes of disability has therefore been drawn up and has been used in the statistical tables presented with this report.

Uniformity in Medico-Military Statistics.—An International Commission of military medical officers met in Buda-Pesth in September, 1894, under the chairmanship of Lieut-Col. J. S. Billings, Deputy Surgeon-General, U. S. A., and came to an agreement as to the character of the statistics to be published for comparative purposes by each of the countries participating in the convention. A series of ten international statistical tables were issued for the consideration of the various military medical departments and for adoption if approved. These tables have been examined by the Surgeon-General and approved with certain modifications, the chief of which is the consolidation of the second with the third, and of the sixth with the seventh, as giving a better view of the facts represented. The Commission suggested that the various departments begin publication with the statistics of the calendar year, 1895; but as all the needful data were readily available, the Surgeon-General submits with his report the statistics of the past year in eight tables, such as will satisfy the requirements of the Commission and permit of ready comparison with the medical statistics of other countries.

Surgical Operations.—The reports of operations performed show that medical officers are fully alive to the requirements of modern aseptic surgery, and even at isolated and frontier posts have, in the operations they have been called upon to perform, endeavored to carry out the principles of asepsis with the apparatus at hand. Many interesting cases have been reported, particularly in the line of abdominal surgery. Among them are ten cases of typhlitis or abdominal abscess, of which six recovered after operation, three died notwithstanding operative interference, and in one case the perityphlitic condition was not recognized during the life of the individual.

Quarters.—Most of the suggestions of medical officers during the past year have been directed to the prevention of over-crowding and the improvement of ventilation. Crowding was noted specially at St. Francis Barracks, Forts Sheridan and Sill; defective ventilation at Angel Island, Fort Robinson and Vancouver Barracks. Over-crowding was reported in some of the guard-houses, as at Madison Barracks and Forts Myer and Wingate. At the first mentioned, the guard room gives only 384 cubic feet to each of the guard and from 200 to 324 to each of the ordinary number of prisoners. At the last, the air space per man in December, 1894, was only 217 feet.

Drainage, Sewerage, Latrines, etc.—Faulty drainage is mentioned only at a few posts. At Fort Barrancas the low ground in front of the post is covered with undergrowth, the ditches draining it having become more or less clogged.

Past experience is cited as having shown that this has an important bearing on the prevalence of malarial diseases at the post and also upon mosquitoes which rise in swarms when the low ground is saturated. The swamp in the north-east corner of the reservation at Washington Barracks is also noted; but it is represented as being more harmful to the adjacent citizens than to the troops. The cellars in some of the quarters at Forts Niagara and Porter are occasionally flooded. Since the occupation of the new post of Fort Brady, Mich., the post surgeon has repeatedly called attention to the faulty drainage which permits the ashpits in the barracks to be flooded with water, particularly during the snow melting of spring. The Locust Street sewer continues to discharge on the reservation at the Presidio of San Francisco, Cal.

Water Supplies.—Deficient supply was reported from four posts. At Fort Assiniboine, Beaver Creek, from which the supply is derived, became dry in August, 1894. Water for drinking and other domestic purposes was obtained from a spring in the neighborhood. At Fort Hamilton and Columbus and Jefferson Barracks the deficient supply was remedied by improving the connections with the city mains from which each draws its water. The question of water supply at Forts Reno and Clark remains unsolved. At the former post the drinking supply is condensed from the ice machine or waggoned from Caddo Springs. The results of an examination of the water from a boring in the river bottom in August, 1894, did not differ from those of analysis of well water made in May of that year. The water was too hard for potable or domestic use. At the latter post the Las Moras Spring was twice flooded by storm water in August, 1894. In May, 1895, the masonry approaches of the foot bridge below the springs were removed. These had up to that time obstructed the channel of the creek in times of high water and favored the overflow of the springs by back water.

At Fort Myer a temporary solution of the water problem has been effected by pumping water from the Potomac near the aqueduct bridge, a contaminated supply subsequently purified by the use of Columbia and Pasteur filters in the barracks and quarters. The artesian well is understood to have been non-productive so far. Suggestions of the prevalence of typhoid fever due to impure water supplies have been reported from Forts Leavenworth and Custer. At the one post the unsedimented and unfiltered river water supplied by the Leavenworth city water works has often been condemned by medical officers. The question of a pure water supply has been under consideration by the authorities of the military prison and some borings were made, the water from which was regarded on analysis as being suitable for use if freed from suspended earthy particles. At Fort Custer the foul condition of the water supply is said to be due to the oil and drainage from the slaughter house of the Crow agency on the Little Bighorn River and from the use of the water for irrigating purposes before it reaches the post.

Food.—Very little adverse criticism on the food of the soldier or the methods of its preparation is found in the sanitary reports. Usually these reports are to the effect that the food is ample in quantity, varied in kind and well cooked. As issued by the Subsistence Department or provided for by contract the articles of the ration have been of good marketable quality.

Clothing.—The clothing issued gave general satisfaction. Marked improvement was noted at northern posts in the issue of knit wool drawers and of a less irritating quality of undershirt; but these are said to be not yet what they ought to be. The wool alone required to make suitable underwear can not be purchased for the price of that now issued.

Habits, Cleanliness, Athletic Exercises, etc.—A general appreciation of the habits of the men may be had better by a consideration of what has been said in discussing the prevalence of venereal diseases and alcoholism, than by extensive citations from the reports from individual posts. The Post Exchange is not suggested as a causative agent in the brawls and breaches of discipline occasionally reported as the result of alcoholic excesses. Usually these are attributed to the facility with which whisky can be procured in the neighboring civil settlements. As a rule, the men are clean, well set up, and soldierly in appearance. The facilities for bathing have been improved greatly of late years, so that current sanitary reports have no reference to the absence of means for this purpose, except at the recently established post of Key West Barracks, where there is only salt water bathing; and this, although valuable as an athletic exercise and recreation, is unsatisfactory for the maintenance of personal cleanliness.

ASSOCIATION NEWS.

Department and Secretary of Public Health.

To the Members of the American Medical Association:

The AMERICAN MEDICAL ASSOCIATION at its session in Washington in 1891, adopted unanimously a resolution favoring a Department and Secretary of Public Health—said Secretary to be a member of the Cabinet of the President of the United States; and appointed a committee to urge upon Congress the passage of a law for the creation of such a Department and Secretary. This committee has been continued, with slight changes, up to this time, and have prepared and presented to Congress a suitable bill, and by such methods as were open to them have endeavored to secure its passage. This bill is now pending in both Houses of Congress.

In the meantime the ASSOCIATION has pledged itself anew at every annual meeting since 1891, and notably in the annual meeting in Baltimore last May, to continue the work necessary to secure the desired legislation. Many State medical associations and many local medical societies have passed resolutions approving of the end in view, and these resolutions have, presumably, been sent to the Senators and Representatives of the respective States.

As the result of these measures, considerable interest has been excited in Congress in favor of the pending bill, but not enough to secure its passage.

Under these indicated circumstances it becomes our duty to make still further effort, and we appeal to members of the ASSOCIATION everywhere, to give us all the help they can. It certainly seems to us that if the hundred thousand doctors in the United States would unite as one man and earnestly request of Congress the passage of the bill to create a Department and Secretary of Public Health, that the enterprise could not fail of success. Surely, whatever a hundred thousand doctors would ask for would be granted.

We therefore recommend:

1. That every State medical association and every local medical society shall, as promptly as may be, pass resolutions favoring the adoption of our bill, and that such resolutions shall be published in the medical journals and copies forwarded to the members of Congress.

2. That every doctor in the United States shall address a private letter in advocacy of our bill to the senators and representatives in Congress from their respective States. Every citizen has the right to appeal to his representatives, no matter whether he is acquainted with them personally or not. Can any one believe that if all the doctors in any State were to unite in soliciting the senators and representatives of said State to pass this bill, that such solicitation would not bear good fruit?

3. The medical journals of the country, as a rule, have heretofore given us generous assistance, and we heartily urge upon them a continuance of their efforts in our behalf.

(Signed) JEROME COCHRAN, Ch'm'n, Montgomery, Ala.
C. G. COMEGYS, Cincinnati, Ohio.
N. S. DAVIS, Chicago, Ill.
J. C. CULBERTSON, Cincinnati, Ohio.
LISTON H. MONTGOMERY, Chicago, Ill.
CHARLES DENISON, Denver, Colo.
U. O. B. WINGATE, Milwaukee, Wis.
W. B. ATKINSON, Philadelphia, Pa.

(Medical periodicals favorable to the movement will please copy.)

Veratrol, $C_{12}H_{16}O_2$, is described as a colorless oil, of an agreeable, aromatic odor; specific gravity, 1.086; boiling point, $205^{\circ} C.$ ($401^{\circ} F.$). It is made by acting upon veratric acid by baryta and heat. It is soluble in alcohol, ether and oils. From researches which have been carried out on synthetic veratrol, it appears that this drug possesses antiseptic properties in respect to certain pathogenic microbes.—*Pharmaceutical Era.*

THE

Journal of the American Medical Association

PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the Editor, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, NOVEMBER 2, 1895.

THE DEFINITION OF EPILEPSY.

The definition of a disease is generally supposed to give some adequate conception of its character, and any indefinite statement in this direction generally means that the ideas as to the disorder are vague, ill limited, or only partially understood. Sometimes, however, a name carries a sufficiently clear though general idea, as in the term insanity, while it would puzzle lawyers accustomed to every possible use of words to give a well rounded and complete definition. With the term epilepsy, however, the case is not the same as with insanity; while it conveys to every one the general idea of convulsions or their equivalents, the definitions offered by high authorities clearly show that, as indicating a distinct disease, it is hardly employed with the accuracy and definiteness that should give the proper notion of a real morbid species. One writer calls it "an affection of the nervous system characterized by attacks of unconsciousness," another speaks of it as "a disease in which there are convulsions of a certain type or sudden loss or impairment of consciousness," and still others mention various types according as they are "idiopathic," symptomatic, reflex or otherwise. All or nearly all make loss of consciousness its chief characteristic in their definitions, but only to later make exceptions for the case of partial epilepsy in the subsequent descriptions. In hardly any text-book is there a definition given that compactly and completely covers the ground as is done for most other nervous disorders; in all it is incomplete, requiring qualifications, and is often inaccurate.

What is the propriety, for example, of calling epilepsy a functional neurosis, and distinguishing as a separate type all cases in which any gross organic disease can be recognized, when the connection of the con-

vulsions with the latter is at best only assumed? A cerebral tumor localized in the brain, as a rule, no more demonstrates its exact relations with an epileptic attack than does an overloaded stomach or a diseased kidney; not, in fact, so much, since in these latter cases we can assume a toxic or disordered condition of the blood that may act directly upon the unstable nerve cells. Nor is there any more propriety in separating Jacksonian from generalized epilepsy, as the lesions may be as obscure in one case as in the other. The same may be said of infantile convulsions, which are only the reaction of an immature brain with undeveloped inhibitory powers to morbid irritations, or of the senile convulsive attacks due to the regressive changes of old age. Epilepsy is simply and solely the symptom of cortical instability from whatever cause, and if it is ever exceptionally subcortical in its origin it must be due to the same irritability affecting the ganglionic representatives of the cortex in the basal portions of the brain. The normal cortical cells, while a source, so to speak, of energy, are so balanced and controlled that these explosive morbid phenomena must be due to some actual physical disorder, whether this be from imperfections in development or from acquired defects through in-nutrition, intoxication, etc., as well as from gross disease. With modern methods we are likely to learn more and more what these changes are, and the term idiopathic or simple epilepsy will be relegated to the general limbo for useless and forgotten names.

The primary condition of instability once established, the epileptic attacks, varying according to the portion of the organ involved, from general convulsions to petit mal or the psychic equivalent, may be aroused often by a slight cause, whether it be reflex, toxic, emotional, or due to the irritation of gross disease, hence the distinction of these different forms of epilepsy is unjustifiable except as a mere matter of convenience in special cases. The general definition of epilepsy that may be offered, therefore, is that it is a disorder consisting essentially in a condition of explosive cortical instability, and lack of inhibition, manifesting itself in general or local convulsive attacks, or in sudden temporary disturbances of consciousness and other psychic functions. This includes not only the physical and intellectual manifestations, but also all emotional and volitional disturbances that may have to be classed under this head. It does not unduly limit the disorder by making loss of consciousness its characteristic and it expresses the conception of what is coming to be universally recognized as the true pathology.

With this conception of epilepsy in the mind, a clearer light is thrown upon the pathology and the treatment. The futility of expecting to cure established epilepsy by simply cutting off sources of reflex irritation without attacking the primary condition is

made self-evident, as is also that of attempting to find any single uniform lesion. It is, as a clinical entity, a special form of disorder of cortical functioning, that may depend upon numerous and widely varying conditions.

ACUTE PANCREATITIS AND DISSEMINATED FAT NECROSIS.

One of the most interesting points in connection with instances of acute inflammatory affections of the pancreas is their frequent association with the condition which was first described by *BALSER* (*Virch. Archiv.*, Bd. 90, 1882) as disseminated fat necrosis. The opinions that at present obtain, concerning the causes of these changes in the fat tissue are succinctly stated by *THAYER* in connection with the report of a successful operation for pancreatitis and parapancreatic abscess (*American Journal of Medical Sciences*, October, 1895). This case is really a very important one from a clinical standpoint, because it shows the possibility and importance of an early diagnosis and operation in acute pancreatitis. It is the first case recorded in which the diagnosis has been followed by a successful operation. Since the publication of the researches of *FITZ* on acute pancreatitis (Boston, 1889; also *Boston Med. and Surg. Journal*, 1889) in which he studied carefully his own cases as well as cases from the literature, a number of additional instances of acute pancreatitis have been described and some observations made that throw some light on the fat necrosis mentioned, as being frequently associated with acute inflammatory affections of the pancreas.

BALSER (loc. cit.) believed that these yellowish-white, opaque, small characteristic areas in fat tissue, that he termed disseminated fat necrosis were due to an overgrowth of fatty tissue, the central parts of the fat masses becoming necrotic from lack of nourishment; he believed the pancreatic changes to be secondary, because he found fat necrosis in bodies where no special symptoms had been present during life. *CHIARI* (*Prag. med. Woch.*, 1893) regarded the process as degenerative, and could find no evidences of any fatty overgrowth. *FITZ* (loc. cit.) thinks that there is a fat necrosis without any direct relation to severe lesions of the pancreas, and also that there is an inflammatory fat necrosis which is secondary to acute pancreatitis. *FITZ* found in some of his cases, areas of round cell infiltration around the periphery of the necrotic foci and in some cases bacteria were also present. *LANGERHAUS* (*Virch. Archiv.*, Bd. 122, 1890) showed that the necrotic areas consist of a combination of lime salts with fatty acids and he advances the plausible suggestion that the process may take place as the result of the action of the fat splitting from the pancreas upon the fat tissue, the fatty acids afterward combining with lime. Indeed, he states

that he was able to produce similar changes in the subcutaneous fat of a dog by the injection of pancreatic extract. *ROLLESTON* (*Trans. Path. Soc.*, London, 1893) traced the cause of fat necrosis to disturbances of the trophic influences of the abdominal sympathetic system due to the extension of some morbid process from the pancreas.

BALSER (Vort. Eleventh Congress f. mat. Med., 1892) made an additional communication concerning culture experiments, which were not finished, and the final outcome of which have not yet been published. In 1891, *WELCH* (*Medical News*, 1891) obtained the bacillus coli communis in pure culture from areas of fat necrosis, associated with acute pancreatitis, but he did not think that the necrosis resulted from a primary infection. In a number of instances *THAYER* (loc. cit.) states that culture experiments by *WELCH* have remained entirely without positive results.

The real, exact cause, then, of these fat necroses is not entirely settled. That the process may occur without pancreatic disease is beyond question, but in such cases the areas are usually limited to the interlobar fat tissue in the pancreas and such areas may be found, as every pathologist knows, in individuals in whom there have been no symptoms pointing to the process during life. The areas can not be accounted for as due to direct infection, because cultures have proved sterile, both in instances without gross pancreatic disease, as well as in cases in which marked pancreatitis of undoubted infectious origin was present. In view of these circumstances the observations of *LANGERHAUS* cited above become strikingly suggestive; areas, similar to those observed in connection with pancreatitis, may be produced by the direct action of pancreatic juice upon fatty tissue and consequently a primary lesion of the pancreas, of infectious or toxic origin, may allow the escape of the fat splitting ferment into the surrounding tissue which thus causes a secondary and sterile disseminated fat necrosis. In connection with this, should be mentioned the experiments of *HILDEBRAND* (*Trans. German Society for Surgery*, April, 1895, summarized in *Medicine*, September, 1895) who deligated the splenic part of the pancreas in cats and then tied all the pancreatic veins, in order to hinder the resorption of the collected secretion by way of the blood paths, and post-mortem he always found areas of fat necrosis in the pancreas itself, and in adjacent omentum and mesentery. He obtained the same results by placing either pieces of pancreas, or the entire organ of one animal into the abdomen of another and, in one of these cases, extensive hemorrhage also occurred. The areas of fat necroses were quite characteristic. It will be seen that the results of *HILDEBRAND*'s experiments appear to confirm the observations, as well as the suggestions of *LANGERHAUS* as regards the mode of formation of disseminated necrosis of fat.

NEW YORK CITY HOSPITALS AND THEIR VISITING STAFFS.

An important change in the manner of appointment of the visiting corps of surgeons and physicians at the county hospitals of New York County is predicted. The hospitals which will be affected by the change are the Fordham, Harlem, Charity, and Gouverneur Hospitals, and all the institutions on Randall's, Blackwell's and Ward's Islands. Bellevue Hospital is excluded.

The Commissioners of Charities and Correction have decided to dismiss the medical boards in the hospitals under their control on November 1, and to appoint in the future only men recommended by the different medical colleges of the city. The term medical board, as used in the city hospitals, means the staff of visiting and consulting physicians. It is only in these posts that the changes will be made, the house staffs remaining as they have been. No change at all will be made in Bellevue Hospital, as the medical board there has, since 1882, been composed only of men recommended by medical colleges. It was the success of this practice at Bellevue that induced the Commissioners to make the change in other hospitals.

CHICAGO MEDICAL INSPECTORS.

The Civil Service Commission of the city of Chicago have postponed the examination which was advertised to take place November 7, until December 9.

The Commissioners have decided that the examinations shall conform in general to those required for entrance into the Government Medical Services. The following is the essential plan of examination, which will occupy about five days:

1. The candidate will be required to pass a satisfactory physical examination, and in addition will certify that he labors under no physical disability.

2. The candidate will then write a brief autobiography, and pass a short written examination in history, literature and physics. He will then be examined in anatomy, physiology, chemistry (including bacteriology and toxicology), general medicine, general surgery, obstetrics, materia medica (including drug adulterations) and hygiene.

3. The examination will conclude with a clinical examination at a hospital where exanthematous diseases are treated, and an accurate diagnosis of the cases will be required.

From the foregoing it is evident that the Commission intend to raise the standard. The salary of the Medical Inspector, it is understood, will for the present be fixed at \$1,200 a year.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

This week we publish fifty-two pages of reading matter. The vast pile of MS. on hand in the office, ad-

monished us once more that the space was too limited for the publication of the large amount of manuscript with which our friends have favored us. After the conclusion of the current volume, it is in contemplation to make the enlargement a permanent one, as the great success of the publication seems now to fully warrant the additional expenditure. We have not at any time thought it expedient to count the advertising pages, as making any part of the number of pages. One of our esteemed contemporaries has the habit of counting its advertising pages in order to keep pace with the JOURNAL, but the practice is too transparent to make our readers at all envious, especially when they may easily look at the number of the last page of any even date and see for themselves that no weekly medical journal in America has given its readers more medical literature than their own.

Not only has their JOURNAL given them a vast quantity of reading material, but at no time in the history of the ASSOCIATION has the quality of the articles been finer or of higher class, than it is to-day. The wisdom of the founders of the JOURNAL is more and more apparent every week.

GOOD JOURNALS REPAY.

DR. ISRAEL B. WASHBURN of Rensselaer, Indiana, writes to the *Medical Journal* of that State, his view of the comparative value of journals and formal treatises to the rural practitioner:

"The country physician can use his money to much better advantage than in buying the larger treatises, by subscribing for as many good journals as he can read and, every three to five years, such works on special subjects as he needs. There are few medical books that are not 'old and gray' in five years in these days of medical progress."

Sound advice. We will add; subscribe only for journals of that high class that deserve to be preserved. Bind the journal or journals that you find the most desirable for reference. Unbound journals will seldom be consulted, and before long become a source of complaint to the housewife.

CREDIT WHERE IT IS DUE.

The obituary notice of SIR THOMAS LONGMORE which we published last week was extracted from the *British Medical Journal*, and by an inadvertence was not credited. We are glad to say that, so far as we are aware, this is the first instance on record in which an article taken from another journal was not duly credited. In our opinion there are few things more exasperating than to have articles copied from our JOURNAL without credit, or perhaps with that slipshod credit, "Ex." Some journals that are considered respectable, are hardened sinners in that regard.

CORRESPONDENCE.

A Domestic Test for Albuminous Urine.

NEW YORK CITY, October, 1895.

To the Editor:—This is the title of a paper read by the writer at the last meeting of the New York Medical Association, held in New York City, Oct. 15, 1895. Thinking that an abstract of the important part of that paper might be of some value to the readers of the JOURNAL, it is sent to the JOURNAL with the hope that you will deem it worthy of publication.

The method of making this test is as follows: pour into a test tube an inch of urine; with a dropper, drop carefully upon the surface of the urine half its quantity of alcohol. If albumin be present in the urine, a white line will form between the two fluids, the same as in the cold nitric acid test.

The other method is to put the alcohol in the test tube first, and drop as before, the urine into it. If albumin be present in the urine, it will be made known by a white wave of coagulated albumin following the urine as it sinks to the bottom of the test tube. The urine being heavier than the alcohol will gravitate to the bottom of the tube very quickly. After a small quantity of urine has been added, the alcohol will become opaque with the coagulated albumin. This test is so sensitive that the one-hundredth of 1 per cent. of albumin when present in the urine can be detected.

The writer has used this method for about a year, both in private practice and hospital work. It has been found to be the most convenient and most delicate of tests.

Mucus will be coagulated if it be present, and may be mistaken for albumin. Filtering before testing will eliminate mucus; if one is still in doubt, any of the control tests for mucus can be made. No other ingredient of abnormal urine will give any trouble, more than when any other method for testing urine is employed. Alcohol, if of the strength of 60 per cent., when clear, will answer every purpose, excepting one of delicacy.

A glass tumbler may be used when it is impossible to obtain a test tube. No heat, no acids required. So convenient is the test that the physician can not be excused if he fails to discover the presence of albumin.

The writer is convinced by a year's experience in the use of this method that if the profession will give it a trial none will be disappointed. Any doubts which may remain in one's mind, can be removed by control tests. Few of us rely upon one single test, by whatever method made.

J. G. TRUAX, M.D.

School Books on Physiology and Hygiene.

HARTFORD, CONN., October, 1895.

To the Editor:—We inclose the following report, which at this time has considerable medical interest in many sections of the country. During the past few years laws have been passed in Congress, and the Legislatures of forty-one different States, requiring instruction in the public school on physiology, hygiene and the effects of spirits and narcotics on the human body. A large number of school books have been prepared to meet this requirement, nearly all of which have been compiled and edited by medical men, many of whom are eminent in the profession.

Many of these works have been assailed in the daily press and denounced as containing errors, but the criticism so far has been limited to mere statements. The authors of these works have invited from the medical profession the most critical examination and inquiry concerning the accuracy of the facts stated.

This report is in accordance with this request, and the object (in which all medical men are interested) is to eliminate all possible errors and raise the character and accuracy of such works to the highest possible standard.

Very truly yours,

H. A. B.

REPORT.

We, the undersigned physicians, have been requested to ex-

amine and report on the various school physiologies which have been introduced to comply with the laws requiring temperance instruction in common schools.

Our special attention has been directed to that part relating to the effects of alcohol, opium and other narcotics on the human body. We have received and carefully examined eight different series of books called by the following names: "The Pathfinder," "Appleton's," "Eclectic," "Union," "Blaisdell," "Dulanie's," "The Health Series," and "Martin's High School Physiology."

As a result of this examination we are unanimous in opinion that the statements and teachings of these works concerning the effects of alcohol and other narcotics on the body are correct, and fully supported by the most authoritative studies of scientific investigators up to the present time.

We are also of opinion that in both letter and spirit, these works are highly commendable, particularly in the admirable groupings of physiologic and hygienic facts, with excellent illustrations and clear concise statements.

The practical character of these books commend them to us, and the interest and value of their teachings would seem to place them among the most important subjects that can be used in our public schools. (Signed.)

T. D. CROTHERS, M.D.,

Superintendent Walnut Lodge Hospital, Hartford, Conn.,
editor of *Journal of Inebriety*.

I. N. QUIMBY, M.D.,

Vice-President American Medical Temperance Association,
etc., Jersey City, N. J.

LEWIS D. MASON, M.D.,

President of American Association for the Study and Cure
of Inebriety, etc., Brooklyn, N. Y.

West Tennessee Medical and Surgical Association.

PARIS, TENN., Oct. 23, 1895.

To the Editor:—Please announce the meeting of West Tennessee Medical and Surgical Association at Covington, Tenn., Nov. 21 and 22, 1895. Very truly yours,

I. A. McSWAIN, M.D., Secretary.

SOCIETY NEWS.

"American Medicine."

In response to a toast at the annual dinner of the Chicago Gynecological Society, Oct. 18, 1895, Dr. JOHN H. HOLLISTER, said:

Let no man be over-anxious about his reputation. If he intend the right and does his best, ultimately that reputation will take care of itself and of him too. This is true of individuals—true of nations. Great as has been the progress of nations during the last 300 years, the development of America in that period has been the phenomenal fact. Cradled without parental care, it came to its estate without the help of other nations; in fact, it grew by reason of their neglect. A noble *manhood* was its only inheritance. All else is of its own creation. For nearly two centuries we were esteemed a semi-barbarous people by the crowned heads and the *elite* of Europe, and their prejudices have only been in any measure conquered by our sublime indifference.

The struggle to make for ourselves a name and a place among the foremost, has been indeed severe, but the issue is no longer doubtful. You who have met this prejudice on foreign shores know well how strong it yet remains, but you know full well that, as professional men, you have nothing left to fear, and that especially in medicine and surgery Americans have no apologies to make. We are to be courteous *ever*, but deferential or craven, if ever we were, *nevermore*.

Happily for us, American history holds no relationship with the mythical ages. Our genesis was clearly written and the successive stages of our development are sharply defined. From the landing of Columbus to this hour, ours has been a story of thrilling interest, and I am asked within these ten minutes to outline to you the agency of medical men in the accomplishment of present results. Were every page of mine a volume, the half of their records in the making of American history could not be told. Indulge me, therefore, in a little free-hand drawing while, from a single

standpoint, I seek to sketch in briefest outline the deeds of those who tower in the distance like magnetic peaks, and others hardly less conspicuous, who coming a century later command a place in the immediate foreground.

For the first hundred years and more, in our colonial history, our noted physicians were educated abroad—in Edinburgh and London and Paris. Of medical schools we had none, and yet, despite this, and in the absence of foreign culture, there grew up in these western wilds a host of doctors whose successes in the treatment of diseases in those colonial days is still a matter commanding our respect. But another day dawns. It is the eve of the Revolution! Our first scene is laid in Boston, the time June, 1775. The whole country is aflame, for a crisis is at hand.

If now there be one more conspicuous than his fellows (unless it be Samuel Adams) that man is a physician—a student of the eminent Dr. Lloyd. He is called from his profession, for Boston is in peril. He is made president of its Committee of Public Safety, soon he is a major-general, but, seizing a musket, he is foremost in the fight and falls, as a private would fall, in the battle of Bunker Hill. His name is Joseph Warren.

In the annals of our medical history the name of his brother John is even more conspicuous. He was senior surgeon in the improvising of Cambridge hospital in 1775, and cared for the wounded of Bunker Hill. He was the founder of the medical department of Harvard College in 1783. His standing as a civilian may be inferred from the fact that he was the first to pronounce a Fourth of July oration in the famous patriotic city of Boston. He was continuously the President of the Massachusetts Medical Society from 1804 to the date of his death in 1815. Following in his illustrious footsteps came another notable, his son, John Collins Warren. He took his father's chair of surgery in Harvard in 1815, and held it in active service for sixty-two years. In 1820 he united with others in the founding of the Massachusetts General Hospital. In 1828 he founded the *Boston Medical and Surgical Journal*. He introduced ether into surgical practice in 1846. He died in 1856, bequeathing his body to his school and his skeleton to his museum.

It seems a cruel thing to leave so much of other early eminent physicians of Boston unsaid. But the scene changes. We come now to Philadelphia. The time is also 1776. Benjamin Rush has studied in London, in Edinburgh, in Paris. He stands in the forefront of his profession, and a most accomplished citizen as well. Here too, in Philadelphia, the question of revolution is at fever heat. A provisional council of the State is called. He is there as a member. In that body it is he who introduced a resolution "to consider the expediency of a Declaration of Independence." He was a member of the Continental Congress in June following. He signed that Declaration as formulated by Jefferson, when men were to hang separately if they did not hang together. He was both medical and surgeon general of the central division of the American armies in that most critical period. In 1785 he founded the first dispensary in the United States. Such were his invaluable services during that terrible invasion of yellow fever in 1793 that from most of the crowned heads of Europe, as well as from his own countrymen, he commanded most flattering testimonials. Sparse as was our population in that early day, he gave instruction to over two thousand medical students, and despite its unpopularity was president of an abolition society beside.

Nor must I, in the moments that remain, forego the name of Nathaniel Chapman. Stung by the question of the *Edinburgh Review*, "In the four quarters of the globe who reads an American book, or goes to an American play, or looks at an American picture or statue? What does the world yet owe to American physicians and surgeons?" he determined that America should be heard from; and in 1820 he founded and edited the *Philadelphia Journal of Medical and Physical Sciences*, the first American medical journal, which seven years later became our well-known *American Journal of Medical Sciences*. A monument to his memory is one of the fitting things yet to be, and if, finally, it shall be an accomplished fact within his lifetime, Gihon will be happy.

With the opening of the present century, especially after the war of 1812, with the return of prosperity to our people began the marvelous development of education, and prominent among educators were those devoted to the teaching of medicine and surgery. From 1830 to the present date we founded over one hundred medical colleges. We can not better measure the progress of medicine in America in the last half century than by comparing the colleges of 1850 with those of 1895.

But, gentlemen, be it remembered that this wondrous evolution is not a matter of accident. But for those earlier colleges, the best that could then be, our present grand universities would not now have being. As I recount the planting of these medical colleges which were nearly all founded within my remembrance, the unselfish and unpaid labors of a host of men are recalled to mind—men who builded wisely in their day; men into whose labors you have entered—you hardly know at what cost. Time would fail to tell you of these men even by name—of those just passed from our presence and of those who still linger among us, full of years and of honors—by whom a great preparatory work was so well achieved. The Warrens, the Storrs and the Bigelows of Boston; the names of Valentine Mott, of Gurdon Buck, of Willard Parker, Alonzo Clark, the elder Flint, Peasley and Nathan Smith of New York; Chapman, Jackson, Dewees, Meigs, Dunglison, Horner and Gross of Philadelphia; Massey, Drake and Dawson of Cincinnati; Miller, Gibson and the Yandells of Louisville; Storrs and Jones, Bemiss and Richardson of New Orleans; Eve, Briggs and their confrères of Nashville; of Pope and McDowell and J. B. Johnson and Hodgen of St. Louis; of Brainerd and Herrick, Blaney and Freer, Johnson, Allen, Byford and Gunn, Ross, Jewell, Jackson and Parks, who have ceased from their work; and of Davis and Andrews and Isham and Bartlett of Chicago who still remain—these all—and their associates whom time does not permit me to name, have wrought with a success which you yourselves best know, for the development of American medical institutions and American medical literature.

From this list, I purposely omit the names of McDowell, Symmes, Atlee and Battey, and a list of living eminent gynecologists, knowing that from yourselves, at such a meeting as this, they will doubtless receive tributes more ample and more just—and I close with this single suggestion: your predecessors were by no means satisfied with their then present labors, but they prophesied your coming. They foresaw your greatly improved environments, your laboratories, your aseptic hospitals, your possibilities for achieving results which with them were impossible. They have left those prophecies on record, and in memory of those who are dead, we, who still live, look earnestly, hopefully and confidently to you for their fulfillment.

PUBLIC HEALTH.

Camp Jenner, Eagle Pass, Texas.—Passed Assistant Surgeon George M. Magruder reports to the Surgeon-General of the Marine-Hospital Service under date of Oct. 21, 1895, (Abstract of Sanitary Reports) that the camp was closed on that date and all refugees discharged.

Contributions to the Study of Trichinosis.—While the classical investigations of Leuckart, Zenke and Virchow have cleared up many points concerning the nature and pathogenesis of trichinosis, our knowledge is yet somewhat unsatisfactory as regards the route by means of which the trichina reach the muscles from the intestinal tract. Leuckart believed from theoretic considerations that the embryos reach the muscles by means of independent locomotion along the connective tissue bands, but this conclusion was not based on experimental investigation. In order to decide this question, Askanazy (*Archiv. fur Pathologische Anatomie und Physiologie und fur Klinische Medicin*. Bd. cxli, Heft 1, S. 42) made use of animal experiments. He examined rabbits dead from artificial trichinosis, as well as pieces of the tissues which were removed from the intestines of rabbits, for instance, under narcosis. In this way he was able to study thoroughly the route selected by the trichina and he made the interesting observation that almost without exception only the female animals undertake emigration into the organism, a fact that corresponds well with the clinical conditions, namely that the feces contain male trichinae in much greater numbers than females. The process was found to be as follows: the female intestinal trichinae become closely adherent to the intestinal mucous membrane, often encircling the villi in a spiral manner and then they pass in an active boring manner into the wall until they reach the central chyle vessels which are penetrated. The birth of em-

bryo trichinae now occurs, and only a small part of the brood is discharged in the lumen of the intestines, the majority of the young animals pass directly into the chyle vessels. From the lymphatics they reach, first, the mesenteric lymph glands and, passing this filter, they are emptied through the thoracic duct into the general circulation. It is, nevertheless, a very striking fact, that the young worms localize in the muscular tissue and, especially, that they seem to prefer certain definite and well-known muscle groups. Askanazy attempts to explain this circumstance by resorting to chemotaxis as the most rational mode of explanation. He succeeded in finding young trichinae in small hemorrhagic lung foci where they had become arrested in the form of minute emboli. The route by which the embryo trichinae reach the muscles is consequently not the connective tissue strands but the lymph- and the blood-vascular system. Askanazy also attempted to solve the problem of whether or not the survival of one infection resulted in any degree of immunity to succeeding infections, but his experiments as far as they went failed to show any immunity. In one case reinfection occurred in a rabbit that had survived the first infection for half a year. Several plates of colored illustrations make quite plain the observations outlined above.

Medical Climatology of Mexico.—The area of the vast territory of Mexico is 740,970 square miles, with a population of 11,632,924 souls. The country may be divided into three regions: 1, the coasts of the Gulf and the Pacific; up to 1,000 meters in height, a sandy porous soil or a sedimentary, wet, clayey soil covered with earth and very conducive to vegetation. 2, between 1,000 and 2,000 meters the large and small alluvial valleys, cultivable, some conducive to the formation of marshes; others are chalky with stunted vegetation. 3, from 2,000 to 3,000 meters, a small section of the rest of the country, with its mountains. The Mexican coasts occupy a considerable extent. Those of the Gulf measure 2,300 kilometers in length. They are very low, sandy and marshy; those of the Pacific have an extent of 9,000 kilometers. From the preceding topographic and orographic conditions it is seen that about two-thirds of Mexico lies in the temperate zone, the rest in the torrid. The low lying regions are extremely insalubrious. Palustral fevers are endemic, as is typhoid fever. These conditions are explained by the luxuriant vegetation, the tropical temperature and the excessive humidity. Among the endemic diseases of Mexico beside paludism (*cocolietli*), are helminthiasis, yellow fever, climatic fever, tetanus, pellagra, *romito prieto*. According to Dr. Ruiz, paludism is to be found in the region of Vera Cruz, which is covered with a tropical vegetation and has a damp warm atmosphere, as well as in the mountainous fertile region of Sonora. The only localities exempt are those having a rocky soil, good water and a low mean temperature. Yellow fever is observed on the coasts, especially from April to October. The climatic fever presents itself under different aspects according to Guyon, as bilious, inflammatory, and typhic; "but in all its phases it has a special characteristic which makes it a nosologic entity, that is, the disease is not localized in the liver nor in any other viscus, and it is not induced by the palustral agent." Syphilis is found in all social classes, and is so diffused that its victims are to be found in hamlets as well as in cities. "Mexico, the capital of the Republic," writes a distinguished hygienist, "is gaily constructed in a vast unhygienic area of the great Mexican valley." The population in 1890 was estimated at 451,246. The federal district which comprises the capital has an area of 463 square miles. The extreme temperatures are, maximum (in the shade), 31.60 degrees C.; minimum, 1.07 below zero; mean, 15.50. The general mortality rate is 40 per 1,000, and in nearly all localities of the federal district, it is even higher. The prevalence of infectious disease in this district is very marked. Of late the Superior Committee of Hygiene has advised the construction of a sewerage system, and the maintenance of pure drinking water, in order that, as Dr. Samuel Gache remarks, the mean duration of life, which now is but twenty-five years, may attain a higher figure, the resources of the country be increased and sanitary science have gained a new triumph.

Cholera in Honolulu.—The sanitary column of the New York *Independent* for October 10 quotes from a recent Honolulu

paper some suggestive statements regarding the spread of cholera at the place named. The fountain head of the disease was among the Chinese on the SS. *Belgie* where it was limited and stamped out, but extension to the native population was not prevented. The exact method of this extension has not been satisfactorily explained, but the following has been offered as showing certain of the unusual environments of that community, as well as certain of the life-endangering habits of the native population:

"Mrs. Emma M. Nakauina, an intelligent and able half-white lady, and one of the highest authorities on such topics, has written an article for the *Pacific Commercial Advertiser* of September 5 that seems to afford a satisfactory clue. She takes as a starting point the fact that the Chinamen who died at quarantine, died of undoubted cholera. The practice has been to bury quarantined persons, without coffins, on a sandspit very near to the home of certain women who make a business of gathering and selling in the fish market crabs, limu and mud fishes. Among these crabs are two varieties that are described and named with a word that means 'corpse-eating,' from their well-known fondness for animal matter, especially decaying human flesh; and these crabs have been met at night half a mile inland from the sea, seeking decomposing animal matter; and the natives bury their dead far inland to preserve them from the ghoully raids of these creatures. At the very beginning of the epidemic a festivity known as a *luau* feast was held in Iwilei—a portion of Honolulu—and Mrs. Nakauina, from her knowledge of the habits of her race, makes no doubt that the crabs and limu caught in the immediate vicinity of the quarantine graveyard formed part of the feast, and she says, very positively: 'Now, those crabs, at the previous high tide, perhaps an hour before, had themselves been feasting on the bodies of those cholera patients, buried on the sandspit, immediately to the seaward of the residence of these fisherwomen. Here was direct, undiluted contagion.' And it should be understood that the crabs, after an interesting method of preparation, are eaten uncooked. The lady elaborately describes the method of the natives in using the crabs, and leaves little doubt on the mind as to the complete deadly career of the microbes. Moreover, she shows that the conduct of the Kanakas, owing to ignorance, is exactly parallel to that of the southern negroes, who could not be compelled to destroy yellow fever infected garments by burning, but would hide them; and the natives of Hawaii wash blankets and bedding in the running streams, unwilling to burn them, and skeptical of the danger. That the dark places of the earth are still 'habitations of cruelty,' is shown afresh by a horribly revolting superstition still holding sway over the minds of many natives. If a person has an enemy, he hires a *kahuna*, or witch, to 'pray the enemy to death'—a process called *ana-anaing* said enemy—no mention being made of any surreptitious aid the witch may have given to his prayers. If the *ana-ana* is effectual, the relatives of the dead person have their innings by taking some of the hair and nails, or, preferably, some of the excreta of the dead person, wrapping it in a clean new bit of coconut fiber cloth, and placing it under a stone in some water source, in the firm belief that the essence of the dead will spread out in the water, and if drunk by the person who was guilty of *ana-anaing* the departed, would cause his death in a short time. With our knowledge of the diffusion of bacteria, we shudder at a proceeding matched only by a tie on the railroad or a dynamite bomb. The ignorant islanders did not lay the early deaths to the cholera-infected crabs; but they had all partaken of a pig that had been bought with the proceeds of a horse that had been stolen; the owner of the horse had employed one of the most powerful (unscrupulous?) of the witches to *ana-ana* the theft of the horse; hence the deaths, in their eyes. It is no wonder that the intelligent lady who fathomed the cause of infection urges the Health Board to guard springs and water courses."

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans: October 12 to 19, 5 cases, 1 death.

New York City: October 19 to 26, 1 death.

Detroit, Mich.: October 12 to 19, smallpox reported: Rochester, Mich.: October 18, 1 case.

Arizona, Nogales: October 24, 2 cases.

Arkansas, Clay County: September 18 to October 22, 3 cases, 7 deaths.

SMALLPOX—FOREIGN.

Bologna: October 5 to 12, 1 case.
 Dublin: October 5 to 12, 24 cases, 1 death.
 Gibraltar: September 30 to October 6, 1 case.
 Glasgow: September 29 to October 12, 2 cases.
 London, Eng.: October 5 to 12, 158 cases, 2 deaths.
 Madrid: October 1 to 8, 8 deaths.
 Montevideo: September 14 to 21, 5 cases.
 Naples: October 5 to 12, 7 cases, 7 deaths.
 Paris: October 5 to 12, 1 death.
 Prague: September 29 to October 12, 2 cases.
 St. Petersburg: September 29 to October 5, 3 cases, 3 deaths.
 Tuyen: October 5 to 12, 5 deaths.
 Warsaw: September 29 to October 12, 2 deaths.
 Singapore: August 1 to 31, 1 death.
 Constantinople: July 1 to 31, 41 deaths.

CHOLERA.

Bombay: September 17 to 24, 1 death.
 Roubaix: September 1 to 30, 33 deaths.

YELLOW FEVER.

San Juan, Porto Rico: September 21 to 28, 6 cases, 5 deaths; September 28 to October 5, 5 cases, 1 death.

SELECTIONS.

Shortening of the Femur.—Mr. Thomas Bryant has contributed to the *Press and Circular* a recital of his experience in regard to shortening of the lower limb, especially in those cases where the femur is liable to be inculpatated. He says that in those cases of shortening of the lower extremity it is essential to closely investigate the condition of the neck of the femur. If this plan be followed, as a regular rule, the explanation of many cases of shortening otherwise obscure and baffling, will be rendered plain. The causes of shortening of the femur may be grouped into five varieties, namely:

1. Impacted fracture of the neck of the femur.
2. Arrest of growth of the neck, following disease the result of injury.
3. Disease of the hip joint.
4. Arrest of growth of the lower end of the femur from disease of the epiphysis.
5. Arrest of growth of the lower end of the femur following disorganization of the knee-joint.

When the shortening of a leg amounts to a quarter of an inch and no more, the defect may be disregarded; this is not unfrequently present naturally or congenitally. Again, half an inch shortening is by no means infrequent after fracture of the thigh. In measuring for any shortening that may be present in a lower limb, it is a good plan first to compare the length of both limbs from the top of the great trochanter of the external malleolus. If the measurement be the same on both sides, then it is obvious that the shortening must be confined to the neck of the shorter femur, excepting always those possible exceptional cases, just above referred to, wherein there is the normal or non-accidental disparity.

Pyemia due to a Capsule Bacillus.—Chiari (*Prager med. Wochenschrift*, 1895, No. 24-27) described a case of pyemia following an ascending suppurative nephritis in which the bacteriologic examination demonstrated the presence of a capsule bacillus as the etiologic agent. The post-mortem examination showed in addition to certain old changes, suppurative nephritis, suppurative prostatitis and cysto-pyelitis, acute endocarditis, and finally an otitis media and a meningitis. In all these foci was found a bacillus which showed a distinct capsule. This bacillus was pathogenic for all ordinary animals used for experimental purposes. Rabbits were most resistant. Subcutaneous injection produced suppuration; intravenous injection caused a rapidly fatal septicemia; injection into the kidneys caused suppurative nephritis with consecutive septicemia. In guinea pigs the intra-abdominal injection caused diffuse peritonitis and death in twelve hours. Mice died very soon after subcutaneous injection at the root of the tail. This bacillus did not lose any of its

virulence after repeated cultivations. It was not stained with Gram's method; it grew rapidly in high glycerin-sugar-agar, producing abundant gas. It was distinguished from the Friedlander's pneumonia bacillus by certain cultural peculiarities, by being markedly pathogenic for rabbits and by being fatal to mice after subcutaneous injection. Sections from the diseased organs showed that it had a close relation to the morbid processes and that its presence could not be referred to post-mortem invasion. In all likelihood, the point of entrance was the urethra, hence the cystitis, the prostatitis and the ascending nephritis. From the suppurating foci in the kidneys, the bacilli invaded the blood and caused the endocarditis, the meningitis and the otitis.

Pathologic Relations of the Liver and Intestines.—Professor Hanot of Paris, in concluding his brilliant address on "The Intestines and Liver in Pathology," before the Congress of Internal Medicine recently held in Bordeaux, summed up as follows: Physiologically there exist intimate, nervous and circulatory relations between the liver and intestines. The liver is one of the essential parts of general nutrition; it feeds all organic activity and protects it against poisons; and, lastly, it creates the bile. Thus the liver maintains the nutritive equilibrium of the intestine, it continually neutralizes the poisons which arrive at or are formed in the latter viscus; it also aids in the special work of digestion. The physiologic services rendered by the intestine to the liver are not so marked. It brings to the liver a part of the elements of its nutrition and of its special energy; it assists the liver in its digestive function and perhaps assists also in its anti-toxic action. The intestine appears to be a vestibule for all the toxic and infectious agents going to the liver in combinations and in multiple proportions—alimentary poisons like alcohol; digestive poisons like acetic, lactic and butyric acids; microbes and their toxins. Modern science has corrected an error of the old pathology—the portal vein is not the sole carrier of poisons, it brings only external poisons so to speak; the hepatic artery in its turn brings those from the interior of the organism. Again, if the portal vein brings infection from the intestine to the liver, the hepatic artery distributes it generally. The noxious influence of the intestine on the liver is only exercised when the latter organ permits it; it is entirely subordinated to the hepatic condition. It is the state of the relations between the liver and the intestine from a pathologic point of view which is the beginning of the doctrine of intestinal antiseptis. We can now readily conceive that intestinal antiseptis ought not only to comprehend the action exerted directly on the intestine, but also the indirect action exerted on the liver. While we are neutralizing the poisons in the intestine we must maintain or assist the antitoxic power of the liver which helps to annihilate them. In destroying part of the poisons in the intestine we preserve the liver so to speak. Again, by maintaining the antitoxic properties of the liver we defend it against the products of intoxication reaching it from the depths of the tissues and which are added to the poisons of intestinal origin. In short, antiseptic measures are efficacious only when hepato-intestinal antiseptis is maintained.

The Physician in Plato's Republic.—The *Lancet* has the following scholarly note that reveals the mind of the great Greek philosopher concerning the status of medicine in his own time. To those of the profession who are interested in historic reflections, it will be pleasing to note that Plato gave precedence to the physician, empirical though he was in that age, over the contemporary theologian or "hierophant." In Plato's scheme the classes that embrace the artist, the ruler and the merchant were those who stood superior to the physician. The physician stood fourth in a series of eight classes. The *Lancet* says: "In a curious passage in one of the most famous of his dialogues—the *Phaedrus*—Plato sketches his view of the doctrine of the transmigration of souls. The soul which has seen most of truth in its former state comes to the birth as a philosopher, or artist, or musician, or lover; that which has seen truth in the second degree shall be a righteous king, or warrior, or lord; the soul which is of the third class shall be a politician.

or economist, or trader; the fourth shall be a lover of gymnastic toils or a physician; the fifth a prophet or hierophant; to the sixth a poet or imitator will be appropriate; to the seventh the life of an artisan or husbandman; to the eighth that of a sophist or demagogue; to the ninth a tyrant. 'All these,' says the philosopher, 'are states of probation, in which he who lives righteously improves, and he who lives unrighteously deteriorates his lot.' The order of precedence in the above list is very curious and highly characteristic of the Hellenic mind. The philosopher at the top of the scale and the tyrant at the bottom show that even Plato was not free from the prejudices of his nation and his caste. The place he assigns to the physician—viz., fourth in the scale—is not a very elevated one, and it is somewhat singular to find him bracketed with the lover of gymnastic toils. It is something, however, to find that the 'prophet or hierophant'—the ancient representative of an important profession—is placed even lower—viz., fifth. Plato's comparatively low esteem for the profession of medicine is not difficult to understand, since at a time when anatomy consisted of a few crude facts and physiology did not exist it was impossible that medicine could command the reverence of any profound and penetrating intellect. We find Plato constantly in his dialogues alluding to medicine as if it consisted of little else but giving a purge or an emetic. No doubt Hippocrates was a man of profound genius and of immense knowledge, considering his time, but it is very unlikely that the average practitioner rose above the level of the mere drug-giving empiric. Lovers of Plato, who, we trust, are not few in the profession, may read their favorite author without feeling aggrieved that in his appreciation of medicine he did not rise above the level of his time. It is probable that the average practitioner of those days combined much presumption and not a little chicanery with a plentiful lack of real medical knowledge, and it can hardly be a matter of wonder that the philosopher looked askance upon such pretenders."

Inguinal Hernia of the Gravid Uterus.—Rosanhaff in the *Semaine Medicale*, Oct. 2, 1895, from *Archives für Klinische Chirurgie*, vol. XLIX, Bd. 4, reports a remarkable case of inguinal hernia of the gravid uterus with premature delivery, and finally an operation for the radical cure of the hernia with recovery of the patient. The patient was a woman 45 years of age, who entered the surgical clinic at Moscow for left inguinal hernia, which she had noticed for about five years. In February, 1893, the hernia had become irreducible, and the preceding June was taken with rapid growth coincident with cessation of the menses. The patient had had twelve children and had been delivered of the last three, notwithstanding the existence of the hernia. On her arrival in the clinic in January, 1894, she presented in the left groin a tumor which descended within 6 centimeters of the knee and had the appearance of a very large inguinal hernia. Its form was ovoid, and it measured 45 centimeters from above downward, while its diameter attained 80 centimeters at the largest place. The integuments which covered it were very thin and deeply pigmented. The tumor was dull but movable and presented a compact mass in its interior. It was dull on percussion and a *bruit* could not be heard on auscultation. The patient had never perceived any fetal movement. The neck of the uterus was very much raised and to the touch was in continuity to the hernial tumor. On Jan. 25, 1894, the patient lost a great quantity of amniotic liquid and the tumor considerably diminished. He was able to recognize the position of the fetus, and its head was found in the dependent portion of the sac corresponding to the neck. The neck was turned to the left side. Two hours after the flow of waters there began contractions of the uterus which were minutely observed, and they consisted of peristaltic movements from the fundus of the uterus and were very rapidly propagated from above downward, but the uterus in its entirety contracted energetically, and its transverse diameter was diminished at the same time that its antero-posterior diameter was elongated. The contractions of the uterus were not accompanied by any painful sensation; they terminated alone and without participation of the abdominal muscles, and a fetus of the weight of 2,200 grams was expelled. The next day the womb and a portion

of its adnexa were easily reduced into the abdominal cavity. The hernial ring was so large as to easily admit the hand; the left ovary and a part of the tube of the left side resisted taxis. The symptoms following the accouchement were absolutely normal, but unfortunately knuckles of intestine attached themselves to the hernial sac and escaped into the place left free by the uterus. On April 7 it was decided to practice an operation for the radical cure of the hernia. After resection of the ovary and the left tube, which were irreducible, and the reduction of the intestinal folds, he resected the vast sac and closed its neck by sutures. He then made an occlusion of the ring and terminated the operation by suturing the wound after having excised the integuments that were in excess. The patient left the hospital cured in about a month and up to the date of the report had not had any return. This case, says the reporter in the *Semaine Medicale*, is unique of its kind, for on one part the accouchement is operated by the uterine muscles alone, and for another part the uterus was able to be reduced into the abdominal cavity, while all the other cases of uterine hernia heretofore reported have been irreducible. The author believes that the hernia and the left tube, as well as the intestinal folds originally formed the contents of the sac in which the uterus penetrated more slowly.

Electrotherapy as a Means of Diagnosis in Gynecology.—Dr. G. Apostoli, (British Medical Association, 1895) after a long and thorough trial of his method, has come to the following general conclusions:

1. The faradic current of tension (generated by the coil of long and fine wire) applied to the uterine cavity, according to the rules established by Dr. Apostoli in 1883, relieves for a longer or shorter time, all ovarian pain of nervous or hysterical origin; but remains powerless or nearly so in cases of ovarian pain caused by inflammatory lesion of the peri-uterine tissue or of the appendages.
2. The same faradic current is therefore useful in diagnosis, inasmuch as it helps us to distinguish the nature of so-called ovarian pain, and to determine rapidly the differential diagnosis between hysterical and inflammatory ovarian pain. Where the two kinds of pain exist in the same patient, we are helped to understand their nature by the fact that the one is relieved and the other is not.
3. If, then, the curative effect of the faradic current clears up or rectifies a doubtful diagnosis, it protects us at the same time from undertaking a useless operation. On the other hand, if the same faradic current proves ineffective, the lesion being inflammatory, we are led to resort to a supplementary galvanic treatment or to a surgical operation sooner or later.
4. The constant galvanic current, applied to the uterine cavity in doses gradually increasing from 50 to 120 milliamperes, according to the rules published by Dr. Apostoli in 1884, and bearing in mind the individual susceptibility and tolerance, will be almost always supported without much pain during the séance, and without febrile reaction afterward, if the parts adjacent to the uterus are free from inflammation.
- Simple cystic, peri-uterine tumors, which are neither inflamed nor suppurating (such as ovarian cysts and hydro-salpinx), may also show perfect tolerance of the galvanic current.
- The galvanic current is also sometimes perfectly supported by cases in which the uterus is surrounded by old inflammatory products or exudations no longer pathogenic.
5. There are three classes of cases which should be considered as exceptions to the preceding rule, for they bear the galvanic current more or less badly, though they do not necessarily produce much febrile reaction after the séance. They are: (a), certain forms of hysteria; (b), fibro-cystic tumors of the uterus; (c), enteritis with false membrane. It is generally easy to diagnose these cases of intolerance.
6. All acute peri-uterine inflammation (of the pelvic cellular tissues, of the peritoneum and especially of the appendages) will cause the galvanic current to be badly borne when it passes 40 or 50 milliamperes, and will cause intolerable pain and febrile reaction when carried beyond this intensity.
7. The intolerance for the galvanic current is generally proportionate to the extent and gravity of the lesions referred to, and increases with the intensity of the current employed—especially when it passes 40 or 50 milliamperes.
8. All inflammation of the appendages which is curable (symptomatically at least) without radical operation will bear the galvanic current better and better, and there

will be a corresponding improvement of the prominent symptoms such as pain and hemorrhages. The intolerance noted at the beginning progressively disappears.

9. All grave inflammatory lesions of the appendages, and notably all suppurative processes which are incurable (even symptomatically) by conservative means, show the same intolerance from the beginning to the end of the treatment which was noticed at first, and which is apt to increase instead of diminish if the treatment is continued.

10. Thus, the simple study of the tolerance or intolerance of the intra-uterine galvanic treatment, and especially of the post-operative pain and fever occurring on the evening of, or the day following the treatment, enables us to make the diagnosis. It also, in four or five sittings, given twice weekly, informs us of the condition of the appendages, of their possible inflammation and its degree, and in this way lessens the number of laparotomies and exploratory incisions.

11. The same study of the so-called galvanic reactions also informs us rapidly (in five to ten sittings) of the curability of these inflammatory lesions which the electric current has demonstrated, and in consequence of this it tells us in one case to abstain from operation, while in another it shows an operation to be urgent.

12. *En resumé*, gynecological electro-therapeutics, carefully, methodically and patiently applied, instead of being opposed to the marvelous progress of surgery, comes to its aid.

Independently, in fact, of the great therapeutic service which it renders every day, electricity serves as a touchstone; it assists us in diagnosis and thus directly serves the interests of surgery, in one case showing an operation to be useless and dangerous, in another that its necessity is urgent.

Thus, many of laparotomies, so-called exploratory incisions and mutilations practiced without due deliberation for the relief of rebellious ovarian pain, or for lesions of the appendages of uncertain nature, should be, from this time forth, delayed or formally proscribed until all the resources of anæsthetic sedation on the one hand and of the intra-uterine galvanic effect on the other, have been tried. Experience has abundantly proved these currents to be innocuous, if given with necessary aseptic precautions.

NECROLOGY.

FREDERICK M. WARNER, M.D., of New York city, died October 8. He was born in 1857, was graduated from Lehigh University in 1877, and subsequently from the College of Physicians and Surgeons. He was house surgeon in the Nursery and Children's Hospital for a year, then went to Europe and took post-graduate courses at Vienna and Heidelberg. Since 1881 he had practiced in New York. He was a member of the New York Academy of Medicine, and of the boards of several hospitals. A widow and two sons survive him.

THOMAS KEITH, M.D., LL.D., F.R.S., of London, Eng., October 9, aged 89.—J. H. McLean, M.D., of Cass City, Mich., October 21.—Albert Champau, M.D., of Detroit, Mich., October 19.—G. M. Harris, M.D., of Lorain, Ohio, October 24.—S. E. Clement, M.D., of Paris, Tex., October 18, aged 75.—Judd Packard, M.D., of Racine, Wis., October 22, aged 25.—O. O. Searcey, M.D., of Temple, Tex., October 19.—H. B. Gibson, M.D., of Columbia, Mo., October 18, aged 45.—Abbie J. Seymour, M.D., of Buffalo, N. Y., October 17, aged 42.—T. F. Owen, M.D., of Springfield, Ohio, October 17, aged 64.—T. B. Cox, M.D., of Frankfort, Ind., October 16, aged 78.—R. L. Koepsel, M.D., of Kansas City, Mo., October 16, aged 34.—C. W. Stoddard, M.D., Ramsey, Ill., October 11.

MISCELLANY.

An Old Favorite.—[For bronchial spasmodic coughs.]

R. Tr. benzoin comp. 20
Tr. opii camph. 20
Tr. cannabis indicæ 5

M. et sig: 10 to 20 drops on loaf sugar, as occasion may require.

A little Australian boy had been to a Museum of Natural History. When he came home he was asked where he had been, and said: "Oh, we've had a lovely time. We've been to a dead circus."—*The Outlook*.

The Language of a Convalescent.—Chief Justice Waite and Judge Hall, of North Carolina, were members of an excursion party on one of the Chesapeake Bay boats. When the steamer had fairly got out into the Atlantic, the sea was very rough, and Judge Hall was taken violently with seasickness. As he was moaning aloud in his agony, the Chief Justice, laying a soothing hand on his shoulder, said: "My dear Hall, can I do anything for you? Just suggest what you wish." "I wish," said the sea-sick Judge, "your Honor would overrule this motion."—*Washington Globe*.

Death in Faith-Healer's Family.—A certain religionist of New York city, for whom has been claimed powers of healing only a little short of raising the dead to life, has suffered the loss by death from pulmonary tuberculosis of one of his children. No one will care to gloat over this faith-healer's domestic tragedy, but if some of his blinded adherents could by the sad event have their eyes opened to the limitations of faith-cure, no little causeless suffering might be prevented.

A Thirty-Ounce Emergency Ration.—A dispatch from Washington states that some progress has been made regarding the proposed new emergency ration of the Army. The annual report of the Commissary-General of the United States Army says that under direction of the Secretary of War, a board was appointed by the Commanding General of each department, consisting of one officer of the subsistence department, one officer of the medical department, and three officers of the line of the Army, to report on the components of the emergency rations to be carried on the person of the soldier on emergent occasions, where transportation is limited or is not available, and it is believed that it will be possible to provide a ration weighing not more than thirty ounces that will contain sufficient nutriment for the soldier for one day.

Ludhiana School of Medicine for Women.—It has for some time been in the minds of missionaries and others, to establish a North India School of Medicine for Christian women, at Ludhiana, in the Punjab. In November, 1894, a beginning was made, and for the last two terms the students have numbered thirteen. Five of these are being trained as nurses, two as compounders, and six have entered for the full course of medical study. With the exception of two English girls, all are natives or Eurasians. The object of the school is to give native and Eurasian girls the opportunity of pursuing a complete course of medical study under the instruction of fully qualified lady doctors, and at the same time to keep them under Christian influence, so that when their curriculum is completed, they may be fitted to minister to the spiritual as well as the physical needs of their suffering sisters, and thus be true medical missionaries. Funds are greatly needed for the completion of the passage money, and also for the support of the school. Scholarships of £20 per year are also much desired, as the students are mostly unable to pay their own fees.

The Samuel D. Gross Prize.—The second quinquennial prize of \$1,000 under the will of the late Samuel D. Gross, M.D., will be awarded Jan. 1, 1900, by the Philadelphia Academy of Surgery. The conditions annexed by the testator are that the prize, "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens." It is expressly stipulated that the successful competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery. The essays, which must be written by a single author in the English language, should

be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before Jan. 1, 1900. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right to make no award, if the essays submitted are not considered worthy of the prize.

A Popular Sanitary Tax.—Mr. H. A. Andrews has contributed to the October number of *Annals of Hygiene* an account of the Atlanta system of taxation for sanitary purposes. The chief sanitary operations for keeping that city sweet and clean are provided for by a house-tax of \$3 per year per house, which is known as the sanitary tax. With the fund thus derived, and also some other sanitary funds, the source of which is not here stated, the city collects all swill, garbage, night soil, sweepings and other filth, and disposes of them in a salutary manner. This house-tax is popular with the average citizen, because he can not otherwise have his premises cared for in the same manner for several times that sum. The city is considering reducing the tax to \$2. The garbage from the business portion of the city is collected every day, and generally twice a day, especially in the wholesale and market districts. In the residence portion of the city, where it is thickly settled, collections are made every day; in other portions, three and four times each week. The night soil is taken up from the water closets every week, and none of it is allowed to remain longer. It is emptied from the water-tight vessels directly into sealed barrels and driven immediately to the place of final disposition—the crematory. The combustible waste at all times is allowed to be mixed with the house and store garbage and operates as a great absorbent, and finally as fuel to burn the more offensive filth. This plan is popular with the citizens, as it involves no sorting, nor separation of garbage and trash, or combustible waste. The combustible waste and trash are as valuable to the city as cars of coal or other fuel.

A Vesical Sequela of Ovariectomy.—The *Lancet* for August 24, contains a report of an unusual sequel of an operation for the relief of cystic tumor of the ovary. The reporter is Dr. Walter Falla, of St. Heliers, Jersey, who performed the operation in May, 1894, upon a woman aged 52 years. After operation a good recovery was recorded. About the end of the eighth month the woman began to complain of pain on micturition, and at the twelfth month there was noticed by her a small amount of blood in the urine. In June, 1895, she again consulted her surgeon, and gave all the objective symptoms of urinary calculus, but refused to be examined at that time. The pain, however, increased, and two weeks later the sound was passed, and a stone of large size was readily recognized. About a week later the calculus was removed by lithotripsy. The removal of the lithotrite was attended with difficulty and delay, a fact that was subsequently explained when there was found entangled in the blades of the instrument a thick silk ligature covered with a certain amount of phosphatic deposit. The ligature had served as the nucleus for the large vesical calculus, and was without doubt the identical ligature that had been used by the surgeon for tying the pedicle during the ovariectomy. The unusual features are the entry of the ligature through the vesical walls, with practically no disturbance of the general health of the patient for nine months; and that a foreign body of so considerable size as this substantial ligature should dispose of itself in this situation, when it is beyond dispute in the mind of the operator that the bladder was in nowise injured or endangered in the performance of the operation.

Tendon Grafting, a new Operation for Deformities following Infantile Paralysis.—At the meeting of the New York State Medical Association, Oct. 15, 1895 (*Medical Record*, October 26), Dr. Samuel E. Milliken, Surgeon-in-Chief of the New

York Infirmary for Crippled Children, and Surgeon to the Infants' and Children's Hospitals, presented a boy 11 years of age upon whom twenty months before he had successfully grafted part of the extensor tendon of the great toe into the tendon of the tibialis anticus muscle, the latter having been paralyzed since the child was eighteen months old. The case which was presented showed the advantages of only taking part of the tendon of a healthy muscle, which was made to carry on the function of its paralyzed associate, without in any way interfering with its own work. The brace which had been worn since 2 years of age was left off, the patient walked without a limp, the talipes valgus was entirely corrected and the boy had become quite an expert on roller skates. Dr. Milliken predicts a great field for tendon grafting in these otherwise hopeless cases of infantile paralysis, who heretofore have been condemned to the wearing of braces all their lives.

How to Read Your Journal.—Not every physician knows how to read a medical journal to the best advantage. With its numerous readers, with diversified tastes to which to cater, and the vast field from which to cull its topics, it would indeed be strange if all parts of the journal were alike interesting to all. The technical discussion of an intricate operation is not of great moment to the busy practitioner, the treatment of pertussis does not interest the oculist, nor the description of the varieties of cataract the gynecologist, and the medical man who attempts to read a journal through, irrespective of its particular value to himself, wastes his time and fails to get good oftentimes from any portion of it. Memory is treacherous in most of us; the thing we want most to remember is often soonest forgotten, and we strive in vain to recall that particular fact which so impressed us as we read the paper. Now this may all be obviated by the employment of a system in reading. Do not try to remember all that you see, but glancing through the pages note the articles that concern you and with a careful reading note in a book kept for this purpose where the information is contained and where the article may be found, should you in the future desire aid upon this point. Such a book, an Index Rerum carefully indexed, is a library in itself and always ready of access, is an invaluable aid in suggestive therapeutics, in difficult and obscure cases, and in all literary work. The work of the *Index Medicus*, whose loss we mourn, can be done for each individual with the expenditure of so little effort and time that it is strange the method is not more universally adopted.—*Atlantic Medical Weekly*.

Illinois State Board of Health.—In making provision for the ordinary and contingent expenses of the State government, the Illinois Legislature appropriated for the State Board of Health: for salary of secretary, \$3,000; for necessary office expenses, including expenses incurred in attending meetings of the board, and in making sanitary inspections, \$2,000; for chief clerk, \$1,800; for clerk, \$1,150; for stenographer, \$720, and for incidental expenses, \$330—all per annum. It also appropriated the sum of \$10,000, as a contingent fund, to be used only with the consent and concurrence of the Governor, upon the recommendation and advice of the board, in case of the outbreak or threatened outbreak of any epidemic or malignant disease, such as Asiatic cholera, smallpox, yellow fever, or to defray the expenses of preventing the introduction of such diseases or their spread from place to place within the State, and in suppressing outbreaks which may occur, and in investigating their methods of prevention, also special investigations when required by the necessities of the State; any necessary expenditures from this sum to be paid on the order of the president of the board, attested by the secretary and approved by the Governor.

A Costly Hospital for Contagious Diseases.—One of the new hospitals for the infectious sick of London is known as the Fountain Hospital. It is concerning this institution that the *Sanitary Record* regrets to note that a dispute has arisen between the great Local Government Board and the powerful Metropolitan Asylums Board. "Strictures have been

passed," says the *Record*, "by the former against the latter, generally as to the policy to be adopted in dealing with any outbreak of infectious disease which may occur, such as necessitating increased accommodation for the reception of patients being provided with all possible speed; also, specifically, in relation to the expenditure incurred in the erection and equipment of the temporary Fountain Hospital. The Local Government Board complains that, whereas the temporary hospital at Tottenham, which was intended to receive 456 patients, cost £119 per bed, the temporary Fountain Hospital to accommodate 406 persons, has resulted in an expenditure of £288 per bed; that the cost of the latter has involved a charge upon the rates of £128,000; that the expenditure has been excessive; that the items of expense should have been scrutinized with great care and vigilance by the managers, and that the architect should not have been given full power in the erection of the Fountain Hospital. A lengthy letter to this effect was recently forwarded by the Local Government Board to the managers of the Metropolitan Asylums District, and at a meeting of the latter, on October 3, an even more copious reply to those comments, forwarded on the 2d inst., to the Local Government Board, was read and passed. The managers of the Metropolitan Asylums District, in reply to the Local Government Board, dissent entirely from the latter's opinion that they were not justified in leaving the matter, which involved such a large expenditure of public funds, in the hands of one man; and they state that any interference on their part with the discretion of the architect would not only have been imprudent, but that it would have led to confusion and delays, and would probably have added to, rather than diminished the cost. As to the expenditure, the managers point out that, so far as the extra cost is due to the expedition with which the hospital was constructed, they are quite unable to regard themselves as in any sense responsible; the hospital had to be constructed within a certain period, and this necessitated overtime to the extent of finally all night work, and even on Sundays. It is further submitted that, having regard to all the circumstances of the case, and allowing for the additional cost paid for speedy construction, good value has been obtained in the Fountain Hospital, which "is well planned and arranged and well built, and will last for many years." In conclusion, the managers state that they regard the strictures as undeserved and uncalled for, and state that the course pursued was the only one possible under the circumstances.

Therapeutics Without Drugs.—In a recent address delivered by invitation before the Lehigh Valley Medical Association, Dr. Solomon Solis-Cohen, of Philadelphia, directed attention to the fact that drug giving is not essential in our therapeutics in very many cases, and, as a rule, should be made to play a subsidiary part. Acknowledging their usefulness in proper hands and under proper circumstances, the too great frequency with which drugs are resorted to encourages patent medicine taking and amateur prescribing. In very many cases, even of acute disease, recovery will take place under proper care and watchfulness, without any drug taking whatever. Both in acute and in chronic cases, many of the ends for which drugs are given can be better and more safely reached through the use of what may be termed natural or hygienic remedies: namely, heat and cold, air, water, diet, rest, exercise, including under the latter head, massage and electricity. As the evolution of the human being has been achieved through action and reaction, with and in a certain environment, so action and reaction under specially adapted environments may modify physiologic and pathologic processes in such a manner as to assist in recovery from disease. In this connection the effect of climate upon diet, and of altitude upon the respiratory and the circulatory apparatus is worthy of consideration, and also the circumstances and conditions in which diet, climate and altitude may be made use of in therapeutics. It is not necessary to go from home in order to secure many of the benefits of atmospheric change. The inhalation of compressed and rarefied air by means of suitable apparatus may, in Dr. Cohen's opinion, be used to develop the lung and influence the circulatory organs, in the great majority of cases, so as to bring about recovery from

pulmonary tuberculosis and afford great relief in emphysema, dilatation of the heart and other pathologic conditions in which the process has gone too far to permit a true cure. Likewise, the use of heat and cold in subduing inflammations (as in pneumonia, certain diseases of the joints, chronic rheumatism, and the like); the use of cold water in typhoid fever, in neurasthenia and other nervous affections, the rest-cure, the treatment of pulmonary, cardiac, and other affections by suitable exercise, and the application of massage and electricity were briefly explained. He believes that blood-letting is a useful therapeutic measure which should be resorted to more frequently than is the present custom, as in many cases it is preferable to the use of drugs. The fundamental thought of the whole lecture was that by studying the means through which nature has brought the human organism to its present condition, endowed it with the power of resistance to climatic vicissitudes and inclemencies of the weather, as well as the ability to resist conditions of disease by automatic cell action, the physician may learn how to employ similar means in aiding the natural processes of resistance and recovery. Although, while doing this, much assistance may temporarily be given by the timely and skillful use of drugs, it is a mistake to make them the sole dependence, and the lecturer called upon teachers and writers to lay greater stress upon those therapeutic measures other than drugs, which had been and always would be used by the best physicians.

Hospital Notes.

THE new St. Vincent Hospital at Green Bay, Wis., was dedicated October 4.—The monthly report of the Protestant Hospital at Columbus, Ohio, shows that there were forty-four patients admitted, and forty-six discharged during the month of September, leaving in the hospital October 1, twenty-five patients. The annual report of the St. Luke's Hospital at Utica, N. Y., shows that there were 387 patients treated in that institution during the past year.—The annual meeting of the Women's and Children's Hospital Association of Syracuse, N. Y., was held October 18. The report showed that 241 patients were treated during the year.—St. Joseph's Hospital, at Memphis, Tenn., was dedicated October 6.—The common council of Janesville, Wis., have voted to appropriate \$500 a year to the Oak Lawn Hospital, a private charitable institution of that city, in consideration of the hospital receiving all city charity and emergency patients.

Society Notes.

THE annual meeting of the Mahoning County, Ohio, Medical Society was held at Youngstown, Ohio, October 16.—At the annual meeting of the Wayne County, Mich., Medical Society, the following officers were elected: President, E. B. Smith; Vice-President, W. R. Henderson; Secretary, Frank S. Hough; Treasurer, C. Henri Leonard.—A quarterly meeting of the Fox River Valley Medical Association was held at Oshkosh, Wis., October 22. The annual meeting will be held at Green Bay, Wis., January, 1896.—A regular meeting of the Northern Berkshire Medical Association was held in Springfield, Mass., October 17.

Louisville Notes.

RODMAN.—Dr. W. L. Rodman has returned from a four weeks' stay in Colorado where he went in search of health, much improved.

DEATH REPORT.—Sixty-seven deaths have been reported during the past week. Of these, 35 were males and 32 females; 53 white and 14 colored. Diphtheria and typhoid fever caused 4 deaths each, scarlet fever 1, pneumonia, consumption and organic heart disease caused 6 deaths each. The contagious disease ordinance was not mentioned at the recent meeting of the general council.

PALMER.—The following invitation was issued by the Louisville Surgical Society to the physicians of Louisville, New Albany and Jeffersonville:

"The Louisville Surgical Society requests your presence at the Edward R. Palmer memorial meeting, Saturday evening the twenty-sixth of October, Eighteen Hundred and Ninety-Five, at eight o'clock, Alderman's Chamber City Hall, Louisville, Ky."

The speakers were chosen by the Society from the faculties of the four medical schools as follows: Kentucky School, Dr. J. M. Mathews; Louisville Medical College, Dr. A. M.

Cartledge; Hospital College, Dr. L. S. McMurtry; University of Louisville, Dr. J. M. Bodine. The ten minute addresses will be published in the JOURNAL at an early date.

St. Louis Notes.

WEEKLY MORTUARY REPORTS.—The death rate for the week ending October 26, was 19 per 1000. The total number of deaths during the week was 204, as compared with 178 during the preceding week and 168 during the corresponding week of last year. Births reported, 176.

CONTAGIOUS DISEASES.—During the week ending October 26, the following cases were reported: diphtheria, 167 cases, 15 deaths; croup, 23, 13 deaths; scarlatina, 6 cases; typhoid, 12, 4 deaths; measles, 5 cases. Thus far during October, 579 cases of diphtheria have been reported, which indicates the prevalence of the disease when it is compared with the epidemic of 1886, when 690 cases were reported during the month of November. The high death rate among the cases of croup recently reported points to the need of greater accuracy in diagnosis and shows a failure to make use of the facilities afforded by the board of health for that purpose. The board is investigating one case of diphtheria which was treated by a woman who professed ability to cure the disease. A physician was called in only as the child was dying.

At the STATE UNIVERSITY measures are being taken to produce diphtheria antitoxin after the German method. The work is in charge of Dr. R. E. Graham, the newly-elected professor of bacteriology. It is proposed to furnish the remedy at cost. The project is under the supervision of the State Board of Health.

THE SATURDAY AND SUNDAY ASSOCIATION is preparing for its annual charitable collection for the benefit of the charitable hospitals of this city. The Saturday collection takes place on November 30, the Sunday collection on December 1. The work is conducted by committees of the Association, the members of which undertake a personal canvass of the various business interests, trades and professions. On Hospital Sunday, collections are taken in all the churches. The work of the Association is entirely non-sectarian, and the distribution of the money realized is apportioned to the hospitals, in accordance with the percentage of charitable work done during the preceding year.

ST. LOUIS MEDICAL SOCIETY.—The program for October 26 included two papers on osteo-myelitis, and one on the use and abuse of uterine curetting.

At the COMMENCEMENT of the Rebekah Hospital Training School October 22, Dr. I. N. Love made a very happy address to the graduates and Dr. B. M. Hypes presented the diplomas. The lively interest taken by the public in the education of nurses was well attested by a large audience.

DR. A. C. BERNAYS, it is reported has at last received \$5,000 as his fee for his operation upon the wife of the paranoiac, Duestrow. Professor Bernays made an attempt to extract the bullet fired by the insane husband into his wife's brain, and succeeded in prolonging her life for a time. His fee was placed at \$15,000, but the compromise to \$5,000 was finally effected.

THE MARION-SIMS COLLEGE OF MEDICINE has signaled its prosperity and progress by the purchase of a large addition to its real estate. The new ground gives the college nearly 200 feet on Grand Avenue with 258 feet on Carolina Street. The new ground is acquired with a view to erect a large hospital, an enlarged dental department, and a laboratory.

Washington Notes.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Medical Society held on the 23d inst., Dr. Mary Parsons presented an abdominal bandage for the retention of displaced kidneys. She mentioned having treated seven cases. Dr. McLaughlin read a paper (and mentioned cases) on cycling as a cause of prostatic disease. Dr. E. L. Morgan read a paper entitled, "Did Jenner Discover Vaccination?" the pa-

per seemed to prove that he did not. Dr. Necker presented a specimen of abscess of the liver (multiple) and read the very interesting history of the case.

PROFESSOR OF CLINICAL SURGERY IN THE COLUMBIAN MEDICAL SCHOOL.—Dr. James Kerr has resigned the chair of professor of surgery in the Georgetown Medical College and accepted the chair of clinical professor of surgery in the Columbian Medical College.

THE GARBAGE CREMATORY SITE.—The Commissioners of the District have approved the Smith System Crematory for garbage, and have decided to locate the plant at the corner of 23d and Winter Streets. The work of construction will be begun at once.

COMMISSIONERS REPORT TO CONGRESS.—The report of the Commissioners to Congress is completed and contains the following estimates: two sanitary and food inspectors, who shall be veterinary surgeons, who shall act as inspectors of live stock, dairy farms, etc., at \$1,500 and \$900 respectively; an increase of \$750 for the support of the chemic laboratory is asked. Six new sanitary and food inspectors at \$10,000 are recommended. For the collection and disposal of garbage and dead animals, \$57,000. For the purchase of a site and building for isolation hospital for the treatment of minor contagious diseases, \$49,000. To prevent the spread of scarlet fever and diphtheria and other minor contagious diseases, including the maintenance of a bacteriologic and disinfecting service, \$16,000.

Washington Asylum including Hospital.	\$ 73,488
Government Hospital for Insane (St. Elizabeth).	104,016
Emergency Hospital and Central Dispensary.	15,000
Columbia Hospital including repairs (\$5,000).	29,000
Children's Hospital.	14,000
Homeopathic Hospital.	2,250
Washington Hospital for Foundlings.	6,000
Freedmen's Hospital.	56,000
Eastern Dispensary (including \$10,000 for grounds).	11,000
Washington Home for Incurables.	3,000

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 19, 1895, to October 25, 1895.

Major Charles B. Byrne, Surgeon, leave of absence granted is extended three months.

Capt. William H. Arthur, Asst. Surgeon, is granted leave of absence for one month.

Capt. James E. Pilcher, Asst. Surgeon, extension of leave of absence granted on surgeon's certificate of disability, is still further extended two months, on account of sickness.

Capt. Ogden Rafferty, Asst. Surgeon, is relieved from duty at Benicia Bks., Cal., and ordered to Ft. Bliss, Texas, for duty, relieving Major Clarence Ewen, Surgeon.

Major Clarence Ewen, Surgeon, upon being relieved from duty at Ft. Bliss, Texas, will proceed to San Francisco, Cal., and report to the president of the retiring board for examination.

PROMOTION.

Capt. William H. Corbusier, Asst. Surgeon, to be Surgeon with the rank of Major, Oct. 17, 1895, vice Cronkhite, retired from active service.

RETIREMENT.

Major Henry M. Cronkhite, Surgeon, Oct. 17, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending October 26, 1895.

Asst. Surgeon J. C. Rosenbluth, to instruction at the Naval Laboratory.

LETTERS RECEIVED.

Army and Navy Journal, New York, N. Y.; Arnold, E. E., Warren, R. I. Brown, P., Toronto, Can.

Criley, B. H., Dallas Center, Iowa; Carstens, J. H., Detroit, Mich.; Clonser, H. D., Hartford City, Ind.; Crothers, Thos. D., Hartford, Conn.; Cochran, Jerome, Montgomery, Ala.

Dav. L. T., Westport, Conn.; Daily Advertiser, Boston, Mass.; Dickson, C. R., Toronto, Can.

Friedman, Harry, Baltimore, Md.

Griffin, Catherine, McHenry, Ill.; Girard, A. C., Fort Sheridan, Ill.

Hills, J. D., West Haven, Conn.; Hubbell, A. N., Buffalo, N. Y.

Laughlin, John, Rantoul, Ill.; Lewis, Henry F., Chicago, Ill.; Love, I. N., St. Louis, Mo.

Magruder, G. L., Washington, D. C.; Montgomery, E. E., Philadelphia, Pa.

Poolman, W. M., San Francisco, Cal.; Pettit, J. W., Ottawa, Ill.

Priestly, J. T., Des Moines, Iowa; Pillsbury, A., Philadelphia, Pa.

Roseberry, B. S., Lacon, Ill.

Sykes, J. A., New York, N. Y.; Sulter, A. W., Herkimer, N. Y.; Stoddard, L. F., Ramsey, Ill.

Woods, Hiram, Baltimore, Md.; Woodruff, H. W., Joliet, Ill.; Wire, G. E., Chicago, Ill.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, NOVEMBER 9, 1895.

No. 19.

ORIGINAL ARTICLES.

PRACTICAL POINTS GAINED IN THE TREATMENT OF ONE THOUSAND CASES OF INSUFFICIENCIES OF THE OCULAR MUSCLES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY J. WALTER PARK, M.D.

Late Clinical Assistant Royal London Ophthalmic Hospital; Ophthalmic Surgeon Harrisburg Hospital; Children's Industrial Home and Home of the Friendless.
HARRISBURG, PA.

As the title suggests, my paper is entirely on practical points gleaned from a rather extensive experience in the correction of errors of refraction. I examine the ocular muscles of every case that I refract and when any muscular insufficiency is discovered, a record of it is made. The subject of heterophoria or insufficiencies of the ocular muscles has become one of such vast importance that I hesitated for some time, wondering whether I had sufficient experience with a large enough number of cases to justify me in expressing an intelligent opinion. In looking over my case-book I find a record of about a thousand cases, of which I kept rather accurate notes, and I think the results obtained will support the views I entertain upon this subject. After all, it is following up one's cases and watching the results for several years afterward that gives us the experience worth placing upon the records of ophthalmology. My notes of cases include all muscular insufficiencies; those which I considered should only have general hygienic treatment, those who should have hygienic treatment as well as their errors of refraction corrected combined with the use of prisms. Of all my cases I find about 75 per cent. of them insufficiencies of the external recti, 25 per cent. of the internal, and but two-thirds of 1 per cent. of all the other ocular muscles. Insufficiencies of the external recti, were most frequent in low degrees of hypermetropia and hyperopic astigmatism, averaging about 70 per cent. and about 30 per cent. of the interni. Insufficiencies of the interni and externi in myopia and myopic astigmatism occurred in about 6 per cent. of all the cases.

I will consider the management and treatment of these cases under the following classification: 1, those occurring in hyperopia and compound hyperopic astigmatism; 2, those occurring in myopia and compound myopic astigmatism; 3, those occurring from constitutional, paralytic, and reflex causes.

Under the first classification the majority occurred in cases ranging from $+0.25$ astigmatic, to a $+0.75$ either hyperopic or compound hyperopic cases. The degree of variation ranging from $.5^\circ$ to 3° in the majority of cases. The insufficiencies occurring in refractive errors from $+0.75$ D to $+6$ D. generally range

from 3 to 20° of deviation. The majority of cases occurring in the lower refractive errors, ranging from $.5^\circ$ to 3° were no doubt due to spasm of the ocular muscles, and were generally relieved by correcting the errors of refraction, and proper outdoor exercises, and in those cases in which I did use prisms, it was generally only for a few weeks at the longest, when they would finally be more comfortable without them. I am now speaking of average results.

I wish to impress the fact that I obtained good results in most cases of moderate degrees of insufficiencies, by correcting the errors of refraction, and the advice of complete rest of the eyes for close work for some time, outdoor exercises and general tonic treatment. In patients with nervous temperaments, one-thirtieth gr. strychnia, and the triple valerianate pills, three times a day did very well in many muscular insufficiencies varying from $.5^\circ$ to 3° . I have seen a case of esophoria of 20° , reduced to 6° , within two weeks, from outdoor exercise alone, when no close work was done during that time. This patient has been doing continuous close work with ease for the past three months, with a 3° prism, but has no errors of refraction. I find very few muscular insufficiencies exist among patients who lead outdoor lives, such as farmers, ironworkers, lumbermen, etc. Operative measures are seldom necessary in the majority of muscular insufficiencies.

A music-dealer, who is myopic and reads music almost constantly, came to me nine months ago with an exophoria of 30° diplopia, and mentally very much distressed, caused by the condition of his eyes. I wanted to perform a tenotomy, but he would not allow it. I then advised complete rest from close work, and outdoor exercise. I did not see him for seven months. He then came to my office feeling quite comfortable, no diplopia, and at his usual occupation again.

I think tenotomies are necessary in but few cases, and then only where diplopia exists, the insufficiency of a permanent character, suffering considerable, and all other remedies fail. In those varying from 3° to 15° , the majority of cases found relief in prisms (combined with their refractive errors corrected) correcting from one-half to two-thirds of their insufficiency. Some of these cases when they are obliged to continue at their usual occupation, find relief for from six months to two years, when you generally find their muscular insufficiency has increased and operative measures may be necessary, or they will be obliged to stop their close work. This, most patients can not afford to do, and something must be done to relieve them, or you lose your case. Exercising with prisms has met with but partial success in my practice. I find that the majority of patients will not follow out one's instructions at home, properly, and to come regularly to the office to have it done, incurs an expense which most of them can not meet.

The following exercise in a great many cases gives me just as good results, and will be carried out much more effectually, and with less expense to the patient. I instruct them to spend a quarter of an hour twice a day sitting in an erect position and fix the eye or eyes at a point either to the extreme right or left, on a horizontal plane and at right angles to the body, keeping them fixed in that position for a minute or two if possible, and then repeating the experiment regularly. Tell your patient to always sit in the same position, looking at the same object, and move the eyes in a similar manner, and you will generally have the same muscular effect upon the ocular muscles as exercise does upon any other muscles of the body. When this is done regularly for two or three weeks you will usually have gained from 5° to 10° in convergence, or a few degrees in divergence, according to the muscle exercised.

I think the tendency toward performing tenotomies for every insufficiency of a few degrees is lessening and, instead, we will urge more rest, and outdoor exercise, and such hygienic instructions as will improve the general health.

2. Those occurring in myopia or compound myopic astigmatism. Muscular insufficiencies in myopia, in the majority of cases, involve the internal recti, causing a divergence of from $.5^{\circ}$ to 30° , the average ranging from 10° to 15° . My experience in the correction of these muscular insufficiencies has not been so satisfactory with rest and outdoor exercise, as in those occurring in hyperopic cases. I have been obliged to prescribe more prisms for continuous use in myopic insufficiencies than in hyperopic ones. The majority of cases with an outward deviation of from 10° to 15° , will feel comfortable with a prism correcting about half their error, for constant use. Few in my experience can stand even two-thirds of a full correction and wear them constantly, but in esophoria the majority of cases felt more comfortable with a full correction. I have only performed tenotomies in myopic insufficiencies in cases of from 15° to 25° of deviation, and have generally had good results with prismatic corrections in those under 15° .

My results from tenotomies combined with advancements were generally good in about 30 per cent. of those cases that I was enabled to follow up, which was from six months to two years afterward.

In reference to the insufficiencies of the superior, inferior and oblique muscles, my experience has been rather limited. They are so rare that when they do occur, correction of the errors of refraction, the use of prisms, and exercising of the defective muscles generally remedies the defect. I have one case now with an insufficiency of 16° of the inferior rectus, upon which I wished to perform a tenotomy, but owing to the comfort he derives from a 4° prism, base up and down, to each eye, he is not yet willing to submit to an operation. He has been wearing these prisms since September, 1894, without any change.

3. Those occurring from constitutional, paralytic, and reflex causes. I have had quite a number of insufficiencies following severe and prolonged attacks of malaria, typhoid fever, and a few following intense cerebral pains which seemed to extend to the base of the brain, also a number of paralytic cases produced by traumatic and apoplectic causes. Those of a reflex character were principally in hysterical patients and only required treatment upon general principles

when complete recovery would always occur. Those following malaria generally vary from 2° to 8° , and when prisms are temporarily worn, anti-malaria and tonic treatment given, with outdoor exercise, they generally all get well. In paralytic cases, electricity and strychnia with exercising the muscles often assists nature considerably, especially in the young, but in those advanced in years the results are not flattering. My experience with prisms in people over 40 years of age, for muscular insufficiencies has not been very extensive, but I find that the majority occurring in nervous cases require frequent changing and are not very satisfactory; most of them get along better without them. A summary of my views upon insufficiencies of the ocular muscles are as follows:

1. That following up one's cases for one to two years is necessary and should be done in all muscular insufficiencies, to tabulate results for publication.

2. Those cases involving the recti muscles, occurring in hyperopia and compound hyperopic astigmatism of from 5° to 15° combined with errors of refraction, will generally all do well with their refractive errors corrected, muscular exercises, outdoor life, tonic treatment, and the temporary use of prisms.

3. Those occurring in myopia and compound myopic astigmatism, require the use of prisms more constantly and are not benefited quite as much by muscle exercising as those occurring in hyperopia, etc. Tenotomies with advancements are generally more effective than in hyperopic cases.

4. Those occurring in constitutional, paralytic and reflex cases require plenty of rest, outdoor exercising, the temporary use of prisms, electricity and general tonic treatment.

5. Tenotomies are not necessary in most cases, and should not be done until all other remedies fail.

6. That there are some cases of esophoria of slight degrees of deviation that require nothing but rest and outdoor exercise to effect a cure.

HYSTERICAL INSUFFICIENCY OF CONVERGENCE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. H. GRADLE, M.D.

CHICAGO.

The object of the present paper is not to put on record a few occasional cases of hysterical affections of ocular muscles, but to present what I believe to be a not uncommon type of functional disease, viz., asthenopia with insufficiency of convergence as a hysterical manifestation. In speaking of insufficient convergence, I do not wish this anomaly to be identified with exophoria. The former condition can exist, as some of my cases show, without any tendency to divergence of the eyes for distance, while exophoria itself can sometimes occur without much reduction of convergence. But for obvious reasons the two anomalies are often associated.

The converging power can be called insufficient only, if the eyes can not converge up to the normal limit in the absence of either paralysis or strabismic shortening of any of the eye muscles. The simplest and only direct way of measuring the amplitude of convergence is to test how near an object can be approached without being seen double. An illuminated slit in a black screen is a serviceable test

object. The most graphic way of stating the converging power in figures is to express it in metric angles (m.a.) according to the nomenclature of Nagel, adopted especially by Landolt. A normal person can converge for a distance of at least 10, but more often 8 or even less centimeters and has therefore something over 10 to 12 m.a. of convergence (C).

The measurement by means of prisms held base outward is not a direct test of the converging power, but only of the patient's ability to converge while viewing a distant object. Since convergence under these circumstances is not a normal movement, but a muscular performance which can be increased by training, its determination does not give as definite a measure of the strength of convergence as the approximation test.

If we measure, in the next place, the diverging power by means of the strongest prisms, base inward, which can be "overcome" without diplopia of either eye and the range of extreme inward and outward motion, we have acquired all necessary information regarding the muscles which move the eyes in the horizontal plane. As Landolt has suggested, it is convenient to express also abduction in metric angles, and to call it the negative part of convergence. ($-C$). With average intra-ocular distance a metric angle is represented by the deviation due to a prism of 7° . Hence we may say that normal persons have at their disposal C. at least = 10 to 12 m.a. and $-C = 1$ m.a.

Whenever convergence is restricted, the relation of $-C$ to $+C$ suggests whether the insufficiency depends on purely muscular conditions or whether it is due to weakness of the nerve center. If the action of the internal recti muscles is insufficient, because they are less favorably attached to the globe, or are less strongly developed than the antagonistic externi, the deficiency of $+C$ is accompanied by an increase of $-C$, although usually the number of superfluous m.a. of abduction ($-C$), is not quite equal to the number of m.a. of $+C$ lacking. The "muscular" form of insufficient convergence is almost always indicated by exophoria.

If, on the other hand, $+C$ is diminished, while $-C$ is either not proportionately increased or normal or even less than normal, the cause is evidently to be sought in insufficient nervous control of the converging muscles. One exception, however, must be noted, viz., the mechanical interference with the movements by the elongation of the eyeball in high degrees of myopia. (The abridgement of convergence in exophthalmic goitre is perhaps also of mechanical origin).

The experiments of Adamuek (1870) on animals have shown the existence of a separate center for the movement of convergence in the region underneath the corpora quadrigemina. That this center can be attacked by disease without paralysis otherwise of the ocular muscles has been established by Parinaud and confirmed by a number of other observers. The occurrence of an isolated paralysis of convergence with integrity of the conjugate lateral movements of the eye, has been observed repeatedly in various forms of organic brain disease.

It has also been learned clinically, that the convergence is at times decidedly enfeebled in neurasthenia without organic lesions.

There seem to be, however, but few observations on record illustrating a paresis of convergence of hysterical origin. The best observed case is that of

Borel (*Archives d'Ophthalmologie*, 1887, p. 356). In his exhaustive article on hysterical affections of the eye muscles, he cites the case of a young hysterical girl, whose converging power was excessively reduced. Every effort at convergence was so painful that no accurate measurement could be made. Abduction was but slightly increased. A tenotomy of the externus gave temporarily great objective and subjective improvement, but the gain in convergence was soon lost again. A year later an advancement of the internus resulted in a complete cure. Borel quotes also a few casual records of other writers illustrating insufficiency of convergence in hysterical patients. Gilles de la Tourette (*Traité Clinique et Therapeutique de l'Hysterie*, Paris, 1891, p. 424), states in his book on hysteria that he has often observed insufficiency of convergence, but does not give details. The extensive literature on heterophoria by American authors contains the histories of many patients unmistakably hysterical whose asthenopia seemed to depend on exophoria, often of a very low degree. But as most of the authors do not give any direct measurement of the amplitude of convergence, the presumption that some of the cases can be considered as instances of hysterical paresis of convergence can not be verified. (For instance, see I. Dunne, *American Journal of Ophthalmology*, January, 1894.)

My own experience has shown me a fair number of typically hysterical patients with insufficiency of convergence and suffering from asthenopia, headache or spells of vertigo. These subjective symptoms were clearly of ocular origin, inasmuch as they came on or became more pronounced on using the eyes, while there were either no other ocular anomalies at all, or while the correction of any existing defects gave the patient but incomplete relief. The history of the asthenopia dated back an indefinite time in most instances; in a few, the time of onset was more recent. The degree of insufficiency varied. The most pronounced cases had but 4 to 5 m.a. of C, but unless a strong effort was made, the diplopia began even at a distance of 40 centimeters. With this insufficiency there was either no exophoria for the distance, or at the most 2° to 3° (prism) in some of the patients. The negative convergence (abducting power) was not reduced, being either normal or slightly above but not over 1.5 m.a. (11° prism). Cases with higher abducting power do not seem to me to come under the heading of this article.

In the more pronounced cases, the insufficiency of convergence was accompanied by a reduction of accommodation. The use of convex reading glasses did not, however, give any relief. The degree of subjective annoyance did not correspond closely with the objective weakness, but varied rather with the intensity of the other neurotic symptoms. Moreover, under proper hygiene and moderation in the use of the eyes, several patients gained considerably in comfort, even while doing some eyework without an equivalent improvement (although there was some) in the objective condition. The occlusion of one eye while working did not help the patients. In view of these observations it seems to me that it is not fully established that the asthenopia or headaches of such patients are entirely due to strain of the internal recti muscles. I would incline rather to the view that asthenopia, insufficiency of convergence and defective accommodation, are all associated manifestations of hysteria.

Therapeutic efforts to increase the convergence by practice with prisms or by approaching vertical lines while attempting to overcome diplopia were not successful. I have had no experience with operative measures except in one case. Tenotomy of both externi proved practically useless, as I might have foreseen, had I clearly recognized the hysterical origin at first. Advancement of the interni holds forth more promise and has been successfully employed by Landolt in Borel's case of hysteria and in insufficiency of convergence in neurasthenia. I have relied mainly on the hygienic management usually directed by neurologists in hysteria. Of six cases observed for long periods, one got practically well, two were materially benefited, while the other three were only temporarily improved or remained in an unchanged condition. I will now give a condensed history of my most conclusive observations:

Miss N., 35 years old complained February, 1894, of spells of diffuse migraine of one or two days' duration, at intervals of a few days. Her complaints date back years, but are worse since the last twelve months. The spells may be accompanied by flightiness. Beside she is apt to get transient headache, nausea and dizziness on using the eyes, but is not conscious of any pain or strained feeling in the eyes. She said she was in good health at the time, and, indeed, seemed to be well nourished and not anemic. Continued observation and further inquiry into her past history left no doubt, however, as to the existence of hysteria. Excessive tremor on emotion and even staggering, periodic numbness of the legs, lump in the throat, long periods of sleeplessness, continuous anorexia, transient uncontrollable vomiting and diarrhea, alternating with long periods of normal digestion, fugitive edema of the feet, proved to be positive evidence of hysteria even in the absence of some of the more typical stigmata. The field of vision for light and colors was not at first contracted, but a perimetric examination showed repeatedly marked fatigue-shrinkage for blue. The eyes were found healthy, with vision just below 20-20. The test, with and without homatropin, showed $As. H.=0.5$, axis $75^\circ R.$ and $90^\circ L.$ The accommodation was reduced to less than 5 D. (P. P. at 8-9") while the convergence could be exerted up to 6 m. a. although even at 12" approximation, diplopia would sometimes begin. Abduction = 1.3 m. a. (9° prism). There was no hyperphoria or heterophoria of any kind and no interference with the lateral rotation of the eye. She was given cylinder + 0.5 D. and hygienic directions.

During three weeks' observation the glasses were found of only moderate benefit in reading, but were refused for distance on account of producing dizziness. The ocular condition and the general discomfort being unchanged, I then made a complete tenotomy of the left external rectus. This did not alter the muscular power in the least, but for two weeks she remained free from headaches.

During the third week she had again a severe spell of migraine with nausea. Since then I found the convergence more reduced—down to 5 m. a., while the abduction had risen to 1.5 m. a., I tenotomized the right externus completely. For the first few days the operation raised the convergence to about 7 m. a., and lowered the abduction to 1 m. a. The abducting power has practically remained stationary since that time, but the convergence soon sank to 4 m. a. at the utmost, while a decided effort was and is yet required to prevent diplopia at 15" distance.

In spite of the want of objective success of the operation, she has been able to use her eyes with less discomfort since that time, and her headaches are not as frequent and generally not as severe as prior to the operation. She can often read for a good part of an hour without suffering. Yet the hysterical origin of the defective convergence is more evident since the operation has forcibly called her attention to the eyes, by the forced efforts with which she pushes the print away from her to a distance beyond ten inches while being tested, and the jerking back of the head when the illuminated slit is approached to the eyes. Her accommodation is still as defective as formerly or even more so, yet she can read persistently at 15" distance and not suffer until after an hour or more.

Since the 0.5 D. cylinders were not tolerated for the distance, they were changed some months after the operation to 0.25 D. with the same axes. For a time she claimed a de-

cided benefit, both as to ability to work and in the prevention of the dizzy spells. But on comparing her records accurately during times when she wore them and periods when she discarded them, I could not convince myself that they really produced much difference.

On comparing my case-books for the past four years, I find five other records of women with characteristic hysteria with persistent asthenopia and headache (and in two instances vertigo). Objectively, these patients presented insufficiency of convergence associated in three of them with reduced accommodation, but no heterophoria (beyond 1° to 3° exophoria in two instances). In all these, the correction of any existing refractive anomaly and the closest attention to the general health gave for the time only incomplete relief from the asthenopic symptoms. Four of these patients have been seen again at long intervals; in three of them there have been long periods of remissions; only one of them, however, seems permanently relieved.

The combination of asthenopia with reduced convergence and accommodation in persons free from organic nervous disease and not distinctly neurasthenic, though of a neurotic disposition, occurs also in males. The following is the most typical illustration which I have seen:

Master O., 15 years old, has for some years complained of tiring and blurring on persistent use of the eyes. Within the last year he gets headaches during school hours. He is also annoyed by shortness of breath when exercising. He seems to be in perfect health, but his physician, Dr. N. S. Davis Jr., who kindly referred him to me, had found dilatation of the heart. He has at times obstruction of nasal respiration, especially on the left side. There was a projecting spur on the left side of the nasal septum, which toward its rear end, touched the inferior turbinated body. Judging this to be the cause of the difficult breathing and probably also a factor in the production of his headaches, which were more pronounced on the left side, I chiseled off the septal exostosis on March 27, 1894. Within a few days the breathing became perfect, even during violent exercise, the headaches ceased nearly entirely and Dr. Davis could no longer detect any cardiac anomaly.

At the time of the operation the examination of the eyes showed: R. E., V. 20-25 C + 0.5 ax. 90 = 20-20. L. E., V. 20-25 C. + 0.25 ax. 90 = 20-20.

Under homatropin: R. E., V. 20-60 C. + 0.5 ax. 90 (.) S + 0.5 = 20-20. L. E., V. 20-60 C. + 0.25 ax. 90 (.) S + 1 = 20-25.

The accommodation was nearly normal, P. P. being = 5". As he could read at 5" distance, the convergence was not tested. Abduction = prism 6° . No heterophoria.

Two weeks after the nasal operation when he considered himself well in every other respect he was still not able to use his eyes long. As he had previously used S. + .75 D. without any benefit, I advised R. E. cyl. + 0.5 D. ax. 90° . L. E., S. + 0.5 D. For about three weeks the glasses seemed to give him complete satisfaction and indeed he said he missed them so much whenever he took them off, that it aroused my suspicion of how much their influence might be due to suggestion. He returned, however, soon with the old story, that the use of the eyes gave him discomfort, whether glasses were used or not. On now testing him, I found the convergence reduced to 5 m. a. with tendency to diplopia even at 15" distance (2.5 m. a.), and there was no heterophoria. This condition remained unchanged during the summer in spite of a vigorous outdoor life.

There are no stigmata in this instance, which permit me definitely to call it hysteria. The neurotic disposition, however, was manifested by the existence of nasal reflexes and by the boy's muscular restlessness while sitting in the chair—at times almost suggestive of chorea. As I have learned from conversation with different neurologists, hysteria does not always appear in our country with the typical stigmata which European authorities have described. It is hence a question open to discussion whether an otherwise unexplained asthenopia with reduction of

convergence, not due to an excess of power in the external muscles, and especially when accompanied by diminished accommodation may not by itself be considered an evidence of hysteria, if neurasthenia be excluded.

In my records of the last four years, I find three other illustrations of this condition—two in boys and one in a young woman. In none of these was there satisfactory evidence of hysteria, although various neurotic symptoms were present. On the basis of other observations not recorded with sufficient completeness to bring them forth as evidence, I am led to the opinion that the condition described in this paper is not an infrequent one.

REPORT ON THREE CASES OF PARALYSIS OF THE SUPERIOR RECTUS, AND SOME REMARKS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. J. BERNSTEIN, M.D.
BALTIMORE, MD.

One requires considerable temerity to ask the time and attention of a body of specialists for any remarks on this subject without giving anything new, but I seek my excuse in this, that I wish to record two simple and uncomplicated cases of paralysis of the superior rectus, and possibly a third. I say, possibly a third, because from the remedy employed to correct it, I have some doubts whether this was really the case.

We know from Mauthner, Graefe-Saemisch and such authors that isolated paralysis of this muscle is one of the rarest affections which disturb ocular equilibrium. It was with a great deal of ignorance but much assurance that I saw the first case, which is the one I call the doubtful one, and following the rule that rare cases occur in groups, saw the two soon after, which were undeniably affections of this sort. Is, then, this form of paralysis really so very rare? Among some eighty thousand cases examined by Mauthner, von Graefe, Schubert and Schoeler there are but twenty cases reported, yet Hulke out of nineteen cases of oculo-motorius paralysis, found five in which that portion which enervates the superior rectus was alone affected. I shall neither enter into any disquisition on the anatomy or physiology of this muscle, for I am sure you are all thoroughly at home here, nor shall I burden you with the history of the cases.

There is one point, however, I would beg of you who are teachers, and that is that a student should not leave you under the impression that as the rectus externus and internus are antagonistic, so are the superior and inferior; but that these two are only antagonistic as regards elevation and depression and the rotation of the corneal axis; they are both, together with this, *adductors*. The rectus superior can only act as a pure elevator when the eye is abducted 23° , as then its plane and that of the visual axis is identical, and this power diminishes in direct proportion as the eye is adducted.

Paralysis in the early stages is readily diagnosed by the failure of the eye to act, or acting only with great effort when vision is directed in the line of the normal action of this muscle; or vertical diplopia occurs in looking up, which (diplopia) is increased in the upper, and particularly in the upper and outer field

of fixation. The false image thus caused is crossed, displaced upward and tilted away from the real image.

In this paralysis, which is possibly most frequently bilateral, diplopia may occur only in the upper and outer field; in more pronounced cases it will be seen in addition when the eye is abducted in a horizontal plane, and in complete paralysis it will be marked when the patient is looking straight ahead, and may even be apparent a short distance below the horizontal plane. The *x* is most marked in abduction and is distinguished from ordinary *x* by the fact that divergence is either normal or slightly diminished rather than increased.

Mauthner says the tilting of the false image is not recognized by the patient unless his attention is directed to that, yet two of my cases and five of Dr. Duane's recognized it.

The latter, when discussing apparent bilateral paralysis says: "I have noticed that the relative strength of the two paretic muscles seems to vary. In the primary position there seems to be little tendency to vertical diplopia, yet it is found in both outer and upper fields. There is no other condition which presents precisely the same features, except an isolated spasm of the inferior oblique, but the unchanging character of the phenomenon observed and the absence of any cause that could produce so unique a variety of spasm, render it extremely improbable that this can be the sole condition present. Often apparent bilateral paralyses are really due to paralysis of one superior with compensatory spasm of the inferior oblique of the same eye. That this spasm may occur seems shown by the variability of the test. Even in more marked paralysis the tendency to vertical diplopia in looking directly ahead is slight, and is altogether absent in convergence and when the eyes are depressed. This latter statement requires some explanation. There may be no actual vertical displacement in convergence, but there is sufficient to cause a blurring, and the great effort made to avoid this is the important factor in the asthenopia. This is shown more decisively in the slight cases of paralysis when *x* in reading is only 3° or 4° . We know that even 5° may be normal with orthophoria in the D. Naught remains then to account for the asthenopia but the vertical defect and the effort made to overcome it. Together with the various tests employed, I find the one suggested by Gullstrand of great value. Instead of observing the reflex of the window on the patient's cornea, one might, as I do, substitute the Placido disk or the mirror of the skiascope and thus slightly modify the test. As originally proposed, the patient stands opposite and a short distance away from a window. Between the two, stands the observer. While fixing the bridge of the latter's nose, the patient moves his head in various directions, while the observer watches the corneal reflex in both the patient's eyes. When mobility is normal, the reflex in all positions of the head covers the pupil, but when there is a loss of mobility in any direction, the reflex moves in the pupil in that direction. In my cases the refraction of the patients was Em. in one, and slight hyperopic astigmatism in the other two. As to the etiology of these paralyses, I beg to differ from Duane, not that they may not arise from a weakness of the muscle due to malformation, faulty insertion or arrest of development, but I also believe they may arise from a lesion of the twig of the oculo-motorius, sup-

plying this muscle, just as we may have isolated paralysis of single pairs of muscles in the larynx supplied by the recurrent laryngeal.

Thus, the one case in which refraction was Em. had had lues some years before. Anti-luetic treatment instituted cured the case. It seems but reasonable to suppose that lues can affect a muscle which we know is, by weight and measurement, the weakest of all ocular muscles.

When after a reasonable delay, medical treatment does not suffice, we must resort to surgery; not to tenotomy of the depressor of that eye or even of the sound eye, but either to advancement of the superior rectus at fault, or tenotomy of the sound one. Nowhere is sufficient stress laid upon this. Noyes advises tenotomy of the antagonistic muscle and generally that of each eye, when speaking of paralyzes of the externi and interni, but says nothing about this special form. Possibly, we think no one would be foolhardy enough to try tenotomy of the inferior rectus to remedy the evil.

The first case of this series, who was rid of his troublesome diplopia by just such an operation, I believe was a case of paralysis of the superior rectus. This, on the face, would appear feasible, as these two muscles are antagonistic in just that sphere of action which causes the asthenopia. All agree ordinarily, that some form of prismatic correction will suffice, especially when coupled with muscular exercise.

In the minor affection of this muscle, just a word in conclusion. I doubt if any careful worker fails to test muscular equilibrium in every case of asthenopia. I am sure you will find many cases of vertical deviation amounting to as high as 1.5° and, indeed, I have seen several higher than this, in which the correction of the refraction sufficed. Just how common this is, I should hesitate to say, but in my last hundred cases of asthenopia, I found twelve with various degrees of hyperphoria, and of these but one required correction for a hyperphoria of 1.5° .

Though my experience is naturally somewhat limited, I am still at a loss to understand how it is that some men find such frequent and urgent need for correction of hyperphoria of even $.25^\circ$. I should not for one moment wish to be understood as doubting the accuracy of this observation; I simply do not meet with such cases.

Finally, it seemed that the American ophthalmological world was in danger for a time of going heterophorically mad. It appears that the pendulum is beginning its backward swing, and we may now be approaching a more rational conception of this subject.

My attention was called during the session to a condition of diplopia which is normal to every one. That is, in near vision, even as far off as one to two meters, you can produce a diplopia very much like that of the paralysis of the superior rectus but the images are not tilted, and this diplopia disappears in the distant vision test, which is not the case where a true paralysis of the muscle is present.

800 Madison Avenue.

When Physicians can not Testify in Pennsylvania.—No person authorized to practice physics or surgery, it has been enacted in Pennsylvania, shall be allowed, in any civil case, to disclose any information, which he acquired in attending the patient, in a professional capacity, and which was necessary to enable him to act in that capacity, which shall tend to blacken the character of the patient, without his consent.

REPORT OF THE COMMITTEE ON THE PREVENTION OF BLINDNESS FROM OPHTHALMIA NEONATORUM.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY LUCIEN HOWE, M.D.

BUFFALO, N. Y.

At the meeting of the AMERICAN MEDICAL ASSOCIATION held in Milwaukee in 1893, the following resolution was unanimously adopted by the Section on Ophthalmology:

WHEREAS, There are in the United States several thousand who have become blind because of ophthalmia neonatorum; and

WHEREAS, This unfortunate result is largely preventable, being due to the neglect of nurses and midwives; therefore

Resolved, That it is the sense of this Section of the AMERICAN MEDICAL ASSOCIATION, that a committee of five be appointed by the chair to urge in all parts of the country, by personal application, by circulars to physicians and legislators, and by blank forms of a desirable law, such legislation as will tend to lessen the blindness caused by this disease.

Upon careful consideration, it was decided that the following would be about the best form of a law to suggest for adoption in the various States, this being almost the same as that which had already been passed in New York, Maine and Rhode Island:

SECTION 1.—Should one or both eyes of an infant become reddened or inflamed at any time after birth, it shall be the duty of the midwife, nurse, or person having charge of said infant, to report the condition of the eyes at once to some legally qualified practitioner of medicine of the city, town, or district in which the parents of the infant reside.

SEC. 2.—Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed one hundred dollars, or imprisonment not to exceed six months, or both.

SEC. 3.—This act shall take effect on the first day of June, eighteen hundred and ninety-one.

Early in December, 1892, a circular letter was sent to all of the prominent ophthalmologists throughout the country, asking their coöperation in obtaining such legislation. They were requested to call the attention of the several State medical societies to the importance of the subject, and to ask these societies to give their approval of such a law in order that committees could present the matter to the Legislature with the strongest medical indorsement.

About four hundred and ten of these first letters were sent to ophthalmologists and to leading physicians in various States, and the replies, together with suggestions in regard to the legislation, necessitated the writing of two hundred and fourteen additional letters. Of all of these, copies are on file of the letters sent and the replies also have been retained.

The accompanying is a tabular statement of the most recent data that can be obtained, in regard to the condition of legislation for the prevention of blindness, each State being given alphabetically:

To sum up the results, they may be stated as follows:

The law had, in substance, already existed in three States: New York, Maine and Rhode Island.

Since then, it has passed both houses and been signed by the Governors of six States: Minnesota, Ohio, Maryland, Connecticut, Missouri, and New Jersey.

It is therefore in operation in a population of over eighteen million. Moreover, a sufficient number of

THE PRESENT CONDITION OF LEGISLATION FOR THE PREVENTION OF BLINDNESS.

State.	Will Co-operate.	Resolutions Favoring Legislation Adopted.	Committee Appointed.	Legislation.
Alabama	Dr. B. J. Baldwin, Montgomery. " S. L. Ledbetter, Birmingham. " W. H. Sanders, Mobile. " Y. G. Woodson, Birmingham.			
Arkansas	Dr. H. Moulton, Fort Smith. " J. W. Scales, Pine Bluff. " George W. Smith, Fort Smith. " C. S. Gray, Little Rock.	State Med. Soc., May, 1894.		
California	Dr. W. D. Babcock, Los Angeles. " A. Barkan, San Francisco. " H. Bert Ellis, Los Angeles. " George H. Powers, San Francisco. " W. F. Southard, San Francisco.	State Med. Soc., Dec., 1893.		Bill presented in Senate.
Colorado	Dr. John Chase, Denver. " F. D. Green, Pueblo. " E. C. Rivers, Denver. " J. R. Robinson, Colorado Springs. " C. E. Walker, Denver.			
Connecticut	Dr. W. Y. Bacon, Hartford. " H. W. Ring, New Haven. " S. B. St. John, Hartford.			Law passed.
Georgia	Dr. A. W. Calhoun, Atlanta. " R. O. Cotter, Barnesville. " James M. Hull, Atlanta. " C. H. Peete, Macon.			
Illinois	Dr. Boerne Bettman, Chicago. " W. F. Coleman, Chicago. " Henry Gradle, Chicago. " C. D. Weacott, Chicago.	At State Medical Society, held April 15, 1894.	Dr. B. Holmes, Chicago. " E. J. Doering, Chicago. " Boerne Bettman, Chicago. Chairman.	Bill presented in Senate.
Indiana	Dr. A. Blitz, Indianapolis. " Geo. H. Kelper, La Fayette. " I. P. Morrell, Terre Haute. " J. L. Thompson, Indianapolis.	State Med. Soc., May, 1894.	Dr. George H. Kelper, La Fayette. " J. L. Thompson, Indianapolis. " A. Blitz, Indianapolis. " F. C. Heath, Indianapolis. " A. F. Schaffer, South Bend.	Passed one house, defeated in other.
Iowa	Dr. J. C. Dunbary, Sioux City. " C. M. Hobby, Iowa City. " Henry B. Young, Burlington. " W. C. Pipino, Des Moines.	At State Medical Society, 1894.		Passed one house, defeated in other.
Kansas	Dr. G. A. Wall, Topeka.			
Kentucky	Dr. William Cheatham, Louisville. " S. C. Dabney, Louisville. " J. M. Ray, Louisville.	South Eastern Kentucky Medical Society, July, 1894.		
Louisiana*	Dr. H. D. Bruus, New Orleans.			Passed Senate, defeated in House.
Michigan	Dr. Don M. Campbell, Detroit. " F. Carrone, Ann Arbor. " Leartus Connor, Detroit. " J. M. Cook, Muskegon. " Robert W. Gillman, Detroit. " D. M. Greene, Grand Rapids. " J. F. Noyes, Detroit.	At State Medical Society, May, 1894.	Dr. F. Carrone, Ann Arbor, Chairman. " R. W. Gillman, Detroit. " Don Campbell, Detroit.	Bill presented in House.
Missouri	Dr. Y. E. Murrell, St. Louis.			Law passed.
Montana				
Nebraska	Dr. H. Gifford, Omaha. " Isador Gluck, Omaha			
New Hampshire				Presented in the House.
New Jersey	Dr. Walter B. Johnson, Paterson.	State Medical Society, held June 26, 1894.	Dr. Walter B. Johnson, Paterson, Chairman. " Charles I. Kipp, Newark. " P. A. Harris, Paterson.	Law passed.
North Carolina	Dr. Richard H. Lewis, Raleigh.	At State Medical Society, 1894.	Dr. A. W. Knox, Raleigh. " Hubert Haywood, Raleigh. " K. P. Battle, Raleigh. " Y. S. Burbank, Washington. " Y. D. Haigh, Fayetteville.	
Oregon	Dr. S. G. Eaton, Portland.	State Medical Society, 1894.		
Pennsylvania	Dr. J. A. Lippincott, Pittsburg. " G. de Schweinitz, Philadelphia. " P. D. Keyser, Philadelphia. " C. L. Frey, Scranton. " G. M. Gould, Philadelphia. " Charles A. Oliver, Philadelphia. " Charles McIntire, Easton. " G. Oram Ring, Philadelphia. " John B. Roberts, Philadelphia. " P. N. K. Schwenk, Philadelphia. " Lewis H. Taylor, Wilkesbarre.	State Medical Society, held May, 1894.	Dr. F. H. Hansell, Philadelphia, Chairman. " J. A. Lippincott, Pittsburg. " Schneiderman, Philadelphia.	Bill presented in Senate.
South Carolina	Dr. Charles W. Kollock, Charleston.	At State Medical Society, 1894.		Passed one House, defeated in other.
Tennessee	Dr. L. C. Graddy, Nashville. " G. C. Savage, Nashville.			
Vermont	Dr. J. H. Woodward, Burlington.			
Washington	Dr. R. L. Thompson, Spokane.			
West Virginia	Dr. G. A. Ashman, Wheeling.	At State Medical Society, 1894.		

* The law passed the Senate, but was defeated in the House. Will be presented again.

convictions have already been obtained to show the efficiency of some such measure when prosecution is properly carried out.

It has been presented and referred to committees in five States: Pennsylvania, California, Michigan, New Hampshire and Illinois.

It has passed one House and been defeated in the other in four States: Louisiana, South Carolina, Iowa and Indiana. In each of these, the committee intend to present it next year.

In four States: Arkansas, Kentucky, North Carolina and West Virginia the bill has been indorsed by local or State medical societies but no effort made to present it to the Legislature.

In the other States, no official action has been taken in regard to it. It is important to note, however, that more than eighty ophthalmologists and other prominent physicians have promised in writing to give their coöperation and hearty assistance to such legislation, and, with the plan thus thoroughly

organized in so many portions of the Union, it is not too much to hope that a few years will find this law or its equivalent on the statute books in nearly every State in the Union. The committee desires thus to report progress.

Signed, LUCIEN HOWE, M.D.,
GEORGE M. GOULD, M.D.,
G. C. SAVAGE, M.D.,
HENRY GRADLE, M.D.

The above report with the table represents the information obtained by the committee at the time the report was made. It should be said, however, that since then practically the same law has been passed in Pennsylvania and Illinois, so that at present it exists among a total population of over twenty-eight million people.

183 Delaware Avenue, Buffalo.

NOTE.—The above report with the table represents the information obtained by the Committee at the time the report was made. It should be said, however, that since then practically the same law has been passed in Pennsylvania and Illinois, so that at present it exists among a population of over twenty-eight million people.

THE RELATIONSHIP BETWEEN THE EYES AND THE BRAIN.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JAMES A. LYDSTON, M.D., PH.G.

Oculist and Aurist to St. Joseph's Hospital, Chicago; Lecturer on Ophthalmology and Otology, Chicago College of Physicians and Surgeons; President of the Alumni Association, Chicago College of Pharmacy; Member of the American Medical Association, the Chicago Academy of Medicine, etc.

CHICAGO.

The frequency of eye disease originating from brain lesion is all sufficient to render an attempt to trace a closer relationship between the eyes and the brain justifiable and merits, by reason of its utility in ocular and brain diagnoses, very careful consideration. If we are dealing with structural ocular changes we are often able to define the etiologic factor at once, but at times we are confronted by functional disturbances which are but vaguely explicable; under such circumstances if we could only view the eyes as a component factor of the cerebral and cerebellar mechanism, obscurity in diagnosis would vanish. I have always regarded the eyes as nothing more nor less than prolonged bulbous expansions of the optic nerves with altered anatomic characters to meet the requisites of their physiologic necessity, viz., to formulate and receive impressions of the external world and, carrying the analogy a step further, we find that the optic nerves are but the telegraphic media of conduction extending from the perceptive center or brain and finally terminating in their bulbous expansions, the eyeballs,—so that the eyes may be justly regarded as the terminal filaments of the optic nerves, and we accordingly note that sources of peripheral irritation excite central phenomena; while *per contra*, in the majority of instances the initial pathologic process appears in the brain and travels downward along the nerve or its sheaths, as in descending neuritis arising from cerebral tumor or other central morbid process.

Anatomic data are likewise corroborative of an intimate association of the eyes and the brain, for notwithstanding the attempt to separate the optic nerve fibrillæ into separate and distinct bundles, we find that there is here and there along the nerve a

complete fusion, so that it is only possible, according to Uhthoff, to separate the macular bundle as a distinctly central bundle in close proximity to the chiasm. See too, how intimately the optic nerves are connected with the brain. This connection is chiefly a threefold one, for we have a large part entering the external geniculate body, another part the thalami optici and pulvinar, and another the anterior corpora quadrigemina; thence from these so-styled primary optic ganglia, fibers are traceable to the posterior third of the internal capsule midway between the lenticular nucleus and optic thalamus, extending under the name of Gratiolet's optic radiation to the cortex of the occipital lobe, and chiefly to that part of the cortex which is styled the cuneus, terminating, finally, in the ganglion cells of the cortex within a region which has received the appellation of the optical cortical area, or visual sphere of Munk, which in turn is intimately connected by means of bundles of associating fibers with the cortex of the frontal, parietal and temporal lobes of the same side, and we are in a position to infer from the connection of homonymous parts of the cortex of the two sides by means of commissural fibers, the chief of which is the corpus callosum, that an intimate association between the various cortical elements is maintained. Then too, the semi-decussation of the optic nerves seems to have been designed by Nature among her allwise provisions as a means of creating a more intimate relationship between the eyes and the brain.

We note further that the eye undergoes degenerative change when its central connections are divided, and again, ascending atrophic optic nerve changes supervene when destruction of the eyeballs has occurred which, following the experiments of Gudden, I have myself fully verified in experimenting on rabbits, destroying one or both eyes and observing the course of the consequent atrophy. And while such changes are only approximate as applied to man, still opportunity to determine this question post-mortem has been afforded several observers, and their findings are fully in accord with the generally accepted conclusions applicable to nerves. We know that when a nerve is divided in an adult, degeneration ultimately extends as far as the terminal network, implicating those ganglion cells whose axis cylinders extend through the same nerve, and later other groups of ganglion cells become involved as a result of contiguity, extension of some inflammatory process or otherwise,—and here it may be well to emphasize the changes that are consequent upon destruction of both optic nerves, or obliteration of the chiasm; necessarily they are bilateral, *i. e.*, in all cases in which a lesion lies on the central side of the chiasm, the ocular manifestations are symmetrically exhibited in both eyes, while asymmetrical phenomena in both eyes, as well as monocular visual defects, are referable to a lesion in the optic nerves proper, or anteriorly to the chiasm. If the lesion divides the chiasm vertically we have hemianopsia as illustrated by Weir Mitchell's case, cited in the *Journal of Nervous and Mental Disease*, 1889, p. 44, in which an aneurysm had completely divided the chiasm in the median line and caused blindness of both inner retinal halves. With respect to the importance of either one of the three primary optic ganglia in the rôle of the visual act, it is unfortunate that investigators have reached no concordant results, owing to the rarity of clearly defined examples of isolable lesions

implicating one or the other of the primary ganglia, and the fact that we are unable to extend our experimental researches to the human family. Crossed hemianopsia has been known to follow obliteration of a single pulvinar, while destruction of the anterior corpora quadrigemina has ensued without perceptible visual impairment, although I believe Gowers is authority for the statement that choked disk in which blindness was not a conspicuous feature has followed injury of the anterior corpora quadrigemina; however, the general consensus of opinion of investigators is that the anterior corpora quadrigemina preside over movement of the extrinsic ocular muscles, their nuclei being intimately associated with them.

If we consider the comparatively small surface area of the retina, we are surprised to find that the bundles of optic nerve fibrillæ are so numerous, and again, when we consider the minuter and all-important papillo-macular region we note that the most important conducting fibers are here disposed, and as we are justified in assuming that the papillo-macular bundle is formed by an agglomeration of optic nerve fibrillæ, each one of which has an intimate as well as individual connection with the brain, we must conclude that the eyes are simply outlying cerebral structures, so placed as to meet the exigencies of their function, and in cases of sympathetic irritation which in many instances precedes general ophthalmitis, we are able to readily appreciate the rationale thereof, although in accordance with the definitive experimentations of Deutschmann, and conforming to the most recent bacteriologic research, we ascribe the occurrence of sympathetic ophthalmitis to the transmission of germs through the medium of the optic nerve sheaths, rejecting the theory of nerve irritation. After accepting such an intimate association of the eyes and the brain, it would not be unreasonable for us to expect that ophthalmoscopic investigation would at once reveal the cause of cerebral and sequellar ocular changes, but unfortunately such is not the case, for the reason that the cerebral and optic nerve circulation is governed by the amount of blood, not alone in the carotid, but depends upon the entire circulation in the circle of Willis, which in turn depends upon cardiac tone, and while increased or diminished blood pressure in the carotid might excite retinal hyperemia or ischemia, it would be no positive criterion as to the nature or gravity of the pathologic cerebral change. However appropriate the attempt to define a coarse relationship between the eyes and the brain, we are still confronted by the necessity of tracing the distribution of the optic nerve fibrillæ in the brain, or, as it is usually styled, the origin of the optic nerves, in order to explain many of the symptomatic ocular phenomena characteristic of morbid cerebral and cerebellar processes. Unfortunately, we are still unable to assume a positive stand in this direction, and yet that which is positively known in this regard enables us to classify many changes with a reasonable degree of assurance. Thus we know with respect to cortical visual disorders, *i. e.*, those which are situated on the central aspect of the primary optic ganglia, heretofore mentioned in Gratiolet's optic radiation and in the cortical portion of the occipital lobes, that: 1, central disturbances necessarily induce homonymous ocular phenomena; 2, ophthalmoscopic manifestations are absent; 3, involuntary light reaction is present, even if optical memory pictures are not elicited.

We find that destruction of the cuneus in man, induces marked hemianblyopia in the opposite half of the visual field, or the same effect as the obliteration of the entire cerebral cortex, which proves a uniform distribution of all optic nerve filaments, all theoretical reasoning to the contrary. Schaefer, Munk and others have demonstrated by experimentation upon animals, and clinical data support their findings, that feeble electrical stimulation of the occipital cortex causes conjugate ocular movements to the opposite side, upward when applied posteriorly, downward when applied anteriorly, which indicates that the brain exercises control of voluntary motor ocular movement and presides over orientation, enabling us to ascribe the proper position of an object in the visual field.

Embryology also teaches us that there was primarily a very intimate relationship between the brain and the eye, and that the eye has virtually evolved therefrom, for the eye develops from an invagination from both sides of the primitive cerebral vesicle, which invagination is styled the primitive ocular vesicle, and remains attached by means of a broad pedicle which subsequently contracts and forms the optic nerve. This pedicle is enveloped by the ectoderm which at the apex of the ocular vesicle becomes thickened, constituting the first germ of the lens which ultimately is reduplicated by reason of the more speedy development of the ectoderm and appears as a pouch-like eversion which subsequently closes, forming a sac—the lens vesicle. The retina is likewise derived from the primitive ocular vesicle and is therefore regarded by many as a remote part of the brain, and in accordance with embryologic development we are certainly at liberty to regard the eye as a whole, as a cerebral appendage. Again, when we consider how intimately associated the ocular mechanism and the nervous system, as a whole, appear to be, as fully borne out by the various symptomatic phenomena such as cephalalgia, migraine, vertigo, visual hallucinations, asthenopia, various types of hyperesthesia, scintillating scotoma, reflex phenomena, and very often in cerebral hemorrhage we find transitory homonymous hemianopsia in the visual field of the side opposite to the hemorrhage—we must conclude that the connection between the eyes and the central nervous system is very close. In cases of cerebral hemorrhage too, while occasionally there may be ophthalmoscopic findings due to the hemorrhage, more frequently do we find pathologic changes in the eyes that arise from the same cause as the cerebral hemorrhage. Thus neuritis, albuminuric retinitis and neuro-retinitis are signs of similar brain changes, while retinal and subhyaloid hemorrhages are indications of a general atheromatous tendency.

804 Champlain Building.

LYMPHANGIOMA CAVERNOSUM OF THE ORBIT.

WITH AN ORIGINAL CASE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. C. AYRES, M.D.

CINCINNATI, OHIO.

Mr. C., age 53, was first seen May 15, 1894. At that time there was a well-marked proptosis of the right eye, which he said had been coming on for about three years. He had had no pain in the eye or the orbit. He could count fingers at

3' but the inner field seemed to be more sensitive than the outer field. There was well marked optic neuritis. Motion of the eye was unimpaired. The diagnosis given was a probable sarcoma beginning in the apex of the orbit.

He has generally enjoyed excellent health and has been an active business man. Family history: his father died at 70 and his mother at 83; one sister living and in good health, and two sisters deceased—one from a malignant growth and one from childbirth. It was impossible to detect any growth around the rim of the orbit and it seemed evident that the growth, whatever it might be, was located in the apex of the orbit and was pressing the eye directly forward.

He was not seen again until Nov. 26, 1894. In the meantime the tumor had grown very considerably, and the proptosis was very marked. The eye now stands about 8 mm. in advance of the plane of the left eye. Motion upward was limited and the eye diverged, as if pushed out in the axis of the orbit. The optic disk was very considerably swollen, and vision was 0.2. Within the past few weeks he has had three severe attacks of pain in the head, lasting several hours each time, and during them he had a tingling sensation in the right side and some delirium. There has also been at times a well marked mental hebetude. He became listless and sleepy, and lost interest in everything around him. When his wife read to him, he would fall asleep or would lose interest in what was read, or in conversation. He has had a large number of nasal polypi removed within the past year, but there was no evidence of any malignant growth in the nasal fossæ. The increasing exophthalmos and the mental hebetude and the attacks of pain in the head made him decide to submit to surgical interference for relief. There is no evidence of any growth in the orbit from palpation nor was there any bruit or pulsation. He was told that an attempt would be made to remove the tumor and save the globe, if such was found practicable, after its size and character had been sufficiently obtained in the first steps of the operation. The external rectus was first severed, leaving a stump on the sclerotic, so that it could be used for reuniting the muscle, in case the tumor could be removed without sacrificing the eye. After getting an opening sufficiently large for me to make an exploration with my finger, I found that I had to deal with a large elastic tumor, which grew within the muscular funnel. The optic nerve was on its anterior surface and put greatly on the stretch. In view of the injury to all the ocular muscles and optic nerve from an attempt to remove so large a tumor, I decided to enucleate the tumor and globe together. The growth filled the bony walls of the orbit so closely that there was some trouble in detaching it, but this was finally accomplished and the optic nerve severed at the very apex of the orbit.

Macroscopically, the tumor presented a whitish appearance and was firm but elastic. The optic nerve was attached to it by bands of connective tissue. It measured 35 mm. in length; the diameter of the outer end was 22 mm., and that of the inner end 13 mm.

It is now five months since the operation, he has had no pain in the head, and the mental dullness and apathy have entirely disappeared. He takes an active interest in everything around him, and has regained his former mental activity. This has been one of the striking features of the case.

The microscopic examination was made by my friend, Dr. J. E. Greiwe, whose letter I copy:

"Dear Doctor:—I have examined the specimen which was removed from the orbital cavity, and I send you a few preparations stained with Boehmer's hemotoxylin. I do not think there can be much doubt about the nature of the growth; and, while one would certainly be justified, from a macroscopic examination of the tumor, in coming upon the suspicion of echinococcus, yet there is nothing to justify the diagnosis microscopically. There are no hooklets, no characteristic membrane, etc. The new growth, if you may call it in the strict sense of the word a new growth, is characteristic of lymphangioma. Macroscopically, you will notice that the preparation shows many small cavities. The tumor itself is composed for the most part of lymphoid cells, both large and small; the cavities are for the most part lined with an imperfect layer of endothelium, and within these cavities are numerous lymphoid cells lying about loosely. There are no traces of blood vessels, and there is no evidence of glandular formation. Lymph vessels are numerous and large, and these larger ones are lined with a perfect layer of endothelium. The examination agrees also with the clinical

history of the case. I think the trouble originated from an occlusion of one or more lymph channels causing an engorgement, which in the course of so long a time resulted in a mass of this size. My diagnosis is lymphangioma cavernosum.

Very sincerely,

(signed)

J. E. GREIWE."

The literature at my command shows only two similar tumors and probably a third. The first one is by Förster, in *Graefe's Archiv.*, vol. XXIV, 2, p. 107. The second is by Wiesner, *Graefe's Archiv.*, vol. XXXII, 2, p. 205, and the third by Dunn, *Am. Jour., Med. Sciences*, 1894. There may be other cases of similar character, but I have not access to them. In consideration of the rarity of the disease, I have made translations from the above cases and have added notes from Ziegler and Michel.

In Förster's case the tumor was situated within the funnel of the ocular muscles, as was mine, and was about the same length but broader. In this case, however, there was no mental disturbance and no pain. In mine, the mental hebetude seems to have depended on the influence of the tumor. The tension of the tumor on the optic nerve must have been very considerable, as the nerve was found lying over its anterior surface. We can not calculate from other statistics, as they are wanting, the probable or possible influence of such a stretching of the optic nerve on the brain, but in my case they seemed to stand to each as cause and effect.

In Wiesner's case the tumor was located between the globe and the lower outer edge of the orbit, and was ovoid in shape and movable.

In Dunn's case, the patient was a leukemic boy, 8 years of age, and the tumors were above the eyes and attached to the orbital arches, and there was no impairment of motion or vision.

There is an apparent inconsistency in the vision of the eye when examined in May and November. At the first date he could count fingers at only 3' and in November he had a vision of 0.2. I can only account for the difference by the variation of pressure on the optic nerve.

1. Professor R., *Graefe-Saemisch*, vol. VI, Berlin, page 700, (quoted from Förster, *Arch fur Ophthal.*, XXIV, 2, p. 108.) The only case reported up to date (1875) is reported by Förster: "For the past ten years, Nicholas B. has had a steadily growing protrusion of the eyeball. Status: V. = movements of the hand and one foot. The skin of the lid is red, and the veins varicose. The globe is strongly abducted, and with difficulty pressed backward. Movements of the globe are greatly interfered with, especially upward and inward. Palpation of the inner side of the orbit gives one the sensation of a slightly movable, soft, in places nodular tumor about the size of a nut. Pulsation distinct, auscultation negative. Ophthalmoscopically: white atrophy of the optic nerve with but slightly filled vessels. Clinical diagnosis: sarcoma fibromatosum orbitæ. Enucleation of the globe and tumor. Healed in six days. No recurrence. Macroscopic examination: within the muscular funnel to the inner side and below the globe, was found a soft elastic tumor 37 mm. long and 35 mm. broad, which was inclosed in a capsule. On section the entire tumor showed itself permeated by spaces of various sizes, between which are broad bands of fine connective tissue. Microscopically, the inner walls of the alveoli are lined with endothelial cells. The walls themselves are formed by layers of connective tissue fibers, between which are spindle cells which are arranged

concentrically to these cavernous spaces. The spaces contain numerous lymphoid cells, whereas the fibrillary walls show large quantities of elastic fibers and blood vessels."

The clinical character of this tumor coincides most remarkably with that of a cavernous angioma. The slowness of its growth, its painlessness, its seat within the muscular funnel, the retention of a certain amount of movement in all directions, its soft elastic consistence, which the specimen showed; in short, the only symptom which was lacking and which in this instance was not sought for is the swelling, to have made this a complete picture. *We must, further, not forget the most important fact, that this even in itself rare form of tumor, a cavernous lymphangioma, is found here for the first time in a tissue in which, anatomically, up to the present time, no true lymph vessels have ever been found.*

Owing to this being a single isolated case which up to date has been reported as occurring in the orbit, the writer (Berlin) is prompted to give it thoughtful criticism. This would certainly not be possible if the microscopic examination of the alveolar contents had given us a completely convincing result. But he simply states: "The areolar spaces contained numerous lymph corpuscles." It certainly would have been of great importance to know whether there had been any other morphologic elements present. The fact, as the author states, that the specimen was preserved for one and one-half years in Müller's fluid and alcohol before the microscopic examination was made, might certainly give us a reason for the difficulty in recognizing red blood corpuscles. The course seems to be an exceedingly slow one. Prognosis as regards the general condition is good. As a rule, as a result of pressure on the optic nerve or on the globe, or both, it leads to atrophy even destruction of the globe. Therapy: extirpation.

2. Ziegler's "Pathology," vol. II, page 304. Published 1891: "The angiolymphaticum, or the lymphangioma, bears to the lymph system exactly the same relation, that the angioma does to the vascular system. It consists principally of a dilatation of lymph vessels, which is at times associated with a hypertrophy of the lymph vessel walls and the tissue between them. It is possible to differentiate between a lymphangioma simplex or telangiectasia lymphatica, and a lymphangioma cavernosum. We must still mention a third form, the lymphangioma cystoides. As one may see from the nomenclature, the configuration and size of these dilated lymph vessels varies greatly. In the most pronounced change, veritable cysts are formed. The contents of these spaces is mostly a light and clear, exceptionally a milky lymph. The condition is partially congenital, partially acquired. The congenital lymphectasies are found in various forms, as in the tongue, (macroglottis), the dental arches, the lips (makrocheilie) in the skin (nævus lymphaticus), on the neck (hyroma colli congenitum) the labia majora, etc. It is not unfrequent to find the lymphectasie in the skin as an acquired condition, for example, on the thigh and on the scrotum. At times they form extensive, circumscribed, fluctuating tumors, (Fig. 157). The ectatic and cavernous lymph vessels show thickened walls, and have their seat more especially in connective tissue and fatty tissue, owing to extension of this cavernous development of lymph vessels over a large surface of the subcutaneous tissue of the skin, and

may cause an elephantiasis-like disfigurement of the part. Not infrequently the tissues which lie between this growth also undergo a hypertrophy. If these cutaneous lymphangioma burst, a lymphorrhea ensues. Not infrequently we find hyperplasia of the skin and other organs complicated by the ectasie of the lymph vessels of the skin. In very exceptional cases, chylangiome of the intestinal wall and the mesentery have been found, and exceedingly seldom, cystic lymphangiome of the peritoneum."

3. Michel, *Augenheilkund*, 1890, page 649: "Cavernous angioma and lymphangioma may occur primarily in the orbit. They are most frequently found in the muscular funnel; less frequently between the latter and the bony wall. The latter is the case when the tumor has extended by growth, and this most frequently extends toward the roof of the orbit. The lymphangioma, it may further be stated, occurs in the latter years of life (about the fortieth year) and may then occur primarily between the muscular funnel and the edge of the orbit. The symptoms at first may be very slight, simply causing a slight impediment to free movement, thus leading to diplopia. As the tumor grows, the eye is pushed forward. The surface of the tumor as a rule is smooth, sharply defined, movable and compressible. Anatomically, the tumor is made up of connective tissue; the alveoli are lined with endothelial cells; contents, a serous fluid containing lymphoid cells. *Lymphome have been observed in the orbit at the same time with others in the lid, in leukemia.*" (See page 11.)

4. Thos. J. Dunn, case of leukemia with rare lymphoid growth of orbits and parotid gland. **The American Journal of Medical Sciences*, 1894: "Boy 8 years, highly leukemic. Growths in the orbits were crescentic above the eyes and not firmly connected with the lids beyond the nasal side of orbits and extended to the external canthus, and were firmly attached to the orbital arches. Not painful. Considerable exophthalmus. Motions of eyes not much interfered with. Eyes healthy otherwise. Vision normal. No autopsy allowed."

5. B. Weisner, "The Lymphangioma of the Eye," *Graef. Arch.*, vol. xxxii, B. 2, page 208. Case seen in November, 1885. History: patient 43 years old. Tumor of lower lid. Since past two months, diplopia. Status: weak hypermetropia. Complete loss of function of right rectus inferior. Between globe and lower outer edge of the orbit is an ovoid movable tumor, about the size of a hazelnut; hard consistence, smooth surface. No exophthalmus. Diagnosis: fibroma of the orbit in tissue between the peri-orbital and rectus muscle. Operated one week later, November 13. Incision made parallel to the lower orbital edge just below the same, and the tumor, which was loosely connected with the peri-orbita and muscular funnel, was easily peeled out without loss of blood. Healed by first intention. Patient discharged on fourth day. (a), macroscopic examination: tumor 77 mm. long, 9 mm. high, 5 mm. thick. On incision a serous fluid escaped. Tumor showed a cavernous structure with relatively large and some smaller spaces, showing a striking likeness to the cavernous structure of the corpus cavernosum of the penis. Tumor was covered with a thin fibrous sheath. (b), microscopic examination: made partially on teased preparation, partly on sections stained with hematoxylin. The lax tissue around the tumor is concentrically arranged, rich in fat and blood vessels, whose

walls are hypertrophied. The fat is infiltrated with lymphoid cells. Accordingly the tumor is to be designated as a cavernous lymphangioma of the orbit. He then quotes Förster's case. The mode of development of these tumors. They must belong to the class of new formations which take their origin from embryonal tissue. This follows from some unknown cause.

We must assume, in the foregoing cases, that in the orbital tissue at some point, the development starts from (the lymph vessels have not as yet been demonstrated) the germ of the mesoderm or embryonal formative cells. In such a new growth all such tissues may be found which are destined to be developed from the mesoderm. That in any special case any particular type should predominate is not to be wondered at. In one case it assumed the character of a cavernous lymphangioma, which is rich in connective tissue, has many hollow spaces filled with lymphoid cells. The formation of blood vessels keeps pace with the formation of connective tissue, which they nourish. In a later stage muscular fibers develop. The formative material, however, has been present from the beginning, consisting undoubtedly of a portion of the spindle cells interspersed in between the connective tissue framework. The arrangement of the muscular fibers is so far regular, in that they arrange themselves in bundles; otherwise, they follow no regular type. The pressure which results from the growth of the tumor explains the inflamed condition of the vessels of the fibrous capsule, which appear to have developed from the cellular tissue of the orbit. "The inflamed condition of the capsule is demonstrated by the hypertrophied condition of its capsule. The hollow spaces within the tumor are of very irregular form. This is the result of the outgrowth of processes, which meeting each other from opposite sides lead to the formation of new spaces, and this going on will gradually lead to increase of the tumor.

This tumor must be differentiated from the cavernous angioma, and in so doing I must confine myself to a clinical differential diagnosis.

The cavernous lymphangioma has no characteristic clinical picture, so that we can show but indirectly by the clinical history that they are not cavernous angioma. Based on a case of v. Graefe (*Graefe-Saemisch*, vol. vi, p. 708) Berlin describes the principal clinical features of the cavernous angioma: "The spontaneous increase and diminution of the swelling, which can also be induced mechanically. Its full, elastic, but at no point hard consistence, the almost totally intact muscular movements, its seat in fatty tissue, its extremely slow development, its painlessness and lastly the otherwise good condition of the patient."

Not a single one of the symptoms was present in this case (as also in Förster's case). The increase and diminution of the swelling was entirely wanting. Förster's case showed exophthalmus, nor was the consistence like that described by v. Graefe. It was hard, which could not be the case in a tumor that was changing its size and elastic. Still it was very difficult to form a correct idea as to the consistence of a tumor, especially when palpating a tumor in the orbit. Then again, there was not in our case a totally intact muscular condition, for we found impairment of the external rectus. In Förster's case, in which the tumor was inside the muscular funnel, the move-

ment was interfered with in all directions. If this last symptom were always found lacking in cavernous angiome, and in both the other cases was found present, this could be explained by the different anatomic character of the tumors. For the angiome is compressible; hence, any interference with muscular movements can be easily overcome, whereas in the lymphangiome this can not occur, hence the interference with the muscular action. The seat of the disease, the painlessness and general condition of the patient are general symptoms and do not enter into the differential diagnosis.

The other objection which Berlin makes to Förster's case, I do not consider as proved. The fact that this is an isolated case simply goes to prove that it is a rare affection and it is possible that some of the cases which have been described as fibroma of the orbit were of this nature. It seems strange that Berlin is not satisfied with the statement that "the spaces were filled with lymphoid cells and contained no other morphologic elements," and again his remarks about the preserving value of Müller's fluid. Examination of specimens which had been preserved for many years in Müller's fluid demonstrated the fact that it does preserve the red blood corpuscles beautifully.

Berlin seems to be of opinion that lymphangioma can only occur where lymph vessels are present. I here once more point to the mode of development of these tumors, and will further add Wegner's theory. (*Langenbeck Arch.* xx.) Wegner arrives at the following conclusions:

1. Lymphangioma may develop from already existing lymph vessels, which become dilated as a result of stasis, owing to closure of larger lymph vessels; hence, as a result of ectasie with hyperplasia. A case of this kind of so-called capillary lymphangioma has been described by Ben. Israel (*Über Lymphangioma Mag Dis Würzburg*, 1885).

2. A second mode of development is not from pre-existing lymph vessels, but from newly formed lymph vessels, which are the result of an active proliferation of endothelium which already exists—homoplastic neoplasm.

3. A third form is mentioned by Wegner, in which there is also a new formation of lymph vessels, which develop from connective tissue, granulation tissue, which is the result of the dilatation of spaces gradually taking on the character of lymph-carrying spaces—heteroplastic neoplasm.

14 E. 7th Street.

ECTOPIA LENTIS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY FLAVEL B. TIFFANY, M.D.

KANSAS CITY, MO.

In speaking of the subject of ectopia lentis before this body of oculists, it is not my purpose to review the literature upon the subject nor to discuss in particular the symptoms or treatment. Each and every one of you doubtless has met with the various forms of ectopia lentis—spontaneous, traumatic and congenital. In my practice within the last twenty years I have seen almost every form of luxation of the crystalline lens. I have seen the lens as it were a drop of oil in the anterior chamber; I have seen it extruded through the sclera lying beneath the conjunctiva; I

have also seen it entirely expelled from the eye through the cornea. Only a few days ago when attempting to evert the lid of a baby with ophthalmia neonatorum, the lens popped out on the cheek through the ulcerated staphylomatous cornea. I have found the lens partially dislocated from its bed, swinging backward and forward like a shutter on its hinges. Quite frequently have I found it luxated into the vitreous and floating there. I remember one case in particular, where the lens had been broken and thrust into the anterior chamber by an osage orange thorn; and the attending surgeon was about to remove the eye, mistaking the comminuted lens in the chamber for panophthalmitis.

I call to mind several cases of luxation of the lens into the anterior chamber, which for want of proper diagnosis and timely treatment had provoked suppurative iritis and glaucoma. Several cases I have had of so-called spontaneous luxation into the vitreous, but invariably they were in myopic eyes or cases of synchysis; but all these you have also had; and it is not of them I wish to speak. I want to call your attention especially, gentlemen, to two cases which are in my opinion rare or unique. The first is that of traumatic luxation of both lenses at one and the same time in an individual whom I saw at Edgar Brown's clinic at Liverpool, Eng., September, 1887. The patient was a woman of middle age. On each eye the lens was seen resting upon the sclera beneath the conjunctiva a few mm. from the inner and upper border of the limbus. There was a rupture of the sclera about 8 mm. long between the superior and internal rectus, parallel with the limbus, and some 3 or 4 mm. from the sclero-corneal junction. The injury was caused by a clutch of the fist during an altercation between the woman and her son-in-law. I speak of this as a most rare accident, both eyes having been identically and simultaneously injured. But it is to my second case I especially call your attention. This case is that of congenital ectopia lentis in a family of nine children, the Vogle family of Leavenworth, Kan., seven of whom were thus afflicted, while the other two had not the slightest displacement of the lens. In each of the seven, the lens of each eye was displaced in some direction from one-third to one-half or more of its width. With the pupils dilated, one could readily view the fundus of the eye, either through or at one side of the lens. With the indirect method, two images of the fundus could be seen at one and the same time. The lenses all seemed slightly opaque, and the edges were all dark, appearing as a black curved line dividing the pupil; this line probably was due to the total reflection and not to opacity. In each case there was iridodonesis and the lens could be seen swaying slightly to and fro. None of the children complained of or admitted of having monocular diplopia.

Of the seven afflicted, there were three girls and four boys, ranging from 4 to 19 years. I made a careful examination of both eyes of each child, taking the vision with and without glasses, making a drawing of each eye, illustrating the direction of the luxation and amount. I have had a half tone made of these drawings which I hand you. They will show better than words can tell, the appearance of each case examined. In most of the cases you will notice that the displacement is outward, in some slightly upward and outward, in one alone the lens of both eyes is displaced toward the nasal side.



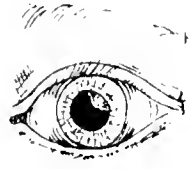
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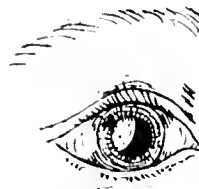
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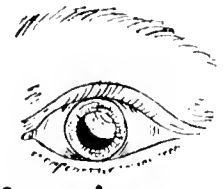
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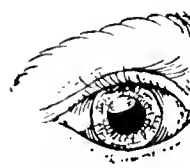
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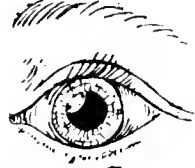
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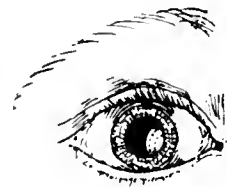
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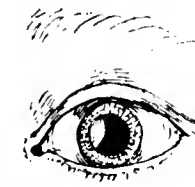
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FREDDIE



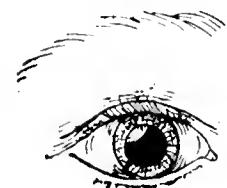
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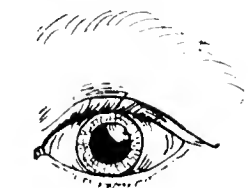
MINNIE



AGE 16



THEODORE



AGE 8

In No. 1, the oldest, Josephine, vision without glasses was 20-200. Glasses gave but little improvement.

No. 2, Minnie, aged 16, V. R. E.=20-200. V. L. E.=20-200 with +3.50 vision was increased to 20-60. For reading she required +12. Pupillary distance was 60 mm.

No. 3, Emma, age 15, V. R. E.=5-200; V. L. E.=8-200; +11 D.s. gave best vision.

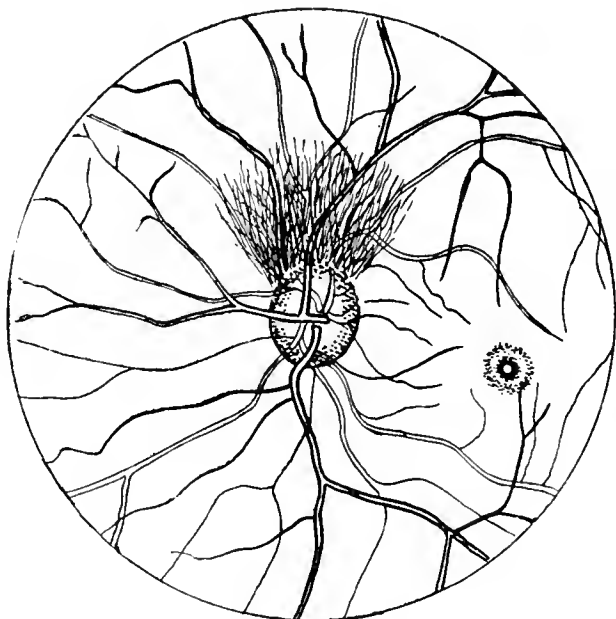
No. 4, Willie, age 12, V. R. E.=8-160; V. L. E.=6-160; +11 gave best vision.

No. 5, Freddie, age 10, V. R. E.=12-160; V. L. E.=12-160; Gave +13, P. D., 60 mm.

No. 6, Theodore, age 8, V. R. E.=3-200; V. L. E.=3-200; +11 gave best results.

No. 7, Herman, age 4, vision as near as I could tell was about 8-200 of either eye.

As the diagram indicates, you will see that in the case of Josephine, the lenses were displaced horizontally outward. In the case of Emma, the lens of the right eye was vertically upward, while that of the left eye was upward and inward. In Theodore, both lenses were displaced upward and outward. In Fred-



Louisa, age 18.

die, both lenses were shoved inward, toward the nose. This is the only one with displacement inward of both eyes. In the case of Minnie, the lens of the right eye is displaced upward and outward, while that of the left is more nearly horizontally outward. In the case of William, the right lens is horizontally outward and the left is upward and outward. In the youngest child Herman, age 4, there is but slight displacement and that is outward and upward in either eye. He seems to have the least amount of vision of any. The other two children—Louisa, age 18, and Bertha, age 6, who are not in the group had 20-20 of either eye, but under the mydriatic it was revealed that they were hyperopic each to the amount of 3 D. Louisa had the medullary sheath or gray fibers of the optic nerve showing in the left eye.

The mother of these children is 40 years old, and examination showed nearly a normal eye or a very slight amount of hyperopia. The father is dead, but the wife testified to having noticed that her husband had something shaking in his eyes and that he was

very near-sighted. He was a tailor and worked constantly at the bench up to his death without glasses. The shaking in the eye she noticed was probably a tremulous iris and from this fact and that he was myopic we may naturally conclude that he was afflicted with ectopia lentis. The father was Swiss and the mother German and they were no blood relation.

Now the question that interests me especially, in this group, is the etiology, and also why seven out of nine should inherit the anomaly and two should go free, and why all but one should have the displacement outward. You may say that it is due to an arrest of development; then we naturally inquire of what part of the eye; not of the lens, for certainly in these cases the lenses were of the natural size and shape. If you say that coloboma of the iris or of the retina is due to an arrest of development, or that cleft palate or bifurcated uvula are due to an incomplete union, I can more easily understand that; they being at the median line. It seems to me that these cases are of special interest from an etiologic standpoint and again from the fact that so large a number of the same family are afflicted. And were we to explain the etiology, what may we say of the distinction why were most of these children doomed while two escaped?

TREATMENT.

In the primary infinitesimal amount of protoplasm from which the body is evolved, there are inherent all the potential elements that may go to form the perfect being in all its minutiae; but if these potential elements are vitiated by abuse, by profligacy, by dissipation, by debauchery, or by excesses and intemperance in any direction the impress in some way is most sure to be visited on the prenatal child. These freaks and anomalies are, then, the direct consequences of the violation in some way of the great laws of nature and whereas it is not in our power to reintegrate the present, we should ever be on the alert by judicious and timely advice, to exert our influence in protecting future generations against vitiated inheritance, that they may not be dwarfed or crippled in their physical or mental development.

1235 Grand Avenue.

ENCHONDROMA OF THE CARTILAGE, UPPER LID.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY PETER D. KEYSER, M.D.

PHILADELPHIA, PA.

In 1888 Mrs. P., age 58, presented herself at my clinic at the Wills Eye Hospital with a round lump in the upper lid, which she said had been slowly growing for a year or two. No inflammation connected therewith. It was hard, solid and firmly attached to the cartilage. An incision was made along the lid over the tumor and the convexity of the latter shaved off. This was firm, cartilaginous, cutting crisply and of a yellowish white appearance. It had all the appearance of a thickened cartilage. No microscopic examination was made of the part removed.

In 1890 she came back with a much larger return of the growth. It was again operated on as in the former method. No examination made. In 1892 it had grown again and more nodular. My purpose now was to try to remove all of the diseased cartilage, leaving if possible the conjunctiva, so as to protect

the cornea. To do this the edge of the lid was carefully slit up, and as much as could be of the cartilage down to the conjunctiva removed. This seemed to do very well for awhile, but after six or eight months it began to develop again quite rapidly, growing along the whole cartilage, taking upon itself a well developed nodular form, and with a small open sore on the edge of the lid, the whole having the appearance as in the accompanying figure.

Operative influence was again necessary to remove the unsightly looking lid and to relieve distress; so, on Sept. 11, 1894, the edge of the lid was carefully slit and the skin dissected up so as to expose the whole growth. The whole cartilage of the nodule on the nasal side was removed with the conjunctiva, while that of the temporal side was dissected out as much as possible, leaving the conjunctiva.

After the operation Dr. Currie, chief resident sur-

they are packed closely together. There is also glandular tissue. See accompanying drawings.

The character of growth in this place seemed somewhat strange and to me new, and search has been made in all the works on ophthalmology in my library to find if such a growth in that part has been noted. An examination of all the text-books on ophthalmology published in English, German and French, so far has failed to find any report of such a growth except in Fuchs. In the chapter on the tumors of the lids he writes: "In consideration of the complicated structure of the lid, in which such a manifold variety of tissues take part, it should not surprise us that the most dissimilar kinds of tissue should at times come under observation. As rare occurrences there have



Figure 1.

geon and acting curator of the hospital preserved what was removed, for preparation and microscopic examination. After some time he presented me with some carefully prepared slides and called my attention to a number of cells such as are exhibited in enchondroma. After very careful examination it was decided that the growth was enchondromatous formation, and as it was a simple outgrowth from the normal cartilage, might come under Virchow's term of ecchondroses.

Dr. Clarence P. Franklin was kind enough to make a drawing of the eye just previous to the operation (Fig. 1) and also to make the accompanying sketches from the slides under the microscope, showing the fibrous and cartilaginous nature of the specimen. There were well developed walls with the cartilaginous cells lying therein, some separated, while in others



Figure 2.

been observed fibromata, enchondromata, etc., of the sebaceous glands (including Meibomian glands and the glands of Krause) of the sweat glands and the glands of Moll."

Search has been made in all of the German, French and English ophthalmological journals from their beginning, and no case found reported. The *Jahres Bericht*, "über die leistungen und fortschritte im Gebiete der Ophthalmologie" of Nagel, and the *Index Medicus* have been looked through and no case reported.

Fuchs is the only one so far found, calling attention to the fact of such a growth taking place on the lid. I present the case as one of very rare occurrence.



Figure 3.

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NOTE.—Dr. de Schweinitz writes me that the following in his text-book escaped my notice: "Rare forms of benign tumors are adenoma of the sweat glands and their follicles, papilloma of the ciliary border and enchondroma of the tarsus." He also says, that his information on the subject was derived from Fuchs, who appears to be the only one reporting such a case, and Pauas also refers to the same, evidently derived from Fuchs."

FORMALIN AS A PRESERVATIVE AGENT FOR EYE SPECIMENS.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WILLIAM H. WILDER, M.D.

CHICAGO.

The use of some of the older hardening and preservative agents especially for eye specimens is accompanied with certain disadvantages.

Chromic acid and its salts, as used in Müller's fluid, although eminently satisfactory for hardening certain specimens, such as those containing nerve tissue, so discolors them that beautiful macroscopic preparations are difficult to obtain from its use. Alcohol and methyl-alcohol, although not discoloring the tissues of the eye, are open to the objection of

making the cornea opaque, abstracting the color from the iris, blood vessels, etc., and what is more serious, unless cautiously used, of causing such contraction of the tissues as to almost spoil some delicate specimens. Again, Müller's fluid and the alcohols require a considerable time to completely harden the tissues of the eyeball so that it can be satisfactorily mounted. These objections do not pertain to formalin, which is one of the most valuable preservative agents we have.

Formal or formalin is an aqueous solution of formaldehyde; the latter in its original state being a gas resulting from the oxidation of methyl-alcohol. As obtained in the market this solution is a colorless, neutral liquid with a specific gravity of 1.080 to 1.088, having a pungent penetrating odor and containing 40 per cent. of formaldehyde. It is miscible in all proportions with water, so that solutions of different strengths can be readily made.

The specimens exhibited here were hardened in a 5 per cent. solution, made by using one part of formalin (Schering) and eight parts of water.

This strength has seemed to me the most useful, although a weaker solution may be used also with success. Hermann, of Erlangen, (*Anatom. Anzeiger*, Dec. 11, 1893) found that he could completely harden an organ as large as a calf's heart in a 1 per cent. solution in twenty-four hours.

N. W. Alleger, of Washington (*American Monthly Mic. J.* 1894, xv) is reported as preferring a 10 per cent. solution as a hardening agent. It seemed to me that some of my specimens hardened in a solution as strong as this, did not preserve the natural colors (particularly the blood in the vessels) as did those in the weaker solution.

The method of procedure is, in brief, as follows: after washing the blood from the enucleated eye with ordinary water, it is placed at once in a bottle containing two or three ounces of the 5 per cent. solution, where it remains for a few days. It will then be found hard enough to bisect. In case the eyeball is filled with a tumor or a mass of exudate, it can be cut with a thin razor almost as easily as one would cut an apple; but if the vitreous is present either in the normal or fluid condition it is best to freeze it, so that in cutting, the relation of the delicate internal structures may not be disturbed and the lens dislocated.

The part that is to be preserved entire, after thawing in tepid water, if it has been previously frozen, is then placed for twenty-four hours in a 33½ per cent. solution of glycerin and water, and then for an equal length of time in a 50 per cent. glycerin water solution. It is then ready for mounting in glycerin jelly after the method of Priestley Smith described in the *Ophthalmic Review*, 1884.

This glycerin jelly begins to soften at about 120 degrees Fah., but the formalin may be again used to solidify the gelatin and to make the preparation permanent. Before capping and hermetically sealing the cells, they may be placed under a bell jar with a little cup containing a small quantity of the formalin. The vapor of formaldehyde that is given off, fixes or hardens the jelly so that it can not be softened by boiling in water or even a soda solution. I commonly leave my specimens exposed to this vapor for about twenty-four hours, and then seal by cementing on the cover.

Hauser, of Erlangen (*London Therapist*, Aug. 15 and Sept. 15, 1893), makes use of the formalin vapor

for solidifying the gelatin on which colonies of bacteria are growing, thus making permanent preparations of cultures for demonstration.

It will be seen in the specimens that the cornea and lens retain almost their normal transparency; at least enough to enable one to note the color of the iris and the whitish pupillary reflex present in glioma. The injection of the ciliary vessels is also well demonstrated in some specimens, while the retinal vessels may be fairly well traced even to small branches. The tissues preserve their natural color and are not shrunken. The retina retains its position better than after hardening with alcohol or Müller's fluid, although in some preparations it will be seen slightly wrinkled.

For microscopic work it presents little or no advantage. Specimens that are to be embedded in celloidin must go through alcohol after leaving the formalin solution, but the appearance of the cell structures shows that the formalin acts as an excellent fixing agent.

Marcus (*Neurolog. Centralbl.*, 1895, xiv, 4) recommends highly the use of formalin for hardening specimens of the central nervous system, and claims that the results he obtained with the Weigert-Pal method of staining nervous tissue hardened in this way were much superior to those of the old methods. Whatever its value as an antiseptic or therapeutic agent, it must be conceded that as a medium for preserving and hardening anatomic and pathologic specimens it has not its equal.

103 State Street.

SOME POINTS REGARDING THE ETIOLOGY AND TREATMENT OF POST-NASAL CATARRH, WITH REMARKS ON THE HYGIENE OF THE RESPIRATORY ORGANS.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY W. FREUDENTHAL, M.D.

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NEW YORK.

There exists for whole nations as well as for the single individual, health and disease, life and death. Both are never in perfectly normal conditions of their organic being; in both, out of *small* and *persistent* working noxious influences, lasting dispositions and stationary diseases are developed, which affect here single organs or systems and there a great many or the majority of a nation.

And just as certain as deeper causes finally influence the whole body of the individual, making him a sickly type, so the noxious agents affecting a whole people can stamp upon it a more or less distinguishable type of peculiarity and susceptibility to sickness or infirmity. (Geigel.)

There are some noxious causes which the writer believes prevail more in this country than elsewhere. The disease, which we shall discuss in this paper, is post-nasal catarrh with all its sequelæ. This disease is so frequent in this country that when European authors speak of American catarrh, they mean this affection. In this country it is usually spoken of simply as catarrh. Now it is the intention of this paper to show that post-nasal catarrh is not such a simple thing as is often believed, and that its causes

and effects are to be sought in conditions in which we did not look for them before.

The naso-pharynx is a cul-de-sac between the nose and the pharynx, and this situation alone ought to be sufficient proof that it belongs to or is a part of the respiratory, as well as of the alimentary tract. Not only because its mucous membrane is lined with columnar ciliated epithelium as the whole respiratory tract, does it belong to this part, but also, and *this is the most important reason*, because it impregnates—I do not say saturates—the inspired air with humidity.

That "in the ordinary process of deglutition," as Bosworth says, "it is absolutely necessary that the lower pharynx should be thoroughly lubricated by mucus, in order that the bolus of food shall pass over it without hindrance," and that this mucus comes from the glands of the vault of the pharynx, is, I think, generally accepted.

But these glands have in my opinion, another task to fulfill. Just as it is difficult to get a bolus down into the esophagus and stomach, when it is not lubricated, just the same difficulty is experienced by inhaling air into the lungs that had not been previously moistened in the upper air passages. This moistening process is to a great extent accomplished in the naso-pharynx. Yes, I am inclined to assert that the major part of this process takes place in that portion of the respiratory tract.

I formed this opinion after repeating the experiments made by Aschenbrandt.¹ Already in 1886, Aschenbrandt showed the importance which the nose played in warming as well as moistening the inhaled air. As these experiments are of importance for our further investigations, I will mention them briefly here.

Aschenbrandt took a U-shaped glass tube which he partly filled with pumice stone and sulphuric acid. (See Fig. 1.) This tube he connected on one side with a straight tube, *r*¹, which he placed air-tight in one nostril. The other end of the tube was connected by means of rubber tubing with a glass jar.

This jar contained 5 liters of water and was arranged so that in thirty seconds the entire water could flow out. Now if we open the clamp at *h*, the water flows out and 5 liters of air will be drawn in through the nose in the following manner: through—we will say—the right nostril into the naso-pharynx, into the left nostril, and from there through the glass tube *T*, to the U-tube, and into the big jar.

In the nose and naso-pharynx the air is saturated with moisture, which again is absorbed by the pumice stone and the sulphuric acid in the U-tube, a fact of which we can convince ourselves by touching this glass, which gets warm as soon as the air circulates through it. The big jar containing 5 liters=5,000 ccm., is emptied in thirty seconds, *i. e.*, corresponding to ten respirations of 500 ccm. each.

In making this experiment it is better to put a second glass tube *r* into the other open nostril, in order to prevent the strong current of air from closing the nostril. Now if we first let the air alone pass through the U-tube and weigh it, and then connect the apparatus with the nose and weigh it again, we can easily determine to what degree the air is saturated with moisture each time.

Aschenbrandt and later my friend Richard Kayser,²

¹ Die Bedeutung der Nase für die Athmung. Würzburg, 1886.

² Die Bedeutung der Nase, etc., für die Respiration. Pflüger's Archiv., 1887, page 127, and *ibidem*, 1890.

of Breslau, claimed on the ground of these experiments that the air becomes thoroughly saturated with moisture in the nose, while E. Bloch,³ of Freiburg, asserts that the saturation is not complete. I have made a great many experiments in the chemic laboratory of Dr. H. Schweitzer and came to the conclusion that neither is right, but that the truth lies between the two.

It seems to me that in even apparently normal noses the ability of the mucous glands to give off moisture to the atmosphere varies in different persons and at different times. In the majority of cases, my results corresponded very closely or were similar to those of Aschenbrandt and Kayser, while, on the other hand, there were quite a number of apparently just as normal noses, where the gain in weight gave evidence that the inspired air was surely not fully saturated with humidity.

A few examples may serve as illustrations: Dr. L., assistant in the laboratory of Dr. Schweitzer, has, as far as I could see by an examination in the laboratory, a normal nose. The U-tube weighed before the experiment, 26.4907 grams; after 5 liters of air had passed through the nose, the tube weighed 26.6115 grams, showing an increase of weight of .1219 grams.

This volume of air passed through in thirty seconds. In one minute we would have:

	0.1219
	x 2
	0.2438
In an hour	x 60
	14.6280
In twenty-four hours	x 24
	351.0720

The relative humidity of the air was 48 per cent., and the sum of 351 grams per day would not be in favor of Aschenbrandt's theory; while the next case of a 15-year-old office boy, also with a normal nose, gave the following results:

The tube before the experiment weighed 26.6428 after the experiment it weighed 26.8028 grams. Therefore increase in thirty seconds, .1600 grams. Therefore increase in twenty-four hours, 460.8 grams.

The temperature of the room was 68 degrees F., and the relative humidity 48 per cent. If I add the

humidity which the air gives off in the rubber tube, we would have approximately 500 grams per day, or about the amount necessary to a perfect saturation. These are a few examples taken from a large number of cases that I have experimented upon, but they suffice to illustrate the results.

I will now add my modifications, which are two-fold: first, I examined a number (although not a large one) of pathologic cases, which to my knowledge has not been done heretofore. In almost all of these cases I found a diminution of the moisture for the inhaled air, but I will say that here is a large field for further investigations. I shall limit myself to a few examples only:

Case 1.—H. S., was galvano-cauterized in his nose repeatedly and is well since. Temperature of the room 69 degrees F., relative humidity, 43 per cent. The U-tube before the experiment weighed 26.455 grams; after the experiment it weighed 26.513 grams. Increase in weight in thirty seconds only, .058 grams; increase in weight in 24 hours, 167.04 grams.

We observe at once the immense difference in this man, who had been cauterized about four years ago. The mucous membrane in his nose was so destroyed that during one day he gave off only 167 grams of water instead of 500 grams.

Case 2.—Dr. S. S., has been suffering from hay fever for eight years, but last year he was in Germany and was free from it. Temperature of the room 69 degrees F., humidity 48 per cent. Weight of the U-tube before the experiment, 27.0055 grams; after the experiment, 27.1095. Increase in

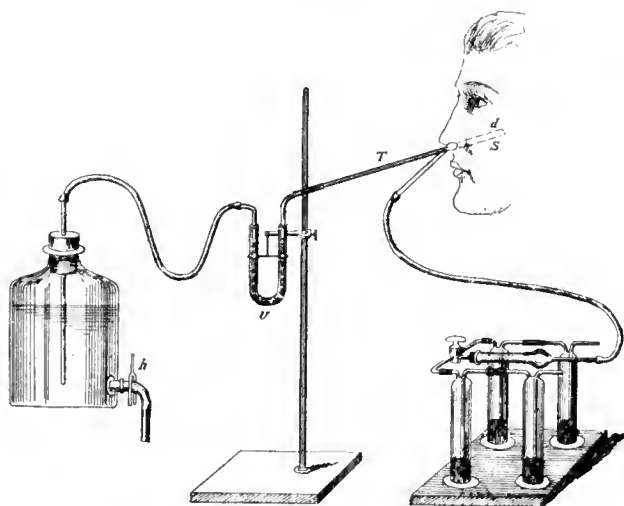


Fig. 1.—(After Aschenbrandt).

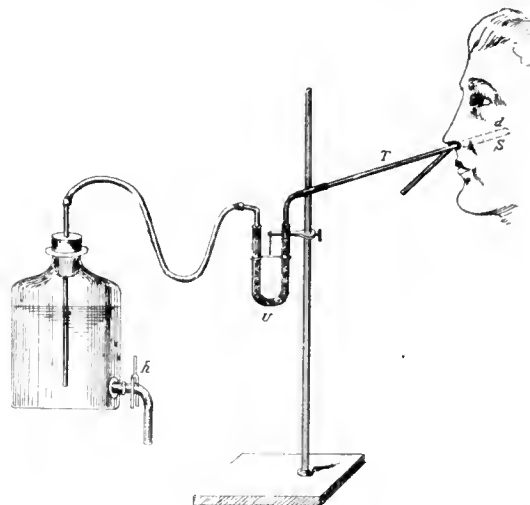


Fig. 2.

thirty seconds, .1040 grams; increase in twenty-four hours, 299.52 grams.

Case 3.—Office boy with large adenoid vegetations. The temperature of the room and relative humidity the same as above. U-tube before the experiment, 26.435 grams; after the experiment, 26.455 grams. Increase in thirty seconds, 0.020 grams; increase in twenty-four hours, 57.6 grams.

This boy, therefore only gave off about one-ninth part of the normal amount, i. e., 57.6 grams per day instead of 500. I must state, however, that the obstruction in his retro-pharynx was so great that the air could be drawn through the nose only very slowly, and that at the end of thirty seconds only 2 liters of water had flown out of the jar, instead of the usual 5 liters. The lymphoid tissue was removed, and a few weeks later the experiment repeated. The numbers were quite different.

The weight of the U-tube before the experiment was 23.1170 grams; the weight after the experiment, 23.2570 grams. Therefore the increase in thirty seconds was .1400 grams; the increase in twenty-four hours, 342.72 grams.

The reason why we did not now get the full amount

³ Untersuchungen zur Physiologie der Nasenathmung. Ztschr. f. Ohrenheilkunde, 1888, page 215.

of about 500 grams per day, lies in the fact that very likely the glands in the retro-pharynx had not as yet regained their physiologic secretory power.

I could not get a patient with rhinitis sicca to come down town as far as Front Street, where the experiments in the laboratory of Dr. Schweitzer had been made, but from the first case of H. S., whose nasal mucosa had undergone partial destruction, we can imagine the result in this disease. To get very exact numbers I have used in the beginning two U-tubes, which were connected with each other. But this increase in weight of the second tube after 5 liters of air had passed it, varied only from .0003 to .001 grams. I therefore did not consider it of much importance and used only one U-tube afterward.

Another series of experiments which I made, consisted in letting *absolutely dry air* pass through the nose. For this purpose, I connected the one nostril as before with the U-tube and the jar of water, and the other nostril with Liebig's apparatus, as shown in Fig. 2. This apparatus makes the air perfectly dry and free from carbonic acid. The results obtained by this method showed the increase in weight of the U-tube to be almost identical with the former ones, consequently the nose gave off in these experiments much more humidity than in the former. In other words: the nose had not only to bring up this absolutely dry air to the humidity of the air of the room (43-60 per cent. relative humidity) which was used in the former experiments, but, in addition, it saturated the air with humidity to the same extent as when the air of the room was used. The giving off of water therefore from the nose was much greater. The bearing of this condition in relation to our subject will be discussed later on.

As interesting as all these experiments were, so much did the idea strike me that they were only, to a certain degree, applicable to the physiologic respiration of the healthy man. First, the air that we inhale, passes through only one nostril. Therefore, if the volume of air be driven through both nostrils, it must gain a proportionate quantity of moisture from going over a larger surface of the respiratory tract. Consequently, a part of the moisture gained by driving the air through both nostrils must be deducted in our experiments; hence the Aschenbrandt-Kayser theory that the air in passing through the nose is saturated completely with moisture is not perfectly correct. Another reason for this is, that the air is never driven or sucked through the nose with such force as in our experiments. In the normal quiet respiration the air goes through the nose, only slightly touching the septum and the turbinated bodies and thus striking the wall of the retro-pharynx, creates a whirling motion which brings the different particles of air repeatedly in contact with the mucosa. This causes a longer delay of the air in the retro-pharynx than in any other part of the upper air passages, and in consequence thereof we must expect that the glands here have more chance to give off moisture than elsewhere in the upper respiratory tract. Another fact in favor of my theory is the boy with the hypertrophied lymphoid tissue at the vault of his pharynx. At the first experiment the air had to remain a long time in the nostrils, on account of the obstruction in the retro-pharynx. But, nevertheless, the air that passed through was by no means saturated with humidity. The gain in weight of the U-tube was, on the contrary, so small that a saturation of the air could not

be spoken of. After the removal of the lymphoid tissue, when the air could freely pass through the retro-pharynx, the gain in humidity was so much that it almost reached the normal condition. Thus we have to attribute a great deal of the work done in saturating the air to the retro-pharynx.

Now what are the reasons that prevent the retro-pharynx from performing this function? Of the many reasons which might come into consideration, allow me to discuss only two, which I consider of the greatest importance, and which to my knowledge have not been hitherto discussed in this connection. The first is the manner in which the houses in New York and other large cities of the United States as far as I know them, are heated in winter, and the second are the so-called colds.

There are three different ways of *heating* a whole house from one source: the first is hot water heating. This is of the least importance to us, as it is used comparatively little in this country, although advantages are claimed for it by some reliable firms here and in Boston. Scientific investigations, however, of this method regarding our purposes have not been made.

The second way of heating houses is by means of steam. This has great disadvantages, which most of you have undoubtedly noticed to your own discomfort. As a rule, I find that houses and flats heated by this method, are entirely too hot. It is nothing uncommon to find a temperature of 80 degrees F., especially where there are small children. The people, often very intelligent, think their little ones need much warmer rooms than grown people, and are confirmed in this obnoxious idea by physicians who do not know better. Undoubtedly it is difficult to regulate the steam heat according to one's wishes. In this connection, Dr. John S. Billings in his excellent book on "The Principles of Ventilation and Heating" (New York, 1884) says: "The only way to diminish the heat is, to either close the register which cuts off the supply of fresh air, or to turn off the steam from the radiator, which will give an insufficient supply of heat. The result is, that the great majority of steam-heated rooms are, during many days in the year too hot, and at the same time have an insufficient supply of fresh air, producing much the same kind of discomfort as an ordinary *hot-air furnace*, although somewhat less in degree."

Whether this last statement is really correct, we will discuss immediately, as we are now coming to the *third and most important* method of heating: the *hot-air furnace*. You are all familiar with this method of heating. The shaft which conveys the so-called fresh air to the furnace, is situated near the ground and usually in close proximity to the kitchen. This shaft is so poorly constructed ninety-nine times out of a hundred, that the bad air in the cellar has free access to it. The air from these sources is heated in the furnace, and passes into the rooms. This impure air of the cellar is warmed, that means it is deprived of the greatest part of its humidity, if not of all of it. In this condition of dryness it reaches the rooms wherein we live. There it has the effect of drying the already present air and it is evident that the colder the atmosphere is outside and the more we heat our furnace, the dryer will the air become in our rooms. Now it has been shown by various experiments that the atmosphere of a room in winter should be kept moderately humid, *i. e.*, it should contain

between 50 and 60 per cent. relative humidity. The lowest point should never go down below 40 per cent. while we still feel pleasant at a relative humidity of 70 per cent.; even 75 or 80 per cent. are not considered unhealthy.

Now gentlemen, I have tested it quite often during the last two winters, and I have never seen a relative humidity of 50 per cent. in New York houses. When the outside temperature was about 30 degrees F., I have never seen even 40 per cent! The highest point reached was 30 per cent., but 25, 20, even 18 per cent. relative humidity, was nothing unusual when the weather was very cold and when this lasted for any length of time, so that the rooms were not at all or very little aired.

Casimir Wurster, who studied these conditions in New York also, found that sometimes in private dwellings, hotels or theaters the relative humidity goes down as low as 10 per cent. I made such investigations systematically during the winter of 1893-1894 in different hospitals of this city. I give you below, the data found at the Montefiore Home for chronic invalids, a hospital which is located hygienically better than most hospitals in this city, and where I found the highest percentage of humidity. Of course I took into consideration that these investigations were made at a time when the weather was already milder, and the windows and doors could be opened. Although as I said, the results were the best obtained, you will see by looking over the tables, that even in this hospital the relative humidity seldom reached 40 per cent., *i. e.*, the lowest amount necessary for our comfort. Generally it was below this point, *ergo*, detrimental to the inmates. Here are the data which Dr. Fraenkel, the house physician of the home had the kindness to assist in procuring:

Ward E. Room No. 1. Eight Beds. 1894.

Date.	Time.	Temperature. Out-door.	In-door.	Relative Humidity.	Remarks.
Mar. 11,	8 a.m.	53°	65°	41%	
	12 m.	54	65	45	Window open.
	4 p.m.	58	67½	45	Window open.
	8 p.m.	56	68	44	Window open.
Mar. 12,	8 a.m.	54	65	36½	
	12 m.	59	61	35	Window open.
	4 p.m.	60	63	39	Window open.
	8 p.m.	62	61	29	

Ward B. Room No. 4. Two Beds.

Mar. 14,	8 a.m.	54	61½	26	Window open.
	12 m.	50	60	28	Window open.
	4 p.m.	48	61	27	Window open.
	8 p.m.	50	78	22	
Mar. 15,	8 a.m.	46	68½	21	
	12 m.	50	71½	25	
	4 p.m.	48	72½	28	

Data Sheet No. 2. Ward B. Two Beds.

Date.	Time.	Temperature. Out-door.	In-door.	Relative Humidity.	Remarks.
Mar. 16,	8 a.m.	46°	68½°	34%	
	12 m.	50	70	32½	Door open.
	8 p.m.	59	71	31	Door open.

Smoking Room.

Mar. 14,	8 a.m.	50	79½	26½	
	12 m.	54	59	24	Window open.
	8 p.m.	50	78	22	
Mar. 15,	12 m.	50	71½	20	
	4 p.m.	48	76	22	
	8 a.m.	46	69	19	
Mar. 16,	8 a.m.	46	78½	29½	Door open.
	12 m.	50	76	25	
	8 p.m.	59	78	23½	

Ward A. Room No. 5. Eight Beds.

Mar. 10,	8 a.m.	52	65	40½	Window open.
	12 m.	53	64	37½	Window open three hours.

	4 p.m.	57	63½	35½	
	8 p.m.	56	65	34	Window open.
Mar. 11,	8 a.m.	53	67	38½	Window open at night.
	12 m.	54	66½	40	Window open at night.
	4 p.m.	58	67½	42	Window open at night.
	8 p.m.	56	68	40	
Mar. 12,	8 a.m.	54	66	35	Window open evening.
	12 m.	59	68½	29	Window open evening.
	4 p.m.	60	68½	25	Window open evening.
	8 p.m.	57	67	29	Window open evening.

Ward E. Room No. 1. Eight Beds.

Mar. 10,	8 a.m.	52	62	39	Window open.
	12 m.	53	63	39	
	4 p.m.	57	65½	36	Window open.
	8 p.m.	56	63	37	

Data Sheet No. 3. Ward C. Room No. 11. Three Beds.

Date.	Time.	Temperature. Out-door.	In-door.	Relative Humidity.	Remarks.
Mar. 20,	8 a.m.	54°	63°	39½%	Door open.
	12 m.	56	61	38	Door open.
	4 p.m.	58	64	35	Door open.
	8 p.m.	56	65	33	Door open.
Mar. 21,	8 a.m.	55	69	37½	Door open.
	12 m.	58	70	35	Door open.
	4 p.m.	60	68	35½	Window open.
	8 p.m.	56	70	34	Window open.
Mar. 23,	8 a.m.	57	70	40	
	12 m.	60	68	45	Window open.
	8 p.m.	59	70	30	Window open.

Ward G. Seven Beds.

Mar. 20,	8 a.m.	54	62	35	
	12 m.	56	65	32½	
	8 p.m.	56	68	31	
Mar. 21,	8 a.m.	55	70	33	
	12 m.	58	71	32	
	8 p.m.	57	70	31½	Door open.
Mar. 22,	8 a.m.	57	69	38	Floor scrubbed.
	12 m.	60	63	57.	Floor scrubbed but carelessly wiped up.
	8 p.m.	59	68	27	

Ward A. Room No. 4. Four Beds.

Mar. 24,	8 a.m.	57	61	30	
	4 p.m.	58	58½	39	Door open.
	8 p.m.	57	67	39	Door open.
Mar. 25,	8 a.m.	53	64	41	Door open.
	12 m.	56	64	46	Door open.
	8 p.m.	57	60	50	Rain.
	8 a.m.	44	56	34	Rain.
	12 m.	54	58	33	Rain.
	8 p.m.	55	60	31	Rain.

Data Sheet No. 4. Ward C. Room No. 1. Eight Beds.

Date.	Time.	Temperature. Out-door.	In-door.	Relative Humidity.	Remarks.
Mar. 24,	8 a.m.	57°	68°	28%	Window open.
	4 p.m.	58	66	30	Window open.
	8 p.m.	57	70	30	Window open.
Mar. 25,	8 a.m.	53	64	38	Window open.
	12 m.	56	66	39	Window open.
	8 p.m.	44	63	41½	Window open, Rain.
Mar. 26,	8 a.m.	44	58	38	Window open.
	12 m.	54	60	35	Window open.
	8 p.m.	55	61	32	Window open.

Ward F. Room No. 9. Four Beds.

Mar. 28,	8 a.m.	40	58	22½	Door open.
	12 m.	56	67	23	Door open.
	8 p.m.	58	68	22	Door open.
Mar. 29,	8 a.m.	50	64	30	Door open.
	12 m.	53	66	41	Window open. Scrubbed.
	8 p.m.	54	73	38	Window open.
Mar. 30,	8 a.m.	45	64	22½	Window open.
	12 m.	57	65	23	Window open.
	8 p.m.	58	67	22	Window open.

Ward B. Room No. 1. Eight Beds.

Mar. 28,	8 a.m.	40	63	25	
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	12 m. . . 56	69	25½	Window open.
	8 p.m. . . 58	70	24	Window open.
Mar. 29,	8 a.m. . . 50	71	29	Window open.
	12 m. . . 53	68	45½	Window open.
				Scrubbed.
	8 p.m. . . 54	70	30	Window open.
Mar. 30,	8 a.m. . . 48	64	25	Window open.
	12 m. . . 57	69	33	Window open.
	8 p.m. . . 58	70	32	Window open.

We see from this data, that the relative humidity once went down to 19 degrees in the smoking room where generally more people are together, and that it only exceptionally reached 40 degrees, although the outer temperature was already mild and windows and doors could be kept open often. How very detrimental this state of affairs is, will be clearer to you if we compare it with the same conditions in summer. In summer a relative humidity of 85, 90, or 95 per cent. is nothing uncommon in this neighborhood and this when the temperature reaches 90 to 100 degrees F. I must remind you here of the fact, that the higher the temperature of the air, the more water it can absorb, and that for example, 90 degrees relative humidity at 90 degrees F. is vastly more than 90 per cent. relative humidity at 32 degrees F. And now imagine people who lived here through the summer months and inhaled that terribly suffocating moist air, having to breathe in winter an atmosphere which contains hardly any moisture. "*Les extrêmes se touchent*" in nature as well as in real life. Next to the multi-millionaire, who has so much that he does not know how to consume his interests, goes the poor man whose children are starving for want of bread. Next to a summer with more than superfluous moisture, we have to stand a winter with much too little of it. After inhaling an air with 90 per cent. relative humidity we are forced, through the incompleteness of our furnaces, to inhale day and night, an air with mostly below 30 per cent. relative humidity. Feb. 5, 6 and 7, 1895, when the outer temperature was about zero, the hygrometer in my office sank to 15 per cent.

And now comes the important question: What influence has this abnormally dry air on the upper respiratory organs in general, and on the retro-pharynx especially? In his above cited book, Billings says: "The precise influence which either the absolute or the relative amount of moisture in air has upon health is uncertain, for habit enables man to undergo great variations in this respect without marked ill effect." While I agree perfectly with this last sentence, as otherwise we would have no healthy person in New York, I am opposed to his idea that simple dryness of the air is not injurious to health. To prove this statement, he cites Fort Yuma, Southern California, where during April, May and June the average temperature day and night is 90 degrees, even 100 degrees F., and no rain falls. Yet there is no additional sickness. He forgets two things: 1, that the people in Fort Yuma, live almost permanently in the open air, which is never stationary; and 2, that in spite of this great heat and lack of rain, the moisture never sinks to 20 or 10 degrees relative humidity. When Billings says: "A dry air with a uniform temperature makes a healthy climate as in New Mexico," he is perfectly right, but this dryness does not mean 10 to 20 per cent. relative humidity, but 50 to 60 per cent.

I must say the same about similar ideas of Hermann Reinhard (Dresden).⁴ He tells us that travelers feel comfortable in some parts of the desert of

Sahara, in spite of a comparatively high temperature, as the "air is very dry" and perspiration can take place. But we can conjecture what he calls dry air, as he indorses the recommendation of some German and English physicians, as to certain places of Cape Land as health resorts on account of their dryness. And in examining this nearer, we find that the average relative humidity here, is for October, 42 per cent, for June 62 per cent. and for the year 51 per cent. I would not hesitate for a moment to recommend such places myself, but you understand the great difference.

Of late, very little has been written on this subject of heating, and among those authors on this part of hygiene, who discussed it some years ago there is a great dissension of opinion. The majority of them, almost all Germans, are in favor of hot air heating, as I think for want of knowledge regarding the way heating is done in this country. So Hermann Fischer (Hanover)⁵ considers our hot air heating as the best, and attributes most of its disagreeable effects to uncleanliness. A similar view is held by von Fodor (Buda-Pesth) who attributes⁶ the ill effects mostly to the combustion of small particles of air and the products of distillation, that are developed on the hot surface of the furnace.

These arguments in favor of hot air are based chiefly on the fact observed by von Pettenkofer, that in the royal castle in Munich, the air in the rooms, i.e., after coming from the air tubes, contained more humidity than before. If we do not believe in wonders we must accept that there was some sort of humidity developed in the rooms themselves. This is the only solution I can offer for this single fact, that is in contrast to all our experience. The ideas of H. Reinhard are based mostly on theoretical deductions. The practical investigations he had made in the Kingdom of Saxony, were done by the teachers who, as a rule, do not understand anything about such things. Beside these investigations were continued during one week only, and the influence of wind, outer temperature, etc., is hereby such an important factor and underlies such great accidental changes, that we can not take these investigations as confirmatory.

On the other hand, there are men like Wolffhügel, Erismann and Krieger who say that the use of hot air heating is to be deprecated. They consider it deleterious and make the dryness of such rooms responsible for the disposition to catarrhs of the upper air passages, croup and diphtheria (sic!) etc.

The man whose views come nearest to mine is Theod. Deneke.⁷ It is well known that the air has the capacity of absorbing moisture from bodies which lose it by evaporation. As, through evaporation, heat is generated, it takes up the heat also. The dry air therefore, has the dual property of drying and cooling. To what degree this takes place depends upon the dryness, the temperature of the air, and the rapidity of its motion. The dryer, the warmer and the more movable the air is, the more thirsty it will be for humidity. Now the absolute quantity of the water given off from the whole body is of no hygienic consequence, as it can be replaced constantly by the supply of fresh water. There is a difference, however, with some sensitive parts of the skin and mu-

⁵ Ueber die Vorzüge und Nachteile der Luftheizungen. Deutsche Vierteljahr. schrift. für öffentl. Gesundheitspflege. Bd. xiv. 1882, p. 101.

⁶ Ibidem, p. 118.

⁷ Ueber die Bestimmung der Luftfeuchtigkeit zu hygienischen Zwecken Ztschr. f. Hygiene, I. p. 47.

⁴ Die relative Feuchtigkeit der Atmosphäre und ihre Wirkung auf den Menschen. Archiv. für Hygiene, 1895, p. 183.

cosa. "It is likely," says Deneke, (*loc. cit.*), "that when locally the amount of the water evaporation is much augmented, the supply of the water lost toward the surface can not go on quick enough, and as a consequence of this, pathologic changes of these parts may result. The portions of the body thus situated are the superficial mucous membranes, which, on the one hand, are constantly exposed to the external air, and on the other from direct communication with the respiratory passages." This is very rational. Epidermis and epithelium also here generally protect against the too rapid drying process, but in spite of this it will happen that a suddenly augmented or continuous evaporation will take more water from the superficial layers than can follow from the deeper portions. The consequence will be a drying up of the surface and a loss of the elasticity.

And now we come back to our first experiments and will recognize their importance in this regard. We have seen that when we connected the Liebig apparatus with the nose, and allowed the perfectly dry air to pass through, this was saturated with humidity after it had passed through the nose. It would naturally make only a slight difference whether the air is perfectly dry, as in the Liebig apparatus, or whether it contains 20 or 30 degrees of humidity, as so often found in our residences. The difference is only in degree. It is, however, proved that dry air if inhaled will become saturated in the nose and naso-pharynx, that is to say, the dryer the air is we inhale, the more moisture will be given off by the nose and naso-pharynx. The work of the nose and naso-pharynx will be so much greater with every particle of air we inhale. How long the mucous membrane of these parts will be able to furnish the necessary water supply, will only therefore be a question of time. Consequently, we will, sooner or later, reach that point where the mucous membranes of these parts will be dry like a well in summer. This will occur, for example, in very cold weather only temporarily in perfectly healthy persons, or permanently as we see it in so many thousands of times in pathologic conditions.

Now the manner by which this leads to the development of a post-nasal catarrh is not so simple. Supposing we have a person with a normal nasal mucosa. If dry air is inhaled for any length of time by this person, to such a degree that no more water can follow from other parts of the body, the erectile tissue will respond to this irritation like any other irritation, with swelling, which will recede as soon as the irritating cause ceases. When, however, this has lasted for a longer time, the swelling remains in spite of good hygienic conditions and the result is impeded nose breathing or mouth breathing.

Under such conditions the secretion that continually comes from the mucous glands of the naso-pharynx has no work to accomplish. The air does not pass the retro-pharynx and the watery discharge dries out while the solid substances, which normally are carried away with respiration and lubrication, stagnate at the retro-pharynx. The secretion under this drying surface is *less than normal*, as very soon solid masses adhere to the mucosa, and prevent the escape of the glandular secretions. Especially if venous stasis occurs, as it often does, blood and lymph extravasations take place, microorganisms develop on this albuminous soil and the catarrh of the mucosa results.

This, in my estimation, is by far the most frequent way a post-nasal catarrh is developed. I will add only that, as far as I know, Bosworth was the first who claimed a diminution of the secretion in this disease, although for different reasons than mine. That such people discharge more than others proves nothing. The dried masses lying in the post-nasal space are foreign bodies which the unfortunate possessor tries to get rid of by hawking, coughing, blowing or the like. This only increases the glandular secretion of the neighboring parts, *i. e.*, of the nose, the lower pharynx and mouth. It seems to me, that the so-called granular and lateral pharyngitis and the hypertrophy of the tonsil of the tongue are nothing less than a consequence of this condition. So we can say we have an increased discharge of phlegm *through* a retropharyngeal catarrh, but *not coming* from the retro-pharynx.

Another way for the development of such a catarrh is the following: if the mucous membrane of the nose is already atrophic, or it has been cauterized to such a degree that the erectile tissue can not respond to every insult, or if it can, not for a long time, then it will happen that we can not breathe through the nose, although the passages for the air are wide enough, often only too wide. This will occur, whether scabs and crusts are in the nose or not. When the nasal mucosa is dried out by the dryness of our houses, then by inhaling only through the nose we have not the sensation as if our hunger for air is stilled. The air after passing the dry nasal mucosa produces a disagreeable, not natural sensation in the retro-pharynx. The consequence will be that we expel it right away and breathe through the mouth.

I do not know whether you ever had that sensation, that you could not breathe through the nose, although its passages were free enough. In such a case the nostrils are extremely dry and your hunger for fresh air does not seem to be satisfied. You are in a state of apnoea. The air before reaching the retro-pharynx must be partly saturated with moisture and if it is not, it seems that it can not be tolerated, and only irritates this part. Instinctively we give up nose breathing and breathe only through the mouth. If scabs or crusts prevent nose breathing, this will naturally happen sooner. As soon as this takes place, the catarrh of the retro-pharynx will develop in the same way as before.

I took the swelling of the nasal mucosa as an example only for obstructions of the nose. Anything else that obstructs nasal respiration as polypi, etc., will naturally have the same effect. The fact is, that any atmosphere containing less than 40 per cent, of humidity will have the same effect if a person is subjected to it for a longer time, and this we all are, more or less, during at least five months of the year. Although the human body can live under many unsanitary conditions, still we must not forget that a certain amount of moisture in the air is necessary for respiration, as well as for transpiration.

A heated room should not be warmer than 65 degrees F. If we then feel cool, it is a sign that there is not enough moisture in the air; in other words that the air not only absorbs from the upper respiratory tract, but from our lungs also humidity, and with that heat. As soon as the hygrometer in a room with 65 degrees F. shows 50 to 60 per cent. relative humidity, this will be rather too warm, than too cold. But this never occurs in our houses during winter time.

On the contrary, the people feeling cool at a temperature of 70 degrees F. have extra fires made, and bring the temperature to 80 degrees F. and above, as I have not infrequently seen it. If they try to go out into the open air, where a humidity of 80 to 90 per cent. encounters them, these extremes must have a very bad effect on the whole system, and "colds" on every *locus minoris resistentiae* will be of general occurrence. The principal reason why so many people like a Russian bath in winter, is that they are only too glad to fill their whole respiratory tract with moisture. This relieves them greatly of the dryness in their system.

I will add here that I always noticed more patients complained of dryness of the throat and nose after a cold spell. But during the last winter, 1894-95, which was a very cold one, the number of patients at the Montefiore Home who complained of this was immense. It was entirely out of proportion to the few patients whom I see at the above institution in summer, when they are in the open air during the greater part of the day.

The answer how to prevent the bad effects of our poor heating system, will be, not only do we need in building a house a mason and a builder, a carpenter and a so-called sanitary plumber, but also a man who, from a medical standpoint, could judge whether the heating system and other things are sanitary or not. But so long as we do not have such officers, we have to see to it ourselves that the furnaces are correctly built, that is, not too small, etc., and that a provision for the supply of moisture be attached to the furnace.

This latter is, so far, very hard to fulfill. I have written to different furnace-makers but all the appliances for this purpose which I have tried were not satisfactory. It is my conviction, however, that ere long this will be improved if only the attention of the physicians and the public is drawn to it.

The next point that comes into consideration in connection with our subject are the so-called colds. As natural and well founded as it may be to try to prevent colds, so ridiculous and in its sequelæ so dangerous is the fear of catching cold, that it terrorizes in this country all classes of the population. You can justly say, that never had the people such nonsensical, hare-brained ideas regarding the hygiene of their bodies as at the end of the enlightened nineteenth century, when everybody thinks they understand a good deal about medicine. Through advertisements of patent medicines, indorsed not unfrequently by prominent ministers, through unscrupulous newspapers presenting unripe medical ideas to the Sunday table of their public, they learn just enough to make everything wrong. The manner in which we dress ourselves, how we live, when we go out, or stay at home, etc., in everything is governed by one idea, the ghost of catching cold. Although it may be that many people frequently catch cold in the open air, this should not be a reason for us to seclude ourselves from it. On the contrary, we should just go out in the open air, as these people become ill just because they do not get enough fresh air. The animal organism is destined to breathe permanently in the open pure air, and every hour that we sojourn in closed rooms is detrimental to the organism. Naturally I will not say by this, that we should give up our homes, our culture, etc., and become cave dwellers, troglodytes or, like the old Ger-

mans, sleep in the woods on bear-skins; by no means. Only one thing I should like to impress upon the public, that we should extend our cultural endeavors also to the care and proper development of our respiratory organs. Let us stop for one moment to consider how many hours the average person in New York is in the open air, and we shall soon see that we do a great deal for our digestive, but nothing for our respiratory organs. In the morning one walks for a few minutes to the nearest station or car, rides down town in a vehicle overcrowded with humanity, and filled with the most miserable atmosphere, only to remain an entire day in an office, or more frequently still, in a factory loaded with dust, smoke and all possible foul gases, a factory that is never reached by any fresh air draught. Evenings one returns homeward in the same manner, to go afterward into an overcrowded theater or the like.

And the women? Well, the poorer ones work in a cigar factory or in a sweat-shop, packed together in a room, the air of which would even be too bad for the worst criminal. The well-to-do women are better off in some respects; but with them the fear of catching cold is so paramount that they do not dare to go out when the wind blows a little bit stronger, or even if it should rain a trifle. In accordance with these ideas the children also are brought up. One does not risk sending them out, without being convinced beforehand that no rain or snow is likely to fall. If, however, they are once caught in a shower, or the like, then naturally such a child has a cold, and one reproaches one's self for having been so careless. I can not restrain myself from reminding you of the words of an old physician, Johann August Unzer, who wrote as follows: "Nature has given to the man the open air as the element wherein he should live. Nevertheless we have been too politic, that we should not have noticed that this element is soon too cold or too warm, soon too moist or too dry, soon too windy or too quiet. . . . We take care that our children, who are born to breathe fresh air, do not come in contact as long as possible with it. We consider it a matter of conscience to take them on a beautiful day, out of the stinking room into the open air, that by no means they should get too early a better air than that infected with the smother of effluvium, with the smell of the swaddling clothes, food, coal and foul vapors. Yes! in order not to lose any of these precious odors, we plaster up the windows and cover up the doors. We grown-up people so little lay aside the prejudice of our wet-nurses and parents against the free air, that we prefer to look at it as the cause of most diseases. . . . And when we, finally, through this pernicious smartness have acquired bad diseases, we lock ourselves up in a still much worse air, nail our windows and wish that our servants were ghosts who could come through locked up doors, only that we should not need to suffer a little restoration by opening them. So peculiar are people, when they become too smart for Nature!"

So far, Unzer, whose words are more applicable to-day than formerly.

If we want to cure a post-nasal or similar catarrh of the respiratory organs, it is not sufficient to prescribe a gargle or a spray; we must treat the whole body, as every cold, every noxiousness of the skin works back on the mucous membranes.

Our whole mode of living is apt to make us sus-

ceptible to the influence of weather, and therefore we must fight against it, we must harden our body, not to get a coryza or bronchitis from every so beneficial breath of air. We must move daily for a certain time, not too short, in the open air, and especially should we spend our vacation, our pleasures in the open air. If you send your young people, suffering from any chronic trouble of the respiratory organs to the mountains, you will find them only too often in an overcrowded ballroom, dancing all night. How much better would it be for them, to do this in the open air! When shall we see the day, that our children are no more taught in overcrowded prison-like school rooms, but, as it is the highest of my ideals, in a garden under the trees? To have a school for hundreds of children, without even an open place to play in, as the custom is now in public and private schools, is a crime against the rising generation.

Another prejudice that prevails here more than elsewhere, is that one should go out little, or not at all in rainy weather. The old story goes, that one gets wet feet from it, and that is detrimental. But why this should be more detrimental than wet or cold hands, no one can as yet explain to me. The young plant needs rain for its life, and should we deprive our children of the same element, that acts so refreshing and vivifying upon them? Is it not unheard of, that school children are not allowed to go home at the noon hour when a few drops of rain fall from heaven? And is it not a shame that a school commission, unassisted by physicians, has made this a law?

Not long ago, Dr. F. Welz made investigations in the hygienic laboratory in Freiburg upon the contents of bacteria in the air. He showed that an increase of bacteria takes place toward the warmer season, a decrease in winter and in rainy weather. So from this side also, rain is considered favorable and healthy. You most likely have heard of the great "curer" Kneipp. How is it that this Bavarian priest, an honest, as I believe, but absolutely ignorant peasant, has such great success? If you come to his village, Wörishofen, you will find all the patients badly clothed and their feet bare. The women wear no corsets, the men no underwear. "All or nearly all of them," says the *Normandie Medicale*, (quoted from the *New York Medical Journal*, Sept. 1, 1894), "have faith in the priest. This faith is evidently a great aid to the treatment, but it is incontestable that there is something in the priest's mode of treatment. This does not consist alone in applications of water; a number of medicinal herbs are employed, plenty of air, and a hygiene altogether different from that usually practiced. Very little clothing is worn, linen trousers, a coarse linen skirt, no underskirt, a jacket, a straw hat, and sandals, but no stockings, compose the usual costume. In this manner cutaneous respiration is facilitated as much as possible."

Our knowledge is to a great extent an empirical one, and we as physicians, have accepted lessons from wherever they came. So we have for example, the wet packs from a shepherd, Priessnitz, in Silesia, we have the much-used drug, cascara sagrada, from the Indians, and now do not let us be blind against everything that this peasant Kneipp teaches us. It is the cutaneous respiration that is systematically suppressed by our mode of dressing. This system of over-dressing is a total failure, as the diseases of the

respiratory organs were never so numerous as in our generation. Away with this system that has made 80 per cent. of our population nothing but pathologic specimens! If Mr. Kneipp recommends us to go barefoot, this is only part of a system to harden ourselves, which we all know, but which we never follow.

Those country people, in Germany and elsewhere, are really lucky who go barefoot in summer, and thus not only harden their feet, but their whole system, especially their respiratory organs. Among such people you will seldom find rheumatism or catarrh. You can all do the same, even if it were only for a few minutes in your room. Even that helps. Before all, you should see that your children should go barefooted whenever they are at home. If they do it in summer in the country, so much stronger will they be, and so much less "catarrh" will they have in winter. Somebody told me that it is the style at the University of Oxford for the children of the professors to go barefooted until their twelfth year. Those children are said to be exceptionally healthy.

In this connection, says the celebrated physiologist Brücke: "I can not approve of the fact, that in some schools the children are forbidden to come barefooted. This is a gratuitous and unnecessary taxation of the parents. By his nude feet, the child injures neither the teacher nor the other scholars, but he does so very much by feet dressed with shoes, but not with clean stockings."

The celebrated African traveler, Rohlfs, tells how he visited a wild tribe whose chieftain was suffering from a terrible coryza. He was the only one who had this affection, and he was the only one who wore shoes and stockings!

That cold baths and washings are excellent means of hardening ourselves is generally known. If anybody should demur and say that the peasants as a rule bathe very little, and still are much healthier than city people, he forgets that the life of a peasant consists in perpetual hardening, and that he does not need these means. If anybody should believe that he keeps his body healthy by wearing underwear winter and summer, he is very much mistaken. Underwear is to be recommended only in very cold weather, otherwise it is injurious to one's health. The more clothes we have on, the more sickly we will be, and the less clothes the healthier. But the most objectionable of all, are rubber shoes and rubber boots, in which our feet roast as in an oven. The climate has nothing at all to do with this, and just because a change of weather occurs so very frequently here, we must protect ourselves against it in a natural manner, i.e., still more harden here than elsewhere. I again quote from Brücke, who says: "The reason why Italians of the higher and middle classes are effeminate, is because the fashion compels them to go about even in the hot summer, chiefly in dark woolen clothing, under which they generally wear chemises."

If one compares this garb with that of the old Romans, one will very soon answer the question, whether the effeminacy comes from the climate or from the garb. So it is in this country, but I will abstain from drawing any comparison between the wild Indian and the hypercultured young American of to-day.

In conclusion, I quote from Shelley:

"...but in this life
Of error, ignorance and strife,
Where nothing is, but all things seem.
And we the shadows of the dream,
"It is a modest creed, and yet
Pleasant if one considers it,
To own that death itself must be
Like all the rest, a mockery."

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DISCUSSION.

DR. CASSELHERRY—Over-heated apartments and too heavy clothing are certainly conducive to "taking cold." I am of opinion that more persons "catch cold" by getting too hot, than by being too cold. Neither is it necessary to become chilled while in an over-heated condition in order to suffer that congestion of the mucous surfaces termed a "cold," although this doubtless is one of the methods, but the mere relaxing effect of heat to the body surface is capable of congesting at least the turbinated bodies and starting a cold. This is especially true of over-heated rooms. With our present modes of heating I think 65 degrees scarcely sufficient, but 70 degrees F. is adequate.

I would advise against the wearing of very heavy underwear, preferring a light grade of woolen underwear for winter, supplemented by varying grades of outer clothing and overcoats. For spring and fall, still lighter underwear of good merino or wool, and for midsummer, gauze for the ordinarily robust individual. The daily morning cold bath invigorates the vasomotor system and so prevents more certainly than any other one thing frequent "colds." It, and other hygienic management should supplement local treatment in catarrhal cases. I am not in accord with the author of the paper regarding the evil effect of overshoes. Ordinary leather will not keep out moisture, and wet or even damp feet in cold weather endured for hours without opportunity to change, is a prolific cause of "cold." A protective overshoe as low as will answer the purpose and removed on passing in-doors seems necessary.

DR. L. R. RYAN, of Galesburg, Ill.—I did not hear the whole paper, but there are some points that are of vast importance, and one which should be brought to the attention of the people at large, and that is the matter of excessive clothing, and living too much in confined houses. In this connection, an article I recently read in a current magazine comes to my mind. It is in regard to the condition of the Terra del Fuegians of South America; they were naturally a strong robust people, lived outdoors continually and wore little or no clothing and in their natural condition were free from disease. When the missionaries established headquarters there and converted them to Christianity, inducing them to wear clothing and live in civilized houses and in a civilized manner, they immediately began to deteriorate physically, until the whole tribe has been destroyed by throat and lung diseases and especially consumption. We must keep as closely as possible to nature and avoid those unnatural changes.

DR. WOOLEN—If, as the gentleman claims, that in his State the children have colds, etc., in spite of their being out-of-doors all the time, there must be other reasons for the development of such catarrhs which I do not know, but I would certainly not blame the fresh air for it. Regarding the Doctor's remarks about the seat of the polypi, I must say that there are a great many seated much higher than the middle turbinated.

CANCER OF THE RECTUM—ITS EXCISION AFTER THE METHOD OF KRASKÉ AND MODIFICATIONS THEREOF, WITH A REPORT OF CASES.

Read at the Twenty-fifth Annual Meeting of the Medical Society of the State of Colorado, June 18, 1895.

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The older methods of excising the rectum have been in large part superseded by the sacral procedure, and it is safe to assert that of all malignant growths affecting this part of the body, but a small

proportion will be found amenable to cure when dealt with from the perineum.

Although Kocher, of Berne, had for some years added to the posterior incision a removal of the coccyx, it remained for Kraske, of Freiburg, to lay down those fundamental rules which, though since modified from time to time, enable us to cope with something like an assurance of success with this distressing affection.

It was before the German Surgical Congress of 1885 that Kraske first proposed to gain easy access to the upper portion of the rectum by resection of the lower part of the sacrum. This original procedure has since undergone important modifications. Its essential details are as follows: the patient lies on the right side somewhat in the Sims' position, the thighs and legs flexed and a stout support raising the pelvis. A cut is made from the left border of the sacrum, opposite its second vertebra, to the anus; this cut quickly curves to the midline at its upper end and reaches the posterior surface of the sacrum and coccyx. The coccyx is removed, the left lateral sacral ligaments severed, and the sacrum chiseled across obliquely from a point opposite its third foramen on the left side to the lower right hand corner. The severed piece is removed and the bleeding checked. The tissues are divided in the midline until the posterior surface of the rectum is reached. The anus is freed and the rectum loosened, chiefly by blunt dissection from below upward, to a point well above the growth. The peritoneum is opened, the rectum drawn down, cut off, the remaining end brought out below the cut surface of the sacrum and stitched to the adjoining skin.

The peritoneal pouch is occluded by a plug of iodoform gauze and the entire open wound filled with the same. Healing takes place by granulation and a sacral anus results.

Valuable as was this procedure in the efficacy with which a high lying cancer could be reached, it left much to be desired and various improvements in technique were set forth as different operators gained experience. Schede, instead of plugging the peritoneal pouch sewed it up as soon as the rectum had been drawn down and before it had been severed, and when the anus was not involved he united the cut end of the rectum to it, thus restoring the continuity of the canal and giving the control of a sphincter. In practice it was found that the passage of feces tore out the stitches, prevented union, and a fecal fistula generally resulted. To obviate this, Schede did an inguinal colotomy at the time of or directly after the operation. This not only added to the time occupied by the serious major procedure, but left the lower bowel filled, and has now been superseded by the colotomy being done so long prior to the proctectomy as to allow of firm fixation of the gut in the inguinal region and a fairly thorough cleansing of the rectum itself. This preliminary colotomy may be considered indispensable whenever it is desired to preserve the sphincter ani and do an immediate anastomosis.

With a view to avoiding the loss of the resected bone and the consequent weakening of the pelvic floor, Levy, in 1889, devised an osteoplastic procedure whereby a flap of bone, together with the overlying soft parts, is turned up and replaced. He made a transverse cut, some four inches long, across the sacrum at its lower end. Lateral cuts are made from the ends of this through the gluteus maximus muscle; the anterior

and posterior sacro-sciatic ligaments are divided, the bone chiseled across, and with an elevator the connective tissue on the anterior surface of the sacrum is separated. The skin flap with the attached bone is then turned down and the rectum comes into view. This is resected, the cut ends united, the bone flap replaced and sutured, the horizontal incision closed, the lateral ones united in part and well drained. While this is, in theory, a suitable procedure, it is in fact difficult to perform and unsatisfactory in results, and it remained for Rehn and Rydygier to devise a procedure which seems thus far to give the greatest promise. In this, an incision is made from the posterior inferior spine of the ilium to a point midway between the anus and the coccyx. This is met by a transverse cut across the sacrum at the point at which it is intended to divide that bone. The left sacral ligaments are divided, the bone cut across, the bone flap turned over to the right side, the rectum excised and sutured in the usual manner and the bone flap returned and sewed in place. Gauze drainage is provided and the skin wound closed in part.

Exfoliation of the bone rarely occurs, and even though this should take place, nothing will have been lost by the attempt at osseous repair. The results in typical cases are all that can be desired, so far as concerns the immediate condition. The retained sphincter insures the nearest approach to a normal bowel condition and the pelvic floor is left intact. In those cases in which the anus is involved it is needless to say that this is impracticable. Here the gut must be fastened to the skin. In many cases, control of feces and gas will be improved by twisting the lower end of the rectum as advised by Gersuny. In every case the inguinal anus should be closed in the usual manner so soon as the rectal condition may warrant.

Whatever the procedure employed, sacral resection of the rectum can but be considered as belonging to the severer operations in surgery. It may be easy or difficult to perform. When the growth is small and the tissues about the rectum free from infiltration, a blunt dissection may be made with the loss of but little blood. If, however, the perirectal tissue be involved, a wide dissection must be carried out and the operation may be long and bloody. Oozing from the cut surface of the sacrum can be checked by gauze tamponade; all bleeding vessels must be quickly caught and tied. At all times intelligent retraction and active assistance are of the greatest value. It is all important that the loss of blood be the least possible, hemorrhage being the greatest factor in the production of shock.

In nearly every instance the peritoneum must be opened, to allow a drawing down of the gut. This adds but little to the danger of the procedure; an immediate suture can quickly be made. The sigmoid flexure must be detached from the surface of the sacrum to allow a drawing down of the upper segment.

In cases in which four inches or more of the rectum have been resected, it is necessary to loosen it very thoroughly from the sacrum in order to approximate the cut ends without traction. This loosening is accomplished in part by dividing the mesentery, and in part by blunt stripping up. It is not infrequently necessary to ligate the superior hemorrhoidal artery on either side, and in such cases Kammerer has proposed to cut away still more of the rectum and bring down a portion better supplied by other branches of the inferior mesenteric, in order to do away with the

possibility of an anemic necrosis of the lower end of the gut. The approximation must be made without tension, for the blood supply is poor at best, and the bowel is without the peritoneal investment which is so great a factor in prompt healing. In those cases, however, in which there is no tension, good blood supply and a diversion of the feces through a previously made inguinal anus, primary union will be found the rule rather than the exception.

In certain cases the surgeon will find it necessary to content himself with a partial operation and to postpone completion until a subsequent sitting. So, when the amount of blood lost has been considerable and the shock severe, as in patients who presented a previously weakened condition, one may be obliged to hastily tack the bowel posteriorly, plug the peritoneal opening and tampon the entire wound. The operation is a severe one, frequently bloody and tedious. The writer fails to understand Bardenheuer's assertion that he completes the procedure in fifteen or twenty minutes, stripping up the rectum by blunt dissection and often finding it unnecessary to open the peritoneal cavity. If amputation be made and a sacral anus established it may be possible to avoid opening the peritoneum. Rarely can this be done, however, when the bowel ends are united.

While the mortality attending this operation has steadily diminished, it is yet considerable. From the data at hand, I judge it to be in the hands of competent operators, about 20 per cent. The chief causes of death are shock, hemorrhage and exhaustion; peritonitis, I believe to occur but seldom, and sepsis should be infrequent. Drainage is easily made and should be liberal. A caution may be made regarding the too free use of iodoform gauze; the surface left is large and quickly absorbs. I have myself seen iodoform intoxication, very quickly disappearing, however, on removing the drug.

My own operations have been three in number. In one additional late case I removed the sacrum, but found the disease too far advanced to warrant attempt at excision. I should have done better had I followed this course in my first case which was the fatal one. In a considerable number of instances I have advised against radical operation, in place, thereof, a palliative colotomy.

My cases are as follows:

Case 1.—Cancer of rectum; Kraske's operation. Death from acute anemia and shock. Miss K., age 27 years, single, was transferred to my service at St. Luke's Hospital, New York, July 25, 1893, by my colleague, Dr. Robert Abbe who was about leaving town for the summer. No previous history bearing on the present condition. Three months before seen she had begun to suffer with obstinate constipation from which she had previously been free. Fecal movements were narrow and painful, but not bloody. The patient had lost thirty pounds in weight, and much strength during the three months; her general condition was fairly good. Pulse 86, temperature 99.

The examining finger introduced into the rectum revealed an annular, irregularly nodular mass extending three inches above the anus. The constriction admitted the tip of the index finger, which could be swept about, over and around the tumor. On vaginal examination the mass was felt to push the posterior vaginal wall forward, but not to involve it. The lymphatics in the immediate neighborhood were enlarged.

Eight days were occupied in putting the patient in the best possible condition, and on August 3 the following operation was made: ether; six inch incision over sacrum and coccyx to anus; coccyx and lower segment of sacrum removed (Kraske.) Anus and lower part of the rectum freed from surrounding tissues. Dissection difficult and bloody, owing to fairly extensive perirectal infiltration. Cancerous

mass found to extend well up anteriorly. Peritoneum opened, mesorectum severed, rectum drawn down and cut off, stump brought out beneath cut surface of sacrum and sutured to skin. Peritoneal opening plugged with iodoform gauze, wound filled with boro-salicylic gauze. The operation lasted two hours and the patient lost a considerable amount of blood. Vessels were clamped as soon as seen, but there was a continuous general oozing which could only be controlled by pressure. At the close of the operation the pulse ran from 140 to 160. An infusion of salt solution reduced it to 120; in spite, however, of active stimulation and further infusion the patient sank progressively and died thirty-six hours after the operation. A microscopic examination of the tumor showed it to be carcinoma.

I am now convinced that this growth was too extensive for removal. This was not understood until the rectum was exposed. I should have done better had I contented myself with a proctotomy above the tumor, or, better, done an inguinal colotomy at a subsequent time. In this connection the following may be of interest:

Case 2.—Mrs. D., a woman of about 40 years was referred to my service at the New York Cancer Hospital Oct. 1, 1893, by colleague Dr. H. C. Coe. For six months she had suffered with painful bloody stools, steadily diminishing in size. Examination revealed a nodular mass encircling the rectum about two inches above the anus. The finger passed through this. High infiltration was not felt per vaginam. October 11 Kraske's operation. On opening the peritoneum, the infiltration was felt to extend too high to warrant attempt at removal. Peritoneum closed and wound packed. The patient made a smooth convalescence and was advised to have an inguinal colotomy made whenever the symptoms should demand it. In April, 1894, she was in good general condition. I have not heard from her since.

Case 3.—Cancer of the rectum. Kraske's operation. Recovery. Freedom from relapse at the end of twenty months. Mrs. F., aged 35 years, was referred to my service at the Cancer Hospital Sept. 28, 1893, by Dr. F. A. Manning. For six months she had observed mucus and bloody discharge with rectal pain. The stools had diminished in size; on examination a hard nodular mass was found to encircle and constrict the gut just above the anus. Operation Oct. 9, 1893; sacral resection. Peritoneum opened; mass found to extend one inch above the rectoperitoneal margin and to involve the anus. Rectum amputated above growth and upper end fixed beneath sacrum. Wound packed with iodoform gauze. Slight iodoform intoxication which disappeared on change of dressing. Undisturbed convalescence. The patient regained good control of feces but not of gas. I learned of her recently. She has had no evidence of recurrence. Pathologist's report: "carcinoma."

Operation was in this instance easy. The growth was confined to the rectal wall and anus. The loss of blood was but slight. I do not think we can determine definitely the extent of the disease prior to exploration. We can not make sure in an individual case that the operation will be accomplished rapidly and easily. We must in all instances be prepared for a long and difficult procedure.

Case 4.—S. M., a man of 52 years was admitted to my service at the Cancer Hospital June 15, 1892, with a history of having had occasional bloody stools for three years, these having of late become painful. Examination revealed a tender, bleeding, granulating tumor just above the anus, through which the fingers could be passed. The anus did not seem to be involved. Operation June 30, 1892, in my absence by Dr. Van Arsdale, assistant surgeon. Sacral resection, six inches of rectum removed, end of gut drawn down and stitched posteriorly to anus. Wound packed, smooth healing. On July 18 and again on August 21 secondary operations were done to restore the continuity of the gut. This was effected and the patient left the hospital completely healed and with control of feces, though not of gas. Pathologist's report: "carcinoma."

Case 5.—Cancer of rectum—Resection—Recovery. Mrs. R., a woman of 39 years, came to my office in February, 1894, with a history of painful defecation during the past four months. She had occasionally noticed blood in the stools and had recently "felt a lump." Examination revealed a rough, annular, friable mass just within the anus and lying

rather on the anterior rectal wall. On vaginal examination it seemed limited to the lower part of the rectum. Operation, sacral resection; peritoneum opened and gut pulled down. A string of infiltration ran well up on the anterior wall. After removal of some five inches of the rectum, sparing the anus, the tension was so considerable that in view of the patient's general condition it was deemed unwise to prolong the operation by a high loosening of the gut. It was accordingly brought out beneath the sacrum. Undisturbed convalescence. Pathologists report: "carcinoma." I am unable to ascertain the present condition in this case.

All of these operations were made before I became familiar with the osteoplastic procedure of Rydygier. In a future suitable instance, I should proceed, so far as present knowledge goes, after his plan. It permits of the most thorough extirpation possible with restoration of the bony parts.

Much depends on a proper selection of cases. A large proportion of patients with cancer of the rectum will be found, when first seen by the surgeon, to be in too advanced a condition to warrant thought of cure. The disease progresses slowly and often reaches an advanced stage before the increasing occlusion of the gut seriously calls the patient's attention.

The earliest possible diagnosis on the part of the family physician is of the greatest importance. These cases first come under the care of the general practitioner, and his examination should be most thorough. In no affection about the rectum should digital examination be omitted. The examining finger is of far greater value than instruments, so far as the region which lies within its reach is concerned. In case of a suspicious though indefinite ulceration, dilatation of the sphincter with removal of a small piece of the tumor for microscopic examination will be found of the greatest service. So long as the patient's condition warrants, we are not justified in leaving any measures undone which may aid in establishing a positive diagnosis. I have more than once called attention to the fact that age is of slight value in differentiating cancer. The age of the patient in Case 1 was 27 years. Cancer is not so very infrequent in patients under 30 years.

It is difficult to obtain the exact mortality attending extirpation of the rectum; in general, it may be estimated at about 20 per cent. Before the introduction of the Kraske method, it was something like 50 per cent. It will doubtless fall materially as the selection of cases and the operator's technique further improve.

Curtis collected statistics of 420 cases from 11 clinics and found that without separating the perineal from the sacral operation, the mortality was 15.5 per cent. It is without doubt greater in the sacral than in the perineal, as in the former the disease requiring operation is further advanced and the procedure itself is much more severe.

As regards the chief point in any operation for malignant disease, immunity from relapse, I am unable, with the literature at my command to give even approximate figures. Curtis, in 144 cases which had run over four years, found 21.5 per cent of four year cures. These were, however, both sacral and perineal operations, and more of the latter than of the former. Whatever the percentage of radical cures may be, it is sufficient to encourage surgeons in their attempt. So far as we now know, the only hope of cure in cancer lies in its early recognition and prompt and wide excision, and it is on these lines that progress must and will be made. Advance in

the past ten years has been steady and much ground has been gained. It is to be hoped that the future will give us a specific, be it in the line of serum or other therapy, against this most malign disease. At present, however, our trust must be placed in operative procedure, and in the accomplishment of lasting results the physician and the surgeon must coöperate.

Stedman Block.

WHAT CAN AND CAN NOT BE DONE FOR NASAL CATARRH BY LOCAL APPLICATIONS.

BY ALLEN DEVILBISS, M.D.

TOLEDO, OHIO.

The fact that the majority of humanity are afflicted with some form of nasal disease, and after doing all we can by hygiene, internal medication, and if necessary the removal of tissue, there will in most cases remain a condition requiring local applications, are sufficient reasons for our trying to suggest a plan whereby the remedy used may be applied so as to produce the best results.

A spray thrown into the anterior part of the nose with its direction parallel with its floor, can not be expected to produce a cure or relief, on account (as a rule) that the diseased condition is located in the roof and not the floor; neither can we expect to accomplish good results by inhaling through the nose a vapor only to come in contact with the mucous covering the membrane.

To do effective work, the instrument should be so constructed that its point may be carried into the vestibule far enough to reach the nasal cavity proper, and the spray directed toward its roof so that the mucus will be washed away by the solution used. This can not be accomplished by the counter current from an atomizer or the vapor from a vaporizer.

To meet this want I devised an instrument with a movable spray-carrying point which may be set so that all parts can be treated by a direct current; it may be used for spraying any remedy that will be beneficial to an inflamed mucous membrane, or that will not injure a healthy one. It has no leather or rubber washer, consequently can be made perfectly clean by boiling. Solutions can be easily warmed by holding it over a gas jet or lamp a few moments, and this is essential, for by applying them warm there is no shock; and it soothes the membrane, which it will not do if applied cold.

When using oils keep the point below the level of the cup, as you will then have the advantage of gravity to bring it from the cup to the point ready for atomization. In this way the oil is carried to the membrane with as little air as possible.

When treating the patient anteriorly, set the point upward to throw in the direction shown by No. 3, Fig. 1. Place the left index finger beneath and near the movable point, carry it into the nose, resting the finger upon the upper lip, raise the cup above the level of the nose, give two or three compressions of the bulb, and the roof of the nose will be flooded with the remedy. By using it in this way there is no danger of irritating the membrane by continually pumping air against its surface, the air current being a necessity as a carrier and in every other way a disadvantage.

Treatment in a majority of the cases given in this way will be all that is required, but in some cases it

will be necessary to reach the posterior turbinate bodies and meatuses by throwing a spray from behind the soft palate. This can be accomplished best by having the patient hold down his own tongue, for by so doing the parts will remain passive, which must be to make a perfect application, fill the cup part full of the solution to be used, heat over a lamp or gas jet, set the point anteriorly at an angle of 45 degrees, then carry it into the throat close to either side of the uvula, back of the soft palate, being careful not to touch the posterior wall of the pharynx, keep the left hand close to the left side of the mouth, so as not to be in the way of seeing, then with one or two quick but prolonged pressures of the bulb we will have covered the post nasal cavities. There are but very few patients who can not in this way tolerate treatment (if warm oils are used) without gagging, or not take more time than it would in a manner not half so complete.

It requires but little time to teach patients how to make applications in the nose anteriorly, by setting



Figure 1.



Figure 2.

the point upward as shown by No. 3, Fig. 1, placing the thumb of the left hand under the tube close to the movable point as shown in Fig. 2, the fingers being placed upon the upper surface of the tube, then carry it into the nose until the thumb rests upon the upper lip, using it for a steady point and gauge as to depth of entrance; elevate the cup above the level of the nose so as to have the advantage of gravity, then give two or three quick but prolonged compressions of the bulb and the application will be sufficient, in the majority of cases; when not, in a short time they may be taught to make them posteriorly; they quite soon learn how to drop the tongue in the floor of the mouth or hold it down with the tubes of the spray producer. Many can use it without seeing, but they can see how to use it by the use of a mirror and keeping the hand that holds the in-

strument to one side as shown by Fig. 3, so as not to obstruct the light.

Children who do not breathe easily through the nose may be relieved by a few applications of warm oil. This cleans out the nasal cavities and allows them to breathe through the nose. In treating children it is best to leave the point of the spray straight or nearly so. Applications should be made while lying down. Place the index finger of the left hand close to the point, and rest it upon the child's upper lip, then compress the bulb a few times which will fill the nose with warm oil.

I believe that by following up this plan of treatment with children when they have colds they will have much less trouble when they are older. When treating an acute condition, no irritating remedies should be used. Warm aseptic oil is all that will be beneficial locally. If warm enough it will soothe, protect and cause a contraction of the capillary vessels, thus relieving the congested parts.

In simple chronic nasal catarrh, there will be many cured, and marked benefit received by all, from spraying a warm aseptic oil over all parts affected. If the discharge is purulent or tough or ropy, first clean with a solution made from Seilers' tablets, then apply



Figure 3.

the oil; the addition to the oil of an alkali or antiseptic will be of service if not made too strong. In cases of hypertrophic nasal catarrh where inspiration is interfered with, beside the local treatment given, the same as in simple chronic rhinitis, tissue may have to be removed. It is no use to treat these cases for a short time. They must be treated or treat themselves every time there is an acute attack. By so doing, instead of growing from bad to worse, an improvement may be expected.

This I find patients will be satisfied with, if it is so represented to them, instead of promising definite cures.

In treating atrophic nasal catarrh the essential thing to do is to clean the parts. It may be necessary to use Dobell's solution or a similar one to remove the crusts, but generally the better way is by direct applications (as before described) of oil, for the reason that we have no osmotic action, no increase of desquamated epithelial cells, no inflammation set up by throwing it into the middle ears, all of which we may have by using watery solutions.

It is often beneficial to add to the oil some form of an antiseptic such as oil of wintergreen, camphor, menthol, or oil of eucalyptus, five drops to the ounce, etc. The list of antiseptics is a long one to choose from, and the odor and taste of each differ so much, that we need not have any trouble to carry out the proper line of treatment and make sufficient changes to satisfy the mind of our patient. I treat them until I get the parts under control and then teach them how to make the application.

A dentist can scrape off incrustations from a tooth, but he can not give the fine polish to the enamel that it had. The rough condition left serves as a predisposing cause for the return, but if a brush is used from time to time the incrustations will be prevented. Just so with the nasal mucous membrane after there has been a chronic inflammation of it. The original condition can not be restored by any course of treatment, but by treatment from time to time the serious difficulties that would result therefrom may be prevented and the patient made comfortable through life. This they are entitled to, more they can not procure, and they will be content unless promised a radical and permanent cure. In a healthy condition the nasal mucous membrane furnishes about sixteen ounces of fluid every twenty-four hours. By it the material filtered from the air or accumulations from any other source are carried through the nasopharynx into the esophagus and stomach unnoticed. But when from any cause an irritation or inflammation is set up, the amount of fluid may be increased or lessened. If increased, soothing applications must be made to relieve the irritation or inflammation.

If the amount of fluid has been lessened, we find desquamated epithelial cells, mucous corpuscles, and the impurities taken from the air remaining in the nasal cavities, and we must accomplish what the diseased condition prevents being done in a natural way. If the case be one that has not progressed too far, by using a solution that will cleanse, soothe and protect the parts, they may be restored to almost a natural condition.

Where the pressure of adventitious tissue has caused absorption of the glandular elements which prevents the process of exosmoses from the numerous blood vessels, the sooner a patient realizes he must put his nose in the same line with his hands and face to be cared for, the better off he will be. No one would expect to keep the face continuously clean by washing it for a month or two, neither can the nasal cavities by any kind of treatment for a short time, (when the conditions just described exist) be kept continuously in a clean condition, which must be, in order to have any hope of improvement or prevent an increase of the difficulty.

I have long since arrived at the following conclusions: that surgical work must be done in certain cases; constitutional treatment is necessary in some; local applications in all; and that the remedy should reach all parts affected and in itself or the means by which it is applied, shall be non-irritating; and that it is useless to prescribe a spray producer for a patient without first teaching him how to use it.

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

HYPNOTIC INSANITY.

Read before the Marion County, (Ind.) Medical Society, June 11, 1895.

BY E. D. MOFFETT, M.D.

INDIANAPOLIS, IND.

In writing upon this subject, I wish to show the true merits of hypnotism; and to congratulate my profession upon the fact that we have been slow to indorse this one fad which came to us a few years ago with such wonders in the cure of many diseases. Yes, the greater body of our profession discard it altogether.

The hypnotic state is a diseased condition of the mind; and I feel that it is possible to prove that it is the worst form of disease—that of insanity.

Hypnotism, mesmerism or suggestion is that condition of body or state of mind which is characterized by an apparent sleep with a perversion or destruction of the will; or that part of the will which governs the reason and judgment. For example, the person under its influence will stare into space or with eyes closed seems to be perfectly unconscious of himself or of his surroundings; and will follow the dictates of a supposed hypnotizer, no matter how absurd and contrary to the sense of propriety.

Suggestion is the primary law of all knowledge. Therefore know that we are handling only the extreme possibilities of this law. All knowledge is derived in three ways: suggestion, deduction and induction. In our early childhood we know nothing except it be imparted to us by friends, or by some object; as a tree which suggests some thought to the novice, thereby a state called memory is created. Likewise a mirror or the gentle stroking of the forehead by an operator with thoughts expressed, will produce the same state of mind called suggestion. And when that individual mind has lost, by this process, the will power governing judgment and reason, we have what is called true hypnotism. Please to remember this definition, for soon we will find what a wonderful power the law of suggestion, or the perverted condition of it which misleads, has in this world.

Advanced in years we begin to reason by deduction and herein lies the power of theorizing. If you remember, a few years ago I read you a paper upon the subject of "Theory in Medicine," which brought out some of the fallacies of the deductive method of reasoning in medicine.

By induction we have much of our true knowledge to be thankful for. In suggestion we have three stages: receptive, somnolent and cataleptic. First, to be able to receive a suggestion the mind of the individual must be willing to receive. Here again is the will brought into power. To receive or not to receive is the question. Now what harm has a thought or state of mind upon an individual who has the equilibrium of mental forces well balanced by the will? None whatever. Right here is the beginning and ending of a weak and strong mind. He who stops to reason is wise, no matter how imperfect the conclusion. But he who receives and reasons not (with the will as the governor of the mental engine) is prone to mental aberrations. Whether the individual has entered a physical drowsy stage of hypnotism or not, if we have that state of mind forces, after receiving an impression from a thought or an object, which is embodied in the definition given, we have that mind hypnotized—diseased. Diseased because no physiologic laws, either physical or mental, can be destroyed without being pathologic.

The complete somnolent stage is that condition in which we have catalepsy, and what is called suspended animation. And those cases which from severity of pain become unconscious for an indefinite period and then regain consciousness without any apparent shock being the cause.

Now let us see if it is not a logical conclusion that the mental state and causes of insanity are identically one and the same phenomena as perverted suggestion.

So far as the mind and thought is concerned, insanity is the loss of the proper coördination of mind forces. It is an impairment or destruction of the will governing reason and judgment. Example: a brain takes on a suggestion from any cause, as some friend is trying to kill that individual. If this be not so, and the reason and judgment governed by the will of this case can not be convinced by friends or by a logical conclusion of self-reasoning this brain is unbalanced.

Whenever a brain takes on a thought once, it is a well-known law for it to be recalled at will and in time can become automatic. To have this condition to take place at unusual times we have the state called auto-suggestion, or the power of the brain to repeatedly place itself in a state or condition of thought unconscious to the individual. Actions usually follow thoughts, and this is the reason we have to have asylums. One who has had hypnotism practiced upon him is very liable to get into the state of auto-suggestion. Is not this true of all the insane, that there is a constant recalling of some absurd thought? And this is produced by the laws governing hypnotism—the reason and judgment at fault. Consequently, the insane are unnatural suggestible cases. Here is my argument: "Things equal to the same thing are equal to each other." Hypnotism equals the destruction of the mental force of the will, which holds in balance reason and judgment. Insanity equal the impairment of the same forces. Therefore hypnotism is insanity; conversely, insanity is hypnotism.

Society is all agog with this dreadful disease. Look at the youth who persists in dissipation at the dance and other enjoyments when his friends and physician try to bring him to his proper senses. And do you say that the law of suggestion which has misled into supposed pleasure and enjoyment is not the cause of all this? A well-balanced brain is one that is temperate in all things.

Again, a young man is pushed to extremes financially to keep up with society. Soon his salary is too small to meet demands. His mind wanders; embezzlement, exposure, prosecution and conviction results; and society laughs. Society has been the medium of suggestion. The law provides for the poor criminal, but the beautiful mirror which has suggested his downfall still goes unbroken. Let a corporation, a body or society be the cause of one's downfall and it is all right. But if an individual is the medium of one's errors it is quite a different thing, as in the following: a man with reason unbalanced, plots with one somewhat weaker than himself to commit a murder. The man who will use his erroneous reasoning and influence to cause another to commit such a crime, probably for a paltry sum, is hypnotically insane. The suggestion being a hate, jealous love or desire for some special gain and the like, which has led his mind astray. Is not the will here at fault?

The one who does the deed is hung for being a suggestable subject; insanely so. While the other is executed for discovering the weakness of his brother.

This is what the law does with those who are not insane enough to let their neighbors know of their weakness in time to commit them to an asylum. Some time ago a man called at my office for dates of an injury received by a bucket falling from a building in course of repair. The injury was a glancing one, and took off a part of the scalp on the top and front part of the head. No concussion or shock followed. He is now preparing for a suit for damages. In course of his remarks he declared that the injury had affected his brain and left him in such a state that he might kill me then if he should get mad. I wish to tell you that the only relation of his injury to present mental conditions is that of suggestion by a supposed permanent injury to the brain; an impossible condition. He is insane upon this subject and hypnotically so. The poor man is prone to go on with his auto-suggestion until he does some one bodily harm.

This is the form of insanity which has produced our assassins; Guiteau, Mayor Harrison's murderer, etc. Just to think, in this day of learning that there is no law to take hold of people who are possessed of threats against their brother or against themselves—cases of suicide and its attempts. We are much in need of statutory provisions for such people.

Even religion is not exempt from this disease. Take the early days of persecutions, crusades, witchcrafts and its punishments, all produced by a want of proper brain balance; but no phase of society is more rapidly getting out of the turmoils of this disease than religion—and doing so by consistency and education. If there is one phase of society which is slow in progress in the right direction, it is that of politics. So little of true governmental principles are taught to us in early youth in school, we become grown and do very little reasoning for ourselves. We are partisans because of the law of suggestion and not much force or reasoning is expended in such attainment. Men go wild over an argument during a campaign or over some great financial question; the conclusion proves the premise, but too often the premise is wrong.

Our last panic was nothing more than an epidemic of wild suggestion that spread over our country like a cholera germ. And the same disease played havoc with the LIII General Assembly, and with our late Indiana Legislature. Germs of poisonous thoughts get into the brains of men and they spread worse than an epidemic disease.

Medicine comes in for its part. Do not think because we are last that we are least. Many examples have been recited, but you can recall many, and time forbids.

Look at the pandemic effect of the "elixir of life;" the much abused operation upon the cervix in the past; and the extreme of supposed cures to which Battey's operation has been subjected; many of the untimely and hasty therapeutic experiments, etc. Why do we not all know the truth first and then tell it, instead of proclaiming a thing true, then theorizing to prove it?

A very prevalent class of cases are those of abnormal sexual relations. I refer you to the learned treatise on "Psychopathia Sexualis," by Kraft-Ebbing,

translated from the German by Chaddock, a book well worthy of the perusal of the profession.

Hysteria, melancholia, catalepsy I believe to be in different stages of suggestion, usually caused by some impairment of one or more of the vital organs other than the brain. Disease of the liver can produce marked melancholic insanity. I never have tried to practice hypnotism, but have seen several cases by others and a few cases capable of producing the state themselves. While in the hospital we had a case of true catalepsy which could be easily put into the state by a hypodermic of a small portion of morphia. I could not trace the history of this case, but I believe the auto-suggestion was produced by an impairment of the mental function.

A case of labor under my care was completely hypnotized by the severity of the pains. She lay with eyes open staring into space, pupils contracted; pulse and respiration normal. There was only a slight movement of hips during the pains. When she awoke from her partially cataleptic state she was surprised to know the labor had ended. Three days later she went into this state again and continued so for three hours—probably produced by a suggestion on my part that if she did not take better care of herself she would have a chill and might die.

Some time ago I attended a spiritualistic séance. After a short and literary effort upon the part of the spiritualist, she tried to hypnotize herself by looking intently for a few moments into one corner of the room. She should have selected a bright object, for I could readily see she was not an auto-suggestable case. She made a failure of the above, but she soon began to get communications from spirits for a few of the faith believers present. And here is another of our hypnotically insane beliefs. The uncontrollable desire for smoking and drinking is mental disease also.

Treatment.—If my argument be true, every State and nation should make laws prohibiting the public exhibition of hypnotic cases. It should be made a penal offense to try to induce it other than for a cure of the insane. And from what little can be accomplished with it in these cases, there will not be much of this mal-suggestion used.

Nevertheless, there is a good lesson taught in Chaddock's "Psychopathia Sexualis." From a number of the sexual perverts described by him, we draw the conclusion that the cases are insane upon their particular phase of sexualis. And please not to forget that these people get into this state by continually harping, thinking and recalling their abnormal thoughts and putting them into action. All this by auto-suggestion—thought and action repetition. Where is the will, reason and judgment of these cases? Talk about the world not being full of insanity!

Some of you are probably thinking why we are not all incarcerated. Here is a fair solution to the problem. It seems to be a case where the majority rules; or to the victor belong the spoils. Chaddock tells us that many of his cases have been relieved and cured by the practice of creating a new train of thought and a regenerated will, by proper suggestions, while the patient was under the hypnotic influence. Is there not a thought revealed in these cases worthy of consideration? Here it is: all of these cases were far advanced in immoral dissipations, who sought him for treatment. They realized their insan-

ity and sought relief. Their will was not wholly destroyed. A cure was effected in a good per cent. of cases.

I believe that herein lies a system which might prove wonders with the incarcerated insane. That is, to make them by some process, realize that they are mentally diseased, and that there is a cure for many, sick as they are; and if they could be made to realize this and seek the remedy with as much earnestness as did Chaddock's cases, we might have a place for true hypnotic suggestion but not "hypnotic insanity."

16 W. New York Street.

REMARKS ON APPENDICITIS.

Read at the meeting of the Northern Tri-State Medical Society at Coldwater, Mich., July 9, 1895.

BY J. H. CARSTENS, M.D.

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DETROIT.

Appendicitis is talked of and written about a great deal, and when I go around with my professional friends who practice in the small cities and villages, they all say: "Appendicitis is a great fad. We seldom see a case; why is it that you see so much and operate on so many, while we rarely see a case?" Some of them even, who look at everything with a pessimistic eye, say that many cases are operated upon and reported that are not cases of appendicitis at all. Some of them have quite a large practice and only once in a while do they see a case that they call appendicitis, and how others can see dozens and hundreds a year is utterly beyond their comprehension. But the solution is very easy; from what I am able to find out, from the number of cases of appendicitis occurring in the course of a year in a large city, I have come to the conclusion that about one case of appendicitis occurs to five thousand population, when we consider that throughout the country there is only one physician to less than five hundred inhabitants, which means less than one hundred and fifty families. This is the average; some have a great many more and some a good many less, but a physician who has three hundred families, I will say, has a pretty good practice, and if any one should have double that number, he has an extraordinary practice. A physician with three hundred families, that is, a good large practice, would have about a thousand people under his care, and if the above statement of one case of appendicitis in five thousand population is correct, you would naturally conclude that the average physician with a fair practice would only see a case of appendicitis, on an average once in five years.

Perhaps my estimate is too high; say a case of appendicitis occurs to every two or three thousand inhabitants, and it certainly does not occur any oftener, then it would still hold true that the average general practitioner would not see a case of appendicitis but once in two or three years. Now, let us go one step farther and bear in mind that appendicitis is sometimes a very obscure disease, which the general practitioner will very often overlook, and no blame can be attached to him for that, as he sees these cases so seldom. We can furthermore see that the statement of the general practitioner, especially of those living in the country and the smaller towns,

that appendicitis is a rare disease, is perfectly true from his side of the question. Still, the field of medicine has been so thoroughly and repeatedly gone over, the cause, the pathology and the treatment of the general run of diseases, that the more rare and obscure diseases are now attracting wide attention, and he is *the best physician*, who can not only properly diagnose the common everyday cases of malaria and typhoid fever, dysentery, pneumonia and so on, but he, I say, is the best physician who can properly diagnose and institute the proper line of treatment in those cases which are obscure and less common like appendicitis, like pus tubes, and like renal and hepatic calculi.

In the large city, where the daily press is always on the lookout for news, prominent citizens are sometimes attacked with this disease, the papers take notice of it, and this occurring a number of times in the course of a year finally attracts the notice of the laity and they learn on inquiry from their family physician about the signs and symptoms and causes of this disease. The general practitioner is frequently asked by his patients about this disease, and thus his attention is more vividly attracted; he is constantly on the lookout to detect it when he has cases with symptoms pointing to this morbid condition and will call in other physicians in consultation so as to be sure. Hence, in a large city, few cases escape without being properly diagnosed. Still, there are general practitioners who do not have it sufficiently impressed upon their minds, that *peritonitis means appendicitis*. They are impressed with the idea that appendicitis virtually does not exist, and let me say right here, that I exclude pelvic peritonitis caused by pus tubes, or puerperal peritonitis caused by septic infection from the uterus. I refer to the so-called idiopathic peritonitis, which is always caused by appendicitis—that is to say, in twenty-four times out of twenty-five and the twenty-fifth case is that exception, which always proves the rule. In other words, ninety-six cases out of a hundred are caused by appendicitis, while four cases in a hundred are caused by perforation of the bowels from ulcerations, malignant growths, etc. And if the general practitioner would only have *his mind sufficiently impressed with this one thing, that peritonitis is appendicitis*, I know he would be astonished at how much oftener he will find appendicitis than he ever thought possible. If he will carefully inquire into the history in a vast majority of cases, he will find that they have had one or more previous attacks. The attacks may have been slight, perhaps they were only laid up for a day or two with what they called colic, but on careful inquiry you will find that the patient had severe colicky pains in the right inguinal region, which is attributed to cold or indiscretion in eating, and be passed over without having consulted a physician. Perhaps he has had a number of such attacks. On careful examination, the physician will find that the patient has more or less pain over the whole abdomen, but that there is one excruciatingly painful little spot midway between the umbilicus and the crest of the ilium—the so-called McBurney spot.

There may be tumefaction, generally not, because as a rule the appendix is behind and the cecum in front, containing more or less gas, so that no dullness on percussion can be detected. Sometimes vomiting ushers in an attack; the fever is sometimes high and

sometimes quite low; I have seen cases where perforation occurred with temperature over 99.5.

It is only by being constantly on the lookout for this disease when you have cases of abdominal trouble that you detect it; slight cases will very often be overlooked.

During the last six weeks I have had a few cases which might prove interesting:

Case 1.—Miss A., aged 25, first attack eighteen months ago. She was laid up three months in bed, then two more slight attacks, then another attack last June, and finally took to bed until September; then again had another attack in February. The sixth attack induced her to enter Harper Hospital and submit to an operation. Operation was performed May 18, in the usual way. The appendix was large and strictured at the junction of the cecum; not perforated, and was removed and the incision closed with buried kangaroo tendon; no drainage. She was up on the twelfth day and has made a splendid recovery.

Case 2.—Mr. W., aged 18, had an acute attack of three days' duration with temperature 103. He had had a slight attack four weeks previously, but this had been overlooked. He was immediately taken in the ambulance to Harper Hospital and operated upon May 26. The appendix was ruptured in the middle, but was walled in by exudate; it was removed, a gauze drain was used and a part of the incision closed with silkworm gut sutures. Recovery uninterrupted.

Case 3.—Mrs. L., aged 21, has had four attacks and agreed to go to Harper Hospital Wednesday evening to be operated on Thursday. Tuesday afternoon she was suddenly taken with a fifth attack and I had her immediately conveyed to the hospital in the ambulance and operated on that night, May 28. The appendix was very large, full of muco-purulent fluid and on the point of rupturing in one place, where the mucous and muscular coat were ulcerated; no drainage. Buried kangaroo tendon was used to close the incision. She went home on the thirteenth day.

Case 4.—Maud H., aged 10, first attack of ten days' duration; large tumor filled with pus. She was taken to the hospital, the tumor simply opened and a large amount, (more than one-half pint) of stinking pus was removed. The cavity was cleansed and drained and the incision partly closed with silkworm gut sutures. She made a splendid recovery and went home on the twelfth day. This operation was performed on June 22.

Case 5.—Mr. B., aged 30, was taken with appendicitis in April. I saw him in consultation, but considered the symptoms so mild that no operation was deemed necessary, unless serious symptoms developed. In a week or ten days he seemed to be all right, but was again taken with severe pain in the right side. This would subside with hot applications and he would be around again for a day or two, and then have another attack, and so continued for two months. I again saw him and pronounced it relapsing appendicitis. I operated on him July 1 at St. Mary's Hospital and found the case as stated. Removed the balance of the appendix and closed the incision with buried kangaroo tendon except for about half an inch, where I left a gauze drain. This was removed in forty-eight hours and a small rubber tube inserted. He made an uninterrupted recovery.

Case 6.—Mrs. W., is an unfortunate woman. I had operated on her two months ago for pus tubes. She went home and seemed all right for four weeks then began to have pain in the abdomen, especially on the right side; her temperature ran up and came down again to about normal; she became weaker and weaker and could retain no nourishment. I was called in consultation and diagnosed appendicitis. She was immediately taken to the hospital and I found the appendix large, inflamed and adherent, but unruptured. This was removed and the incision closed. Operation July 2.

These few cases and it is hardly necessary to say that I had none who died, or I would report them also, occurring within six weeks, will again make you wonder where we get them. Some of these patients have come several hundred miles, and the territory covered by them embraces a population of two million or more. And when I consider the number of cases operated upon by my colleagues, I am enabled to make the assertion I did at the opening of this paper; appendicitis is not so frequent as it is supposed to

be, and still it is more frequent than many practitioners believe, as they never look for it.

In resumé I would lay down the following rules:

1. That the general practitioner with a good fair practice will hardly see more than one case a year on an average.

2. That peritonitis always is appendicitis and will be readily diagnosed by every practitioner if he will only look for it.

3. That all cases of appendicitis should be operated upon as soon as diagnosed, because the danger is almost *nil* before rupture, but after rupture even an operation will not always stay the progress of the septic condition.

Of course, I admit that some cases will never recur, and if we operated on every case, we undoubtedly would operate on some cases that would get well without an operation, but we can not tell which case will recover and have no relapse, and which will not, and by waiting until rupture has occurred many cases will die which by prompt surgical interference would be saved.

SAVING LIFE OF CHILD DURING LABOR.

Read before the Montgomery County Medical Society, September, 1894.

BY E. W. KEGAN, M.D.

CRAWFORDSVILLE, IND.

Napoleon asks the question, Is the route practicable? and the answer was, It is barely possible to pass. The obstetrician may well ask, Is the way ample? is the pelvis of the mother normal? We may have any degree of abnormality to the most complete dystocia, compelling us to say it is impossible for a living child to pass. It is generally believed an obstetrician's duty to perform Cesarean section or symphysiotomy for the child's safety, knowing they are to-day safe operations if the technique of their performance is observed, and the mother's life is less jeopardized than by any other method of delivery. Theory has long held the view that, in making a sacrifice of life, that of the mother should be second to the child, nor can we expect professional support in declaring this a great injustice. Does not the mother, as a rational being, enter the marriage relations with full consent and knowledge of the consequences that follow gestation and delivery? She so delivers her future for the intentions of marital life. Why should we, as accoucheurs give consent to laws that do not equalize the relations between child and mother? Do you not see from the commencement of embryonic life the child is but as so much clay, shaped by the greatest sculptor, Nature's hand, whose nicety of touch and delicacy in outlining finishes and brings to birth the beginning of a being which has been proved to develop into the highest type of animal life, and should it not have the same consideration? Why, then, is it not as criminal to destroy the life of the child, as the mother, without resort to means for its life as well? It is sometimes considered justifiable to take life in self-defense, for it is not the mother who is supposed to destroy life but the accoucheur.

We have now given us, by advanced science, desirable means of combating with the difficulties of years gone by, to where an amputation is no longer looked upon to be followed by gangrene and death. Time has proved beyond doubt the effects of antiseptic surgery.

Cesarean section has lost much of its former mag-

nitude. When the dystocia is not so great, but sufficient to make impossible the delivery of a living child without unjustifiable compression of the head, we should resort to symphysiotomy, an operation attended with much less danger to the mother and general safety to the child. Though an old operation, it has, in the past two or three years, under aseptic care, given brilliant results and will perhaps render Cæsarean section rarely necessary. I will not make a general resumé of all accidents incurred in parturition, endangering the child's life. The amplitude of the mother's pelvis deserves attentive consideration, but as the range of variance is so broad and conflicting when contrasted out of the lying-in chamber, I would advise a careful study of its anatomy and differential points when in attendance, for they have a certain individuality that only experience can give explanation of, where authors read so confusingly.

Next in importance we note presentation. In the vertex presentations we will first consider face anterior, which is considered very unfavorable in multipara but more so in primipara. If an early diagnosis can be made and dilatation sufficient by placing the patient in an extreme Trendelenburg position, introducing the hand well up to the shoulder, rotating the body of the child with its head, avoiding undue force, we can convert a face anterior into a face posterior. This is often facilitated by the patient lying on the side toward which the rotation is directed. I use the same position for shoulder presentation, pressing the shoulder well up and with the hand externally carrying the child's head well over the superior strait and holding it in position until well engaged. This treatment I learned from Dr. M. B. Wright, of Cincinnati, many years ago and find it preferable to turning. In presentation of the hand, the only alternative is to turn, bringing both feet down under full chloroform anesthesia, directing an assistant to hold the child well up, so that if the oncoming head does not pass readily, forceps can be applied and immediate delivery made. It is culpable negligence to allow a child to perish for want of assistance, and no accoucheur should deny himself such aid as a physician can render when circumstances make it possible over any other. In placenta previa it is generally preferable to tampon until dilatation is sufficient. If the engaging head does not control hemorrhage, apply the forceps and make rapid delivery, immediately introduce the hand into the uterus and deliver the placenta, using friction to excite contraction. If this does not check the hemorrhage, compress the abdominal aorta until the action of ergot, hypodermically, can be secured; small pieces of ice, injections of per sulphate of iron with peroxid hydrogen; in failure, the first can be used.

In prolapsus of funis, many suggestions have been offered, all with little success. In my experience the knee chest posture and the hand have given the best results governed by the circumstances of the case, and in no instance have I seen any of the appliances recommended of any avail. As an oxytocic, I have found quinin valuable in increasing the uterine contractions, though not capable of inciting them. If it does not increase the pains, in two or three hours apply the forceps and deliver. In the use of them, I believe a suggestion of my own will be valuable to those making forceps delivery: never make traction unless you have an assistant. Make firm pressure laterally and over the fundus uteri, continuing the

pressure until told to desist. For this reason, I offer this suggestion: it is known to every obstetrician that the pains subside spasmodically, doing so while traction is being made. The uterus becomes relaxed and the child, in an effort to force the head from the forceps after the uterine pressure is taken off, breaks its neck, but by the observance of what has been given, such an accident is avoided. In eclampsia, when dilatation is incomplete, I dilate either manually or instrumentally under anesthesia, delivering without delay, using all prophylactic means to guard against sepsis. I regard the risk to the mother and child as materially lessened, for more children are lost during labor from dilatory procedure than through active interference. You all know that if we wait several hours for dilatation, injury to the brain, convulsions, is generally fatal to both. In a general summary of this paper, my desire is to impress upon you the point that a ready conception of, and ability to combat all or any of the emergencies occurring in the lying-in chamber, governed by calm judgment, quick action and mechanical ingenuity are the sequela of a successful accoucheur.

NECROLOGY.

GEORGE A. MURSICK, M.D., died at his home in Nyack, October 17, of diabetes. He was born in New York city in 1834, and was graduated from the College of Physicians and Surgeons in 1860. In January, 1863, he entered the Union Army as assistant surgeon. He was promoted to be surgeon in charge of the General Hospital at Duvall's Cliff, Ark., in November, 1864, and became medical purveyor of the Department of Arkansas in April, 1865. He went to Nyack to practice in 1869. He leaves a widow and two sons.

ADELBERT F. G. KUEHN, M.D., of New York city, died at his home October 22, of appendicitis. He underwent an operation at St. Mark's Hospital two days before. Dr. Kuehn was born in Pittsburgh in 1852. He was a graduate of the School of Pharmacy and the College of Physicians and Surgeons, in class of 1892. He was a member of the Harlem Medical Association, and the New York County Medical Society. He leaves a widow. The place of interment was Wilkesbarre, Pa.

J. M. PRIDE, M.D., of Algona, Iowa, October 18.—E. J. Cook, M.D., of Milwaukee, Wis., October 31, aged 76.—D. B. N. Fisk, M.D., of Amherst, Mass., October 28, aged 53.—Amos Fowler, M.D., of Albany, N. Y., October 23, aged 76.—W. H. Sedgwick, M.D., of Granville, Ohio, October 25.—T. M. Tiltford, M.D., of Horse Branch, Ky., October 27, aged 72.—Joseph Daffron Schoales, M.D., of Philadelphia, October 24, aged 53.—J. A. Phillips, M.D., of Pittsburgh, Pa., October 25, aged 63.—Thomas F. Young, of Brooklyn, N. Y., October 26, aged 30.—Francis W. Gibson, M.D., of Columbia, Mo., October 17, aged 32.

Incorrect Opinions no Ground for Rescission of Settlement.—The Supreme Court of Minnesota states, in the case of Nelson v. Minneapolis Street Railway Company, decided May 24, 1895, that the plaintiff having presented a claim for personal injuries sustained by her while a passenger on its cars, the defendant employed physicians to go and examine her, and report to its claim agent as to the extent of her injuries. The physicians had no other duty to perform, and this was the extent of their authority. At the time of such examination, in response to plaintiff's inquiry whether they thought she was seriously or dangerously injured, the physicians replied in the negative, saying she would soon be all right again. Afterward she settled with the defendant, and executed to it a full release and discharge, relying upon the statements of the physicians. It subsequently developed that she was much more seriously injured than the physicians in their opinions expressed to her, but there was no evidence that these statements were not their honest opinions, given in good faith. Under these circumstances, the court holds that the fact that the opinions of the physicians proved to have been incorrect, constituted no ground for a rescission of the settlement and release.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, NOVEMBER 9, 1895.

THE PARASITES OF MALARIA.

The literature upon the parasitic origin of malarial fever, though already very extensive, has received an important addition by the publication of a systematic study of the malarial fevers of Baltimore and its vicinity, by THAYER and HEWETSON,¹ assistants in the medical clinic of the Johns Hopkins Hospital.

The study begins with a historical summary of the more important literature concerning the malarial parasite, and the table of references arranged in chronologic order at the end of the article shows that 359 separate works have been considered, all treating of some aspect or other of malarial fever since the recognition of its parasitic cause.

The original portion of this article consists of a general analysis of 616 cases of malarial fever observed in the Johns Hopkins Hospital from June 14, 1889 to Jan. 1, 1894. As regards the age of these patients, comparison with the ages of a similar number of non-malarial patients, selected at random, at once shows the greater frequency of malarial fever among children and young adults. This, the authors regard as probably due, not so much to a greater susceptibility as to the fact that the young adult is more exposed to malarial influences—remaining out of doors in malarial districts at night, etc. There were about four times as many male as female malarial patients and this evident discrepancy is also explainable on the theory that the ordinary avocations of the men subject them to greater exposure than the women who, remaining in the house, are oftener spared.

While the per cent. of ordinary colored patients, taking the cases at random, was 12.2, the per cent. of

colored malarial patients was only 4.7, the figures tending to uphold the generally accepted view that the negro is much less susceptible to malarial infection than the white.

As regards the season, it was found that while malaria may occur in any month of the year in Baltimore, yet nearly one-half the cases were observed during the months of September and October. In the majority of the cases the examination of the blood was conducted with the fresh specimen and it may be said without entering into any descriptive details, that the authors firmly believe that there are distinct varieties or types of malarial parasites which are not interchangeable but distinct varieties, though closely allied to one another; biologically combined infections, with parasites of different varieties may occur, but they are rare—less than 2 per cent. of all the cases studied.

Of the 616 cases studied by these writers, the type of the parasite was definitely differentiated in 542, and of these 150 were instances of single tertian infection, 188 of double tertian, 2 of single quartan, 3 of triple quartan; 188 were examples of infection with the aestivo-autumnal parasite and 11 were instances of mixed infection with aestivo-autumnal and tertian parasites. Further statistical tables show in an interesting manner, how the type of the infection becomes more and more severe as the summer and fall approach; thus, in the first half year only 5 aestivo-autumnal cases were observed, while in the last half 183 cases were observed, and as the seasons indicated advanced, the cases of double tertian infections also became more common.

In the course of their studies the authors reach the conclusions that the certain type of fever depends on the presence in the blood of a parasite that passes through its cycle of existence in about 48 hours. The segmentation of this organism, at intervals of about 48 hours, is always associated with a febrile paroxysm. Frequently, owing to the presence of two sets of organisms, there are quotidian paroxysms. Quartan fever, rare in Baltimore, depends on a blood parasite that undergoes segmentation which is associated with a febrile paroxysm every 72 hours. Double or triple quartan infections are possible. In regard to the aestivo-autumnal fever they conclude that it is due to the organism described by MARCHIAFVA and CELLI, but that the cycle of existence of this parasite has not yet been followed out in an entirely satisfactory manner; it probably varies from 24 hours or under to 48 hours or more; the main seats of the infection with this organism are, apparently, the spleen, bone-marrow, and other internal organs, but few stages of the development of the parasite being ordinarily found in the peripheral circulation. This organism causes fevers that vary greatly in their manifestations. There may be quotidian or tertian inter-

¹ The Malarial Fevers of Baltimore, Johns Hopkins Hospital Reports, Vol. V, 1895.

mittent fevers, or, more commonly, more or less continuous fever with irregular remissions.

While THAYER and HEWETSON reach reasonably definite and apparently sound conclusions as regards the distinctness of the various types of malarial parasites and their relations to the clinical forms of malaria, yet they have to point out that the nature and the relations of certain bodies observed in the blood of malarial patients are still, in their opinion, undetermined. This is especially true as regards the nature of the flagellate bodies which may develop in all types of malarial fever; concerning their nature and relations nothing definite is yet known. It also appears that certain crescentic bodies, associated with the aestivo-autumnal parasite, are not yet thoroughly understood.

Concerning the treatment of malaria the authors had abundant opportunity to observe that the specific action of quinin upon the three varieties of the parasite is indeed undoubted. Quinin exerts this remarkable influence most strongly when the parasite is undergoing the process of segmentation and before the fresh segmented forms have had time to enter into new red blood corpuscles. It is consequently best administered, then, just before the beginning of a paroxysm, if we wish to obtain the greatest effect with a single dose. The specific action of quinin is much more rapid and certain in the tertian and quartan fevers than in the aestivo-autumnal infections.

ABDOMINAL vs. VAGINAL HYSTERECTOMY.

The technique of hysterectomy has been so much improved of late years that the operation, which was during the first quarter of the century not accepted as a legitimate one by the majority of surgeons, has now been admitted to be a standard operation, and in suitable cases an imperative one. The method of performance of hysterectomy is now under discussion, and those practicing that branch of surgery termed gynecology, seem to be divided into two opposing camps; one favoring the abdominal method of extirpation of this much suffering organ, and the other the method through the vagina. As in many other questions raised by specialists, it must be settled on the general principles of the branch in which it is included, and it would seem as if there were no necessity for acrimony of debate on this subject if we could once agree as to the facts; and if it shall be proved by careful statistics that one method is safer than the other, so far as its immediate effects are concerned; that it is as thorough, so far as the remote effects of recurrence of the disease for which the operation is performed are concerned, then there should be no question as to the adoption of that particular method.

And just here authorities differ as to which is the safer method. We may easily exclude all of those cases of enormous fibroids in which the uterus

and its attachments are too large to be removed through the vagina, as nobody would think of performing vaginal hysterectomy in such cases; but in those cases in which we have a carcinoma involving the cervix or body of the uterus, in which there is no undue enlargement, it seems reasonable to suppose that if by the process of enucleation, a smaller wound and reduction of the liabilities to infection, we can remove the uterus through the vagina, there should be equal promptness in accepting that operation. But the truth is that each case must be decided on its own merits and the particular characteristics of the case. In cases of fixation of the uterus and where the adjacent pelvic glands are seriously involved, it is obvious that the vaginal route does not afford access to all the diseased tissues, and that the mere removal of the uterus by enucleation is inadequate for the removal of the disease. The vaginal route, too, lest extreme care be taken, is much more liable to convey infection into the general cavity than a clean abdominal incision under the usual aseptic precautions, and a careful study of the papers presented by the respective disputants would seem to resolve themselves into the proposition that as cases differ so must the treatment differ. The knights of old fought about the shield whose surfaces were of gold and silver. Each looked on the side next to him and affirmed the shield to be gold or silver, as the case might be, and they were both right and both wrong. And so the surgeon who does not recognize and appreciate that his choice must be guided absolutely by the nature of the case and the conditions then present, is liable to be sometimes right and sometimes wrong.

DR. LEVI COOPER LANE of San Francisco, Cal., first performed vaginal hysterectomy in this country in 1879 (*Pacific Medical and Surgical Journal*, 1879, vol. XXI, p. 489). DR. H. A. WRISBERG of Göttingen, excised the uterus through the abdomen in 1787.

COMPLETE EXCISION OF PATELLA.

In the *Provincial Medical Journal* are reported two cases of complete removal of the patella, and reference is made to three other cases. DR. KUMMER of Geneva, has reported the following data in the case of a female aged 25 years, with primary tuberculosis of the right patella, but with a perfectly intact knee-joint in which he made excision of the bone with excellent results. Two months after the operation, the patient was able to extend her right lower limb as under normal conditions; would kneel with perfect freedom, and without any pain or discomfort. Could walk four or five hours daily without lameness or fatigue, or run down staircases with ease, etc. In short, the only inconvenience caused by the absence of the knee-cap consisted in a relatively weakened extension of the corresponding limb.

"There can be no doubt," says Dr. KUMMER, "that in suitable cases, a total extirpation of the patella can be performed without impairing the patient's gait, or markedly interfering with movements of the knee-joint. The operation is indicated in cases of tubercular osteitis of the patella, provided the articulation remains yet intact. Extirpation can actually prevent the development of articular lesions, and thus save the knee-joint, provided the operation is resorted to sufficiently early. In cases of tubercular osteitis of the knee-cap, total removal of the bone offers better chances in regard to recovery than scraping out the morbid foci."

Another successful case is that of Dr. KAUFMANN, reported in the *Correspondenz-Blatt für Schweizer Aerzte*. The patient, a married lady, aged 33, was suffering from fungoid osteitis of the left knee-cap, of eight years standing. A month after the operation, she, being frightened by a fire next door, tore off all the dressings and ran out of the house, having swiftly descended a staircase. Since then her knee-joint has been perfectly movable and her gait normal. Dr. KUMMER mentions two other cases of primary tubercular osteitis of the patella in boys, in which the whole of the bone was removed by PROFESSOR KOCHER of Berne. An interesting case of total excision of the patella for acute necrosis has also been published in the *Lancet*, by Mr. FREDERICK PAGE of Newcastle-on-Tyne. The patient recovered, with a perfectly useful limb.

THE PATHOLOGY OF IDIOCY.

HAMMARBERG ("Clinical and Pathologic Studies concerning Idiocy, with Investigations into the Normal Anatomy of the Brain Cortex," Academic Thesis, Upsala, 1893) who unfortunately died from the effects of appendicitis at the very beginning of a most promising career, reaches the following conclusions after a thorough and elaborate examination of the brain cortex of a number (nine) of idiots: in all the cases, which include the principal forms of idiocy, it was possible to explain the psychic defects as due to a lack of cortical nerve cells capable of normal functions.

This absence of normal cells was found to be due, either to an arrest of the development of a greater part of the cortex at a stage corresponding to the embryonal, or to that found in early infancy, or to the actual destruction of cells during the growth of the brain. In all cases it is made clear that at a certain time the normal development of the cortex became arrested.

The degree of idiocy is shown to depend upon the intensity of the acting cause, upon the extent and the functions of the cortex involved, and upon the time at which the arrest in development occurred. It is also demonstrated that certain abnormal cell forms

as well as peculiarities in the arrangement of the cells in the cortex, which have been regarded as characteristic of the idiot, merit only a secondary importance. The essential moment in the production of the psychic defects of idiocy is the lack of cells capable of function.

In addition to the usual methods, HAMMARBERG relied essentially upon a method of his own, by means of which he was able to determine with exactness the actual number of nerve cells in a cube of brain cortex 0.1 mm. in size, and before drawing any conclusions as regards the cortex of idiots, he carefully examined the cell arrangement, number, size and structure in the various layers of the normal cortex. Preliminary investigations demonstrated that fixation and hardening in alcohol, cleaning in xylol, and embedding in paraffin resulted in the least actual artificial changes which were also constant in different brains and in different parts of the brain cortex. The pieces were then cut into serial sections, fastened on the slide and stained with methylene blue according to Nissl's method. Counting of the cells in the various layers of the cortex was made by throwing the positive picture of a glass slide ruled into squares upon the preparation under the microscope in such a manner that by means of an objective micrometer each space in the field was made to accurately measure 0.1 mm. square. The cells present in the same number of squares in ten serial sections, all of which were 10 μ . thick, were then counted and the sum, divided by the number of squares counted in each section, would equal the number of cells in a cube of 0.1 mm. of cortical substance.

NEW REGULATIONS FOR PRACTICE OF DENTISTRY IN NEBRASKA.

An almost entirely new law has been passed in Nebraska, regulating the practice of dentistry. First of all, it requires that a certificate therefor shall be obtained from the State Board of Health and recorded with the clerk of the county in which the dentist is to practice. In the discharge of its duties, in this connection, the board is to be assisted by three secretaries whom it shall appoint from a list recommended by the State Dental Society. These secretaries will conduct the examinations provided for, a part at least of which examinations must be in writing and remain in the hands of the secretaries, open to the inspection of any and all persons for one year. But a graduate from a reputable dental college or university may, on presentation of his diploma and affidavit that he is the lawful possessor of the name, be given a certificate to practice if he shall, upon investigation of the diploma and affidavit, be found entitled to practice.

The term, "reputable dental college or university," is to be defined as: dental college or university re-

quiring a preliminary examination for admission of its course of study and which requires as requisite for the granting of a dental degree, attendance on at least three courses of lectures of six months each, no two of said courses to be held within one year, and having a full faculty of professors in all different branches of dental education, to-wit: anatomy and oral surgery, physiology, chemistry, materia medica, therapeutics, operative dentistry and prosthetic dentistry and clinical instructions in the last two named: *Provided*, that this three year clause shall not apply to degrees granted prior to July, 1892.

Any person shall be regarded as practicing dentistry within the meaning of this act, who shall profess to or perform any operation usually considered as belonging to the practice of dentistry: *Provided*, that nothing in this act shall be so construed as to prevent physicians or surgeons from extracting teeth: *And provided*, that *bona-fide* students in dentistry shall be permitted to perform operations under the immediate supervision of their preceptor. If, for such operations any fee or compensation be received, either directly or indirectly, then such person shall no longer be considered a student and he or she shall conform to all the provisions of this act.

Certificates shall be refused to persons guilty of dishonest and dishonorable conduct; and they may be revoked for like causes. But the person must first be given an opportunity to be heard in his or her defense.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Among the active, progressive and special associations of this country, the Southern Surgical and Gynecological Association takes a high rank. The excellence of its scientific work, year after year, has attracted marked attention both at home and abroad. This Association will hold its eighth annual meeting in the Hotel Shoreham, Washington, D. C., November 12, 13 and 14, under the presidency of DR. LOUIS McLANE TIFFANY, of Baltimore. Thirty-seven papers are listed to be read, many of the authors of which are men of national reputation, whose contributions to gynecological and surgical literature have reflected luster upon the profession.

The Washington Obstetrical and Gynecological Society will give the Association a banquet on the first evening of its meeting. On the evening of November 13, DR. JOSEPH TABER JOHNSON will tender the members and their guests a reception at his residence.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, as usual, will publish a fair abstract of its proceedings.

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

CORRESPONDENCE.

Ectopic Gestation.

TOLEDO, OHIO, Nov. 1, 1895.

To the Editor:—Dr. D. von Ott at Petersburg, in Russia, has recently published his clinical and experimental observations concerning ectopic pregnancy. Of the most importance for the practitioner I consider his thoughts regarding therapeutics, and therefore I wish to lay out his conclusions.

Wherever the diagnosis of an uninterrupted extra-uterine gestation is positively made, the extirpation of the ovary by laparotomy is indicated. If the patient has reached the second half of pregnancy, we may, if the mother demands it, delay operation until the fetus can be considered able to live, although great dangers are connected with this risk.

If pregnancy is advanced to first and second months only, and the further development now stopped, that means if the fetus is dead, we may restrict our therapeutic action to close observation of the patient. If gestation is farther advanced and the fetus dead, extirpative treatment is still allowed, although the prognosis is less favorable and although the final cure demands rather a long time. A relative indication for operative interference, we therefore find here also, which in general should be preferred. Even if the extra-uterine pregnancy does not offer any alarming symptoms, as hemorrhage or acute inflammation, which naturally would demand operation, it very often interferes with the welfare and health of the woman. Extirpation four to six weeks after death of fetus should be done, if there is no tendency to quick resorption. At this time the placental vessels are obliterated, which condition does away with the danger of hemorrhage.

If the ovum is not removed, resorption should be favored by massage and electricity, carefully applied.

Hematocele, produced by ectopic gestation, should be removed by laparotomy, because this is the only way to satisfactorily remove the condition. In case of suppuration and putrefaction, the operation should be made from the vagina.

The results of the author are good ones; in twenty-one laparotomies one death which is a mortality of 4.8 per cent.

B. BECKER, M.D.

Pan-American Medical Congress, and the Journal.

COLORADO, TEXAS, Oct. 30, 1895.

To the Editor:—I see in JOURNAL just received, notice of "Transactions of the First Pan-American Medical Congress" recently published. I was a member of the Congress from Texas, and paid \$10 dues. Am I entitled to copy, because of this fact, or will I have to buy it?

I congratulate you on your signal success in the management of the JOURNAL. It is now in every respect the equal of any published, and may you stay with it.

Very truly yours,

P. C. COLEMAN, Pres. T. S. M. A.

ANSWER:—The copy reviewed by the JOURNAL was an advance copy sent by President Pepper for notice. We have no doubt the members will receive their copies in regular course of distribution. Thanks for words of encouragement.

A Western Opinion of the Journal.

FROM ONE OF THE STATE BOARD MEDICAL EXAMINERS.

DENVER, COLO., Oct. 15, 1895.

To the Editor:— Let me congratulate you upon the great improvement in our JOURNAL recently. I feel sure that its tone comes more nearly meeting the approbation of the part of the profession which it should reach, than if gotten up in more popular "crossroads" style.

Yours very truly,

J. N. HALL, M.D.

BOOK NOTICES.

Pioneer Work in Opening the Medical Profession to Women. Autobiographical Sketches, by DR. ELIZABETH BLACKWELL. Cloth, pp. 264. London and New York: Longmans, Green & Co. 1895.

This book is unique, because it is the autobiography of one of the leaders of the movement by which women were admitted to the general medical profession. Indeed, we might say the leader, for Dr. Blackwell was the first woman admitted as a student to the general classes in medicine, the story of which is told in the appendix to this work in a very interesting manner by Dr. Stephen Smith, of New York. While women were freely admitted to practice obstetrics and gynecology, as did Louise Burgeois and Madame La Chapelle, yet they were kept aloof from general medicine and surgery until the opening in our day to women of medical classes and the establishment of medical colleges exclusively for women. The story of her early years while earning money for study and studying in America, takes up the first three chapters. Chapter iv is given to the story of her study in Europe, its difficulties and trials. Chapter v to her practical work in America. Chapter vi, a revisit to England and the return to New York, and the last and seventh chapter, her final return to England.

As the period of medicine covered in this autobiography from 1821 to 1869 is among the most interesting in the history of medicine, so this book, which gives occasional curious glimpses of interviews with the great men who occupied prominent positions in the earlier half of the century, is full of interest. In our day we can hardly imagine the annoyance, not to say insults, that the woman medical student was compelled to submit to in order to gain a medical education, and one can only wonder in reading the book of Dr. Blackwell at the patience, the endurance, and the single-heartedness which enabled her to complete her course; at the same time, it is seen that among the many rebuffs which were encountered were many pleasant experiences which had, we suppose, a soothing effect under the irritating influences to which she was frequently subjected. Now that woman has come into medicine to stay, we trust that she will not forget that the men have practiced medicine and have gained honor and success in its practice, not because they were men, but because they were thoroughly equipped in the great principles of an honorable profession, and if women succeed everywhere in this calling it will be in exact proportion as they thoroughly equip themselves for the business, rather than because they are women.

One beginning the book is hardly likely to lay it down until it is finished. The anecdotes told are interesting, and among them is the following (pp. 194 and 195): "My first medical consultation was a curious experience in a severe case of pneumonia in an elderly lady. I called in consultation a kind-hearted physician of high standing, who had been present in Cincinnati at the time of my father's fatal illness. This gentleman, after seeing the patient, went with me into the parlor. There he began to walk up and down the room exclaiming: 'This is a most extraordinary case. Such a case never happened to me before. Really, I do not know what to do.' I listened to him with surprise, although he was very much perplexed, as it was a clear case of pneumonia, and had no unusual degree of danger, until I at last discovered that this perplexity related to me, and not to the patient, and the propriety of consulting with a lady physician. I was both amused and relieved. I at once assured my old acquaintance that it need not be considered in the light of an ordinary consultation, if he were uneasy about it, but as a friendly talk. Finally, he gave me his best advice, and my patient rapidly got well. Happily enough afterward, I had

no difficulty in obtaining necessary consultation from the members of the medical profession."

Functional and Organic Diseases of the Stomach. By SIDNEY MARTIN, M.D., F.R.S., F.R.C.P., etc., with 57 illustrations. Cloth, 498 pages. Edinburgh and London: Young J. Pentland. Philadelphia: J. B. Lippincott Company. 1895.

The English teachers have always had a high standing as physiologists, and have excelled in it as the Scotch have excelled in pathology, and we have no hesitation in saying that since the famous books of Thomas King Chambers, no book dealing with stomach digestion and its derangements and the lesions of the organ itself has been more complete or more thorough in its treatment of the subject. The typographical execution of the work is excellent, and the illustrations are all good, and some of them very fine. The book is divided into sixteen chapters, as follow: i, Anatomy and Physiology of the Stomach; ii, Digestibility of Various Articles of Diet and the Effect on Digestion of Food Exercise, as Condiments, Alcoholic Drinks, Tea, etc.; iii, Pathology of Indigestion of Food; iv, Pathology of Indigestion of Food Continued; v, Methods of Examination of the Functions of the Stomach in Disease; vi, Symptoms Referable to Indigestions of Food with or without Anatomic Changes in the Walls of the Stomach; vii, Functional Disorders of the Stomach; viii, Mechanical and Active Congestion of the Stomach, Gastritis, Gastric Catarrh; ix, Gastritis Toxicæ, Gastritis Mycædica, Atrophy and Degeneration of the Stomach; x, Treatment of Acute and Chronic Affections of the Stomach; xi, Treatment of Acute and Chronic Affections of the Stomach Continued; xii, The Same Continued; xiii, Bleeding from the Stomach, Hematemesis; xiv, Dilatation of the Stomach, Cirrhosis Ventriculi; xv, Ulcer of the Stomach, Acute and Chronic; xvi, Cancer of the Stomach.

While the treatment by electricity and hygienic measures are noted, nothing whatever is said of the operative treatment in cases of carcinoma or tumors of the stomach, the work being confined to the medical aspects of the subject.

Text-book on Forensic Medicine and Toxicology. By ARTHUR B. LUFF, M.D., B.Sc., London. Lecturer on Medical Jurisprudence and Toxicology, St. Mary's Hospital; Examiner in Forensic Medicine, University of London; External Examiner of Forensic Medicine in the Victoria University; Official Analyst to the Home Office. London and New York: Longmans, Green & Co. 1895. The work consists of two volumes, pp. 416 and 360 respectively.

This work has been written as a text-book for students of medicine, and as a work of reference for practitioners in connection with medico-legal cases. Special reference is given to toxicology. There are twelve full-paged plates and twenty-four illustrations in connection with the toxicologic branch of the subject. The contents of the volume are as follow: Chapter i, Medical Evidence, Importance of Knowledge of Medical Jurisprudence, Dying Declarations, Procedures in Magistrate's Court, Coroner's Court, Court of Assize, Attendance of Witnesses, Common and Expert Witnesses, etc. Chapters ii, iii, iv, v, vi and vii are devoted to questions connected with the dead body. Chapter viii, the general subject of toxicology, and ix, x, xi, xii and xiii to inorganic poisons; Chapters xiv, xv, xvi, xvii, xviii, xix, xx, xxi, xxii, xxiii and xxiv to organic poisons. The book is well printed and the illustrations are excellent. The tests given are those recommended in the latest works on chemistry, and many of the procedures are drawn from the personal experience of the author. In examining the book we are inclined to think that the portion relating to toxicology would be of most interest to the American profession, as the procedures of the English courts differ in many important respects from those prevailing in this country. However, the general principles of the English common law prevail in this country in the absence of any statutory provision. We commend the work.

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. LXXVIII; second series, Vol. LX, pp. 298. London: Longmans, Green & Co. 1895.

The contents of this volume include, beside the usual list of officers, trustees, reports of committees, lists of Fellows and proceedings at the annual general meeting, the following papers: Surgical Treatment of Diffuse Septic Peritonitis with Successful Cases, by C. B. Lockwood, F.R.C.S.; A Case of Actinomycosis Extensively Involving the Skin, by J. J. Pringle, M.D., F.R.C.P.; Treatment of Respiratory Affections by means of Large Medicinal Injections through the Larynx, by Colin Campbell, M.R.C.S.; A Year's Experience with the Use of Silver in Surgery, by Arbuthnot Lane; Influence of Heredity in Phthisis, by J. Edward Squire; Illustrations of Some Modes of Death after Ovariectomy, by John D. Malcolm; Varieties of Intestinal Obstruction Dependent upon Questions, with a Series of Cases, by Mayo Robson; On Nervous Symptoms and Morbid Changes in the Spinal Cord in Certain Cases of Profound Anemia, by James Taylor; A Case of Large Pelvic Hydatid Successfully Treated by Perineal Incision and Drainage, by Reginald Harrison; On the Probable Pathologic Identity of the Various Forms of Acute Septic Inflammations of the Throat and Neck, by Felix Simon; Microorganisms in the Healthy Nose, by Sinclair Thompson; Further Observations on the Development of Mammary Functions in the Skin of Lying-in Women, by Francis Henry Champneys, and Anthony A. Bowlby; Fourteen Cases of Intra-peritoneal Rupture of the Bladder with Recovery, by W. J. Walsham; With Table of Twenty Cases of Rupture of the Bladder Treated by Suture, by W. Ernest Miles.

As most of these papers and addresses have been published elsewhere, we can only refer those of our readers who have not seen them to the volume itself, which will be found equal in interest to any of its predecessors.

Medical Diagnosis with Special Reference to Practical Medicine in Regard to the Knowledge and Discrimination of Diseases. By J. M. DaCosta, M.D., LL.D., etc., illustrated with engravings on wood. Eighth edition, revised. Cloth, pp. 1104. Philadelphia: J. B. Lippincott Co. 1895.

In a preface to the eighth edition the author states, under date of August 8, 1895, that he has "revised the work and altered some of its chapters. New matter has been inserted, old matter in parts condensed. I have endeavored to incorporate whatever of bacteriologic interest appeared to be established as valuable for diagnostic purposes."

This well-known text-book requires but little at the hands of the reviewer, and it is pleasing to note that this is a *bona fide* revision, as the references at the foot of the pages readily show. In this revision we have the mature opinions of the distinguished author in the ripeness of his vast experience, and this revision will enable it to maintain its place in the front rank of the works on general diagnosis and a credit to American medicine. Aside from the intrinsic merits of the book, there are many features which go to make a favorite; among them may be mentioned, first of all, its clearness of definition, the philosophic explanation of underlying principles, and its brevity of statement, the latter a characteristic too frequently unknown in medical literature. The book has been brought quite up to date, and, as before mentioned, is an actual revision. It includes everything of value on the subjects within its scope.

Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences Throughout the World. Edited by CHAS. SAJOUS, M.D., and seventy associate editors, etc., illustrated with chromo-lithographs, engravings, in five volumes. Philadelphia, New York and Chicago: F. A. Davis Co., publishers. 1895.

The editor in the preface pays fitting tribute to the mem-

ory of Dujardin-Beaumetz, who was the former editor of the Section on General Therapeutics and Pharmaceutical Chemistry. This work is the prince of medical annuals, and he who possesses it has at his command nearly all that is valuable in the medical literature of the world within the year. Naturally the editors differ in their treatment of the various topics assigned to them, but, in general, it may be said that the work is accomplished fairly and without personal bias or leaning. The work is invaluable to the writer and teacher as giving a summary of the more important articles on each particular subject, and by the careful system of reference they may consult the original, if they so desire. The Annual has now come to be a permanent and valuable feature in universal medical literature.

Manual of Operative Surgery. By LOUIS A. STIMSON, B.A., M.D., etc., and JOHN ROGERS, B.A., M.D., etc. Third edition, with 334 illustrations, pp. 598. Philadelphia: Lea Bros. & Co. 1895.

This book is a fair compilation of the existing practice on operative surgery of the more common operations. The illustrations are in the main excellent, but certain of them, however appropriate they may have been ten or fifteen years ago, have now become obsolete and might well be omitted, such as, for instance, Petit's tourniquet and its method of application. The book is printed on excellent paper, and it will be found useful for students.

SOCIETY NEWS.

Section on Ophthalmology, College of Physicians of Philadelphia.

—A stated meeting of the Section on Ophthalmology was held in the Lower Hall, College of Physicians of Philadelphia, on April 16, 1895, Dr. Wm. F. Norris, Chairman, presiding. Present, Drs. Fenton, Hansell, Harlan, Norris, Oliver, Randall, Risley and Stahl, Fellows of the College, and Drs. Archer, Cassell, Cummings, Murphy, Pancoast, Perrine, Seaman of Milwaukee, Schwenk, Stevens and Ziegler as guests.

DR. GEO. C. HARLAN showed a case of irideremia in a 24-year-old colored woman, in which there was the usual cataractous condition of the lenses. He stated that it was his purpose to endeavor to better vision by needling. In answer to an inquiry by Dr. Randall, whether the case presented any hereditary taint of a similar nature, Dr. Harlan asserted that no such influence could be found in this instance.

DR. WM. F. NORRIS reported a case of leuco-sarcoma of the choroid producing secondary glaucoma, and made some remarks upon the preservation of the specimen in formol. Examination showed that the pressure symptoms had advanced sufficiently far to give rise to a pathologic excavation in the optic nerve head. As regards formol, he stated that although the drug produced a marked shrinkage in the specimen, yet the great advantage that this material possessed over other preservatives was that the tissues were not stained nor discolored. He had found that most excellent sections could be prepared in four or five days after the first immersion.

DR. CHARLES A. OLIVER made some remarks upon a case of essential atrophy of the conjunctiva and showed a water color sketch of the external condition. He desired to place this special type of case upon record on account of its extreme rarity.

DR. S. D. RISLEY read the notes and exhibited a sketch of opacity of the cornea simulating lead deposit. The case was of extreme interest as having given a definite history of the prolonged and continuous use of a solution of acetate of lead. Careful analysis made by a competent chemist failed to reveal any trace of any salt of lead.

DR. HARLAN asked, in view of the fact that there were so many reported cases of clinical evidence of lead depositions, whether there were any instances in which chemic examination had revealed the presence of lead in the opacity?

DR. RISLEY stated in answer, that he had not found any in the literature at his command.

Dr. HARLAN exhibited a case of embolism of the central retinal artery, in which a large hemorrhage appeared during examination.

Dr. RISLEY spoke of having seen a case of retinitis albuminurica in which, while the patient was sitting in his office being examined, a bright red hemorrhage appeared in the lower part of the fundus. This increased in size, while he was looking at it. After instillation of cocaine into the eye, so as to better observe the condition, he had full opportunity to watch the blood spread over a large portion of the lower part of the fundus as a thin membranous veil. He watched this extravasation of blood at intervals for several weeks' time. The eye-ground showed numerous other striated hemorrhages and plaques that are so characteristic of albuminuric retinitis.

Dr. HANSELL stated that although never having seen the actual appearance of such hemorrhages, yet he had frequently seen cases in which fresh extravasations had appeared during the intervals between the daily examinations.

Dr. NORRIS noted an unusual case which had come under his observation some years previously. The patient, a middle-aged woman, while sitting in church, noticed the appearance of a reddish black spot before her eye. Examination upon the following day showed the presence of a large fresh hemorrhage, which covered the entire macular region and extended into the vitreous. The extravasations gradually disappeared and vision returned to normal. Dr. Norris stated that the interesting point in this case was the fact that the patient began to lose her sight when she was not making any special physical exertion.

Dr. FENTON stated that he had had the opportunity of twice noticing the onset of retinal hemorrhages in a case of albuminuric retinitis which was under his repeated observation for several hours daily for sixteen days. He also called attention to the fact that he had frequently observed the appearance of fresh hemorrhages after intervals of a few hours.

Dr. OLIVER gave a blackboard demonstration of two cases of subconjunctival dislocation of the lenses, occurring in the same week. Both lenses were removed and the eyes were fast becoming quiet and well, with recovery of useful vision. To an inquiry by Dr. Harlan whether the capsules were ruptured in these instances, Dr. Oliver said that they were not.

Dr. NORRIS stated that he possessed a specimen of such a dislocation of the lens in which it could be plainly demonstrated that the capsule was intact.

The Section then went into executive session. Upon motion, adjourned.

CHARLES A. OLIVER,
Clerk of Section.

SELECTIONS.

Concerning the Relations of Tuberculosis of the Cervical Lymphatic Glands to Tuberculosis of the Tonsils.—Krüickmann (*Virchow's Archiv*, Bd. 138, p. 534) confirms the observations of Hanau-Schlenker. In thirty cases of lung tuberculosis, there was tuberculosis of the tonsils twelve times. An apparently primary tuberculosis of the cervical glands can also develop from the tonsils, even when the clinical examination fails to demonstrate the presence of pulmonary tuberculosis. In one case there was tuberculosis of the tonsils and the mesenteric glands only. This was presumably due to ingestion of bacilli with the food, the bacilli becoming localized in the organs that especially receive and retain foreign elements, while the mucous membranes themselves did not become infected.

Alumol in Gonorrhea.—(M. Chotzen in *Archiv für Dermatologie und Syphilis*, 1895, Bd. xxxi, Hft. 2). Chotzen has tried alumol in 294 cases of gonorrhea and, in opposition to Casper and Sumter, has obtained favorable results. He insists that it has power to destroy the gonococci, and that since its precipitate with albumin is soluble in excess of albumin, it penetrates the tissues and acts as a strong astringent. It was first used in a 1 to 2 per cent. solution, after the disappearance of the gonococci in .5 to .25 per cent. solution, in the deep urethra in 1 to 5 per cent. solution or 2.5 to 10 per cent. ointment. Records of the cases were carefully kept, and conclusions are drawn that in most cases the

gonococci rapidly disappear and that the urethritis, no longer gonorrheal, subsides.—Jadassohn, in *Centralblatt für Chirurgie*, July 27, 1895.

Toxin of Erysipelas in Sarcoma of Palate.—The patient, 16 years old, had a sarcoma which started in the soft palate and had spread forward into the hard palate and downward into part of the posterior pharynx, the base of the tongue and the entrance to the larynx. The new formation consisted of a luxuriant cauliflower-like growth, ulcerated on the surface. The uvula was destroyed. The microscope showed it to be a spindle-celled sarcoma. Subcutaneous injections of a mixture of the toxins of erysipelas and bacillus prodigious were employed. After the injection there was always redness and a painful swelling for twelve to thirty-six hours. Two weeks after beginning this, swallowing ceased to be painful; cicatrization took place gradually and the tumor wholly disappeared.—*St. Petersburger Medicinische Wochenschrift*, July 27, 1895.

Saccharomyces Hominis.—Busse, of Greifswald, at the last meeting of *Gesellschaft Deutscher Naturforscher und Ärzte*, held in Lübeck, Sept. 16-25, 1895, (*Deutsche Med. Wochenschr.*, Oct. 3, 1895) described a disease which presented the clinical picture of a chronic pyemia and which was due to a member of the group of microorganisms known as saccharomyces or yeast fungi. During the course of the disease which extended over thirteen months, foci of disease as large as a fist or so, appeared in the left tibia, the right ulna, the sixth left rib, in both kidneys and in the spleen; there were also large ulcers upon the skin of the faces.

Treatment of Chronic Constipation by large Enemata of Oil.—Dr. Carl Berger has obtained most successful results in obstipation from the "oil-cure" described by Fleiner of Heidelberg in 1893. Enemata of 400 to 500 cc. of good olive or poppy or sesame oil are used. The oil should be at body temperature and given slowly with moderate pressure. Fleiner recommended the dorsal position with elevated pelvis, but Berger now prefers the knee-elbow position. The operation takes twenty to thirty minutes. Then the patient lies, with hips raised, fifteen minutes on the left side and the same time on the right side. All patients feel the pressure of the oil in the transverse colon. Pain was present in only two out of forty-one cases, and twice the taste of oil was reported several hours after the enema. If the patient remains recumbent, a stool usually appears four or five hours later, but the real effect comes the following day in two or three spontaneous evacuations, often containing bile. Oil appears in the stools for five or six, or even ten days. Usually a spontaneous evacuation follows for a number of days, aided, no doubt, by proper care in choice of food, etc. Before further use of the oil, Berger waits until a necessity arises, when the enema is repeated. He finds that the intervals grow longer and that the ultimate success in even severe cases is greater than he has obtained by any other means. Rosenheim has published his experience and while less sanguine, recommends the procedure in connection with massage and electricity. Blum has noted good results in colic accompanying gall stones. The ease with which good results were obtained in hysterical and neurasthenic women makes Berger warm in his praise of this method, in comparison with massage of the abdomen, hydrotherapy or faradization of abdominal wall.—*Deutsche Medicinische Wochenschrift*, July 25, 1895.

The Toxin and the Antitoxin of Cholera.—Under the direction of Behring, Dr. Ransom had previously experimented with the view of obtaining the contagion of cholera in solution and the specific antitoxin and had already proved the existence of the two. Then Behring was offered an experiment station for his assistants at the Farbwerke in Höchst, now marked as the seat of valuable advance in the work of obtaining antitoxins for two diseases, tuberculosis and cholera. As to cholera, Behring says the purely scientific work can be regarded as finished through the researches of Dr. Ransom, and it only remains to prepare a cholera heil-serum

suited to practice. Dr. Ransom gives details of his experiments in which he obtained from virulent cholera cultures a fluid free from bacteria and equally fatal to guinea pigs, and then a dry, stable substance having the same power. Then guinea pigs, etc., were treated according to known methods of immunization to obtain an antitoxin. Serum from these animals was found to afford protection to guinea pigs receiving injections of the cholera toxin, even when the dose was made three times the ordinary fatal amount, and alike whether the dry toxin, the clear solution from cultures or the living vibrios were used, and even when the toxin was used 48 hours after the antitoxin. Dr. Ransom gives a resumé of his researches as follows: 1, it is possible to obtain a cholera culture fluid, free from bacteria, which shows specific qualities; 2, the post-mortem appearances which result from this fluid are similar to those which follow the use of living cholera vibrios; 3, from this fluid can be obtained a stable substance the action of which is identical with that of the original fluid; 4, from animals susceptible to cholera, which have been treated with cholera toxin, a serum can be obtained, which proves to be equally effective against cholera toxin and against the living cholera vibrios.—*Deutsche Medicinische Wochenschrift*, July 18, 1895.

Congenital Syphilis and Tuberculosis.—Hochsinger (*Wiener Med. Blatter*, 1894, Nos. 20 and 21), concludes that syphilis and tuberculosis can appear as a mixed infection at the earliest possible age, and that this infection may be congenital. This conclusion is based on the clinical and anatomic investigation of three cases. The first child born of a syphilitic father and a tuberculous mother died on the thirty-first day. During life an undoubted syphilitic cutaneous eruption existed, and a simultaneous pneumonia with enlargement of the spleen and the liver led to the diagnosis of syphilis. The post-mortem examination showed an extensively distributed tuberculosis of the internal organs with large and caseous nodules that contained the tubercle bacilli. The second case concerned a child that died on the thirty-eighth day. The history, the syphilitic eruption, and a pneumonia seemed to warrant the diagnosis of syphilis. The lung was the only tuberculous organ in this case. The third case presented pronounced syphilitic lesions and died during the sixteenth week from pneumonia. The section showed a chronic tuberculous broncho-pneumonia, tuberculosis of the spleen, of the lymph glands and interstitial syphilitic hepatitis without tuberculosis of the liver. Hochsinger regards such cases as not uncommon and lays stress upon the necessity of examining the contents of the nodules for bacilli, in order to determine whether syphilis or tuberculosis is present. The question whether the tuberculosis was congenital or acquired in these cases can not be determined in Cases 2 and 3. Of the first case it may be said with certainty, however, that the syphilis was the result of a spermatic or paternal infection and that the tuberculosis was due to a placental infection, because the caseous masses with tubercle bacilli in the liver speak in favor of infection through the umbilical vein.

Goitre Among the Indians of the United States.—First Lieutenant and Assistant Surgeon Munson, U. S. Army, contributes an interesting and timely article concerning the prevalence of goitre among certain Indian tribes.¹ Munson obtained a great deal of information in regard to this subject by means of a series of questions sent to the physicians of the sixty-three agencies of the Indian service, all of whom responded except three. It was found that the number of Indians located on reservations from which goitre was reported amounted to 77,173, and that among this number there were 1,823 cases of bronchocele or about 2.36 per cent.; taking into consideration the population of all the reservations from which positive as well as negative reports were received the percentage would be 1.23. As regards geographic distribution the disease is most prevalent in the southern part of Montana. There seems to be no question but that racial predisposition to goitre is illustrated by the Indians because the disease was reported as practically unknown among the white set-

tlers living in or about the reservations where goitre was prevalent among the Indians. It seems also that fully 80 per cent. of the cases occur in Indian females, the disease being not only much less frequent but also less rapid and less extensive in the male. The average age for the disease to begin was found to be at from 12 to 14 years. Nearly every report gives instances illustrating the apparent heredity of goitre and many instances are cited in which several consecutive generations showed its development. It is very interesting to observe that only one case is reported in which goitre was associated with cretinism. The following are some of the other salient points of this article: goitre among the Indians can not be traced to high altitude, climate or water containing an excess of calcium salts; the disease is undoubtedly caused by unsanitary surroundings, depressing constitutional conditions, and an improper and excessively nitrogenous diet; the tumor is apparently smaller than the one usually observed in whites; the usual treatment is not satisfactory.

The Diagnosis of Syphilomata.—How are syphilitic sarcomata and lymphomata to be distinguished anatomically and clinically from other sarcomata and lymphomata? (v. Es-march at the Twenty-fourth Congress of the German Society for Surgery, April, 1895.) It is a well-known fact that tumors often appear, which are due to constitutional (acquired or inherited) syphilis and which disappear after appropriate internal treatment; but since they can be easily mistaken for other malignant tumors (sarcomata, carcinomata), they often lead to unnecessary operations. In his own practice more than forty cases had appeared, in which tumors, at first regarded as malignant sarcomata or carcinomata, were shown to be undoubted syphilomata. And he has found a far larger number in print, which, in the light of his present experience, he might stamp as suspicious. In this light he would regard: 1, all cases of tumors in patients who showed at any other time symptoms of syphilis, or where the history showed that their parents or brothers or sisters had had syphilis; 2, all tumors, resembling sarcomata, which develop in voluntary muscles, especially in the sternomastoid, in the muscles of the abdomen, the back and the lower extremities, also the tongue; 3, all sarcomata, which, after complete extirpation, recur at first slowly, then after shorter and shorter periods (recurring fibroids, Paget); 4, all tumors, which diminish or disappear after use of iodid of potash, mercury and arsenic; 5, those sarcomata which disappear after attacks of erysipelas or after injections of the toxins of erysipelas, etc. All these grounds for suspicion are strong points in the clinical diagnosis, and the more of these coexist in a given case, the more probable it is that the tumor is of syphilitic origin, the more cautious must the surgeon be, before he determines upon an operation, the more searching must be the examination of the whole body and of the clinical history. In this way it is not rarely that one finds a clue (eruption, ulcers, cicatrices, teeth, eyes, etc.). The external appearance of the tumors and the manner and duration of their growth are so varied that no diagnostic signs can be drawn as a rule. From the anatomic appearance (after extirpation, or removal of a portion) a diagnosis can at times be made at a glance, if one finds in the section the strikingly mottled picture which Virchow has so excellently described. The microscope also discloses much of value, especially negatively. But in many cases syphilomata can not be distinguished, macroscopically or by the microscope, from small-celled and spindle-celled sarcomata. The same is true of exuberant granulomata which sometimes arise from broken-down gummata. But the greatest difficulties in diagnosis are seen in syphilitic lymphomata, which appear, especially as a late symptom, in inherited syphilis, and which are often confounded with tuberculous or pseudo-leucomatous, malignant lymphomata and lympho-sarcomata. Syphilomata arise also in other glands, especially in the mamma, testis and salivary glands, and are generally not recognized before extirpation. Inasmuch as all these tumors recur after increasingly shorter periods, until the patients at last succumb, it would be of inestimable value to us, if we had some means, at least by the microscope, of deciding whether the tumor was due to syphilis or

¹ New York Medical Journal, Oct. 26, 1895.

not. That we have to do with bacilli or similar organisms (protozoa) in syphilis we feel reasonably sure from the manner of infection and the whole course of the disease. But unfortunately the labors of investigators, from Lustgarten to Döhle, have not succeeded in establishing beyond doubt, that the microorganisms found are the cause of the infection or are present in all products of syphilis.—*Centralblatt für Chirurgie*, July 6, 1895.

The Pathologic Anatomy of Progressive Muscular Atrophy.—

Cramer, of Göttingen, presents a thorough review of the literature of the anatomic changes in the various forms of progressive muscular atrophy (*Centralblatt für Allgemeine Pathologie u. Pathologische Anatomie*, vi. Band, No. 14-15). He divides all the cases into the following groups: 1, cases without any changes in the central or peripheral nervous system; 2, cases with changes in the peripheral nerves only; 3, cases presenting lesions in the spinal cord; 4, cases with alterations in the brain, and he gives tables embodying the essential facts recorded concerning all the reliable and complete cases of each group published in the literature.

His final conclusions after a careful consideration of all the instances are the following: 1, there are muscular atrophies in which the present means of investigation fail to disclose any lesions whatsoever in the central or peripheral nervous system, even after the atrophy has existed for ten or twenty years. These atrophies correspond clinically to some one of the forms which Erb includes under the name of dystrophy; 2, the muscular atrophies that develop in connection with demonstrable spinal affections present many different clinical pictures. The same complexus of symptoms which is characteristic of dystrophy, as well as typical spinal muscular atrophy may develop in conjunction with the same spinal lesion. Even an isolated disease of the ganglion cells in the anterior horns may give rise to such widely differing clinical manifestations. A special lesion may consequently be present in cases of dystrophy or the peripheral and central nervous system may be found intact; 3, there are found transition forms between the cases without central or peripheral lesions and those with spinal affection, as well as between the so-called spinal muscular atrophies and the atrophies that develop in connection with other diseases of the spinal cord; 4, the changes in the muscles themselves are practically and, on the whole, identical in the atrophies with spinal cord lesions and in the myopathies without central changes. The microscopic changes in the muscles present nothing that is characteristic of any single form of the disease; 5, the pathogenesis of muscular atrophy is not clearly understood. It appears, however, that an embryonal disposition that may become hereditary must be taken into consideration as an etiologic factor. Whether this supposed pathogenic factor that comes into play in embryonal life attacks the nervous system or the musculature directly has not been determined; 6, there are cases of muscular atrophy with an isolated disease of the peripheral nerves which seem to assume an especial type (the neural form of Hoffmann). The muscular changes in this form do not present any essential differences from those of the two other kinds of atrophy mentioned; 7, the muscular atrophies of locomotor ataxia show some similarity to the neural form; 8, there are muscular atrophies dependent upon central lesions which mostly consist of focal changes in the region of the central convolutions. Such muscular atrophies can develop without any visible morbid changes in the pyramidal tracts or in the ganglion cells of the anterior horns.

Treatment of Eclampsia.—By Prof. Dr. A. v. Gurbaroff, of Jurjew (Dorpat). Since the treatment of eclampsia even to-day scarcely permits us to expect favorable results, inasmuch as the death rate for the mother is placed at 25 per cent. (Auvard), or even 30 per cent. (Ahlfeld), the following observations on the six cases of this severe complication, which have been observed since my entrance into the woman's clinic in this city, seem to me to be not without practical interest, since all these cases terminated favorably for the mother. This would lead us to assume a mortality of zero; and I scarcely think it could be shown that the re-

sult obtained did not depend upon the treatment. Of the six cases, three presented very severe phenomena, as very high and long continued temperature, protracted comatose condition, large amount of albumin in the urine, frequent convulsions, etc. The treatment was as follows: administration of narcotics, principally morphin, in moderate but repeated doses (.015 gm. subcutaneously about six times in twenty-four hours according to the quantity of urine), enema of chloral and only during operative maneuvers (including catheterization of the bladder) light chloroform narcosis. All external means which could stimulate or supply vicariously the activity of the skin, were applied freely. Among these, warm baths only very seldom; moist, warm coverings always; further, many times a day, rubbing with warm vinegar-salt-alcohol solution and simple supplying of heated air. In all cases, attention was given as early as possible to securing thorough emptying of the intestines by salines (sodium and magnesium sulphates, &c.). Beside, in all cases, great attention was bestowed on the function of the kidneys. This was stimulated by the administration of milk and certain mineral waters, and by application of local heat to the region of the kidneys by means of a large hot water bag, which always exerted a remarkably favorable influence on the secretion of urine. Especially in the three severest cases, in which there was entire loss of consciousness, coma, with high temperature (39, 40 degrees C.), and greatly diminished secretion of urine, the quantity of urine was strikingly increased and the albumin much diminished; coincidentally the general condition began to improve and recovery followed after a few days. This result appears to me so exceptional, that I feel justified in recommending strongly the continued local application of heat over the loins, especially in cases in which there is much albumin and markedly diminished secretion of urine. Venesection was employed in only one of these cases. In this case convulsions began at the end of the seventh month and were very severe. The patient was brought into the clinic in a deplorable condition. The eclamptic seizures followed one another rapidly and in the intervals the patient was wholly unconscious. Temperature 38 to 39 degrees, pulse 90 to 112. The os admitted one and one-half fingers; no contractions of the uterus. Abortion was produced. Barnes' dilators were introduced and after four hours the sac was ruptured and a dead child was delivered with forceps. The convulsions continued. Pulse 90, strong; respiration labored and stertorous. Unconsciousness persisted. After eight hours 600 gms. of blood were drawn from the left median cephalic vein. The paroxysms suddenly ceased, respiration improved, there was an increase in the urine and marked diminution in the albumin. Temperature before venesection 38.5 degrees, pulse 76; shortly after 37.8 degrees, pulse 80. On the next day 500 gms. more of blood were drawn. Soon after the patient became perfectly conscious. Albumin disappeared from the urine. On the fifth day symptoms of puerperal mania were manifested, joined with rise of temperature, but these soon passed away.—*Centralblatt für Gynäkologie*, No. 5, Feb. 2, 1895.

The General Therapeutic Effect of the Alternative Electric Current of High Frequency and of High Tension.—Dr. Apostoli, together with Dr. Berlioz, on March 18, 1895, presented a paper on the above mentioned subject to the Academy of Sciences of Paris. He now, after longer and riper experience, desires to present a summary statement of his general conclusions:

1. According to Professor d'Arsonval's discoveries, alternative currents of high frequency and of high tension, exert a powerful action upon all living bodies submitted to their inductive influence.

2. The best method of applying these induced currents is to place the patient, free from all contact with electrodes, in the circuit of a large solenoid traversed by these currents. The patient being thus completely insulated, the currents which circulate in his body by auto-conduction, have their origin in his tissues. The body plays the rôle of a closed induced circuit.

3. By this method the physiologic discoveries of Professor d'Arsonval are confirmed and we are able to prove the powerful influence of these currents upon the vasomotor system—although they produce absolutely no sensation and although they have no apparent effect upon the motor or sensory nerves. These currents have nevertheless a powerful action upon all the nutritive functions; as has been verified by Dr. d'Arsonval's numerous analyses of the gaseous

products of respiration and by Dr. Berlioz's not less numerous analyses of the urinary excreta.

4. The general therapeutic applications to be deduced from this physiologic action are confirmed by clinical observation. Dr. Apostoli has now treated more than a hundred patients by this method at his clinic and at his private consultation rooms. The greater number of these patients have been greatly benefited by this new treatment, which, be it remarked, has been used to the exclusion of all other forms of medication, dietetic or otherwise.

5. The currents exert in the majority of cases a most powerful and generally beneficial action upon diseases due to slackening of the nutrition, by accelerating organic exchanges and combustion. This is proved by analyses of the urine made by Dr. Berlioz, of which the following is a brief resumé:

The quantity becomes more normal; the products of organic waste are better eliminated. The increased combustion is shown by the diminution of uric acid, while the percentage of urea is generally increased. The relative proportion of these two substances changes under treatment so as to reach in general the figure of 1-40. The elimination of the mineral products is also changed, but in a manner less marked.

6. When daily sances are given, each lasting fifteen minutes, we may generally observe in patients submitted to the influence of these currents the following modifications in their general condition. We mention them in the order of their occurrence: return of sleep. Increase of strength and vital energy. Increase of gaiety, of power for work and ability to walk. Improvement of appetite, etc. In short, general progressive improvement. This general improvement often manifests itself after the first sances before any local influence is apparent and before any change has occurred in the urinary secretions.

7. Local pain and trophic changes are often more slowly affected by these currents and at times they are entirely refractory for a longer or shorter period. In such cases the same currents must be applied locally by contact with the electrodes. This subject will be treated later on in a separate communication.

8. The diseases which have appeared incurable by this treatment are those not associated with well defined organic changes such as hysteria and certain forms of neurasthenia. Dr. Apostoli has also observed that certain localized neuralgias are refractory to this form of currents; they require its more direct local application.

9. The diseases which have derived most benefit from this therapeutic agent, belong to the arthritic class: rheumatism and gout.

10. In certain diabetic subjects the sugar has disappeared altogether from the urine under the influence of these currents, while in others there has been no such change, notwithstanding the manifest and constant improvement in the general condition. Is this difference due to the imperfection of the electric apparatus or to the manner of its application? It is hoped that further experience will soon afford an answer to this question; although the fact that diabetes has many different causes, may in itself explain the difference in the results obtained by this treatment.

In conclusion, the currents of high frequency and of high tension introduced into electro-therapeutics by Dr. d'Arsonval greatly increase the field of action of medical electricity. They furnish general medicine with a new and valuable means of treatment, capable of modifying more or less profoundly the processes of nutrition.—(Abstract of a paper read before British Medical Association, 1895.)

PUBLIC HEALTH.

Typhoid Fever.—In Connecticut, New York, Pennsylvania, Ohio, Michigan, District of Columbia and Chicago, typhoid fever has been unusually prevalent. It is probable that in Pittsburg and Allegheny the disease has been more severe according to population than most of the other cities. With the advent of cold weather, however, the disease will become less serious, and in Chicago it has already markedly diminished.

To Regulate Undertaking.—A law has been passed in Pennsylvania to provide for the better protection of life and health by diminishing the danger from infectious and contagious diseases through the creation of a State board of

undertakers in the cities of the first, second and third classes, with systematic examinations, registrations, and licenses for all entering the business of burying the dead. With the exception of a special provision made for persons now engaged in the business of undertaking, applicants for licenses must be examined by the board and found to be possessed of good moral character, skill and knowledge of the business of undertaking and have a reasonable knowledge of sanitation, preservation of the dead, disinfecting the body of deceased persons, the apartment, clothing and bedding in case of death from infection or contagious diseases. All persons receiving a license from the State board of undertakers, shall also register the fact at the office of the board of health at the city in which it is proposed to carry on business. But nothing contained in this law is to be construed to apply to *bona fide* employes of a duly licensed or registered undertaker, or to persons engaged simply as layers out or shrouders of the dead, or to the employes of any cemetery whose duties and business extend no further.

Pasteurization of Milk and Cream for Direct Consumption.—Bulletin No. 44 from the Agricultural Experiment Station connected with the University of Wisconsin, consists of a scientific as well as practical dissertation upon the pasteurization of milk and cream, written by H. L. Russel, and the following conclusions are of direct interest to the physician as well as to the layman: from a hygienic point of view the elimination of living germs from milk is imperative. At present, no better methods have been suggested for this purpose than pasteurization and sterilization. Inasmuch as pasteurized milk and cream conform more closely to the normal fresh product in certain essential particulars than the sterilized, it follows that pasteurization is better adapted for general purposes. The pasteurization of milk or cream consists in heating the liquid to a temperature that is fatal to the vegetating growing bacteria and still not high enough to materially change the physical characteristics of the product. The minimum limit for pasteurizing should be a point at which the tubercle bacillus is killed, and in general an application of heat at 155 degrees F. for twenty minutes may be chosen as a medium standard. Treated in this way, and chilled as quickly as possible after the heating, the destruction of germ life in the milk averages about 99.7 per cent., and the effect of stopping the putrefaction and fermentative processes of so much organic life can not be attended with other than beneficial results.

Tuberculosis in Cattle and the Tuberculin Test.—The close relation between bovine tuberculosis and certain forms of human tuberculosis render all scientific investigations into the condition of dairy cows as regards the existence of tuberculosis of great interest to the physician, to say nothing about the great practical importance of such studies. In Bulletin No. 40 of the Agricultural Experiment Station of the University of Wisconsin (issued July, 1894) are contained the details of results obtained with the injection of tuberculin in the station herd, consisting mostly of milch cows, and at this time it will suffice to say that of the thirty animals inoculated, twenty-two responded or reacted to the test in such a positive manner that there could be no question as to the diagnosis, and this diagnosis was verified in every instance by the post-mortem examination, showing that in this herd there existed a veritable epidemic of tuberculosis. Russel, the bacteriologist to the station, and the author of this bulletin, concludes with the following recommendations as regards the use of tuberculin: 1, that it be employed in herds used for a general milk supply, because here is the main source of danger as regards human infection from the use of milk containing tubercle bacilli. In connection with this, the question becomes pertinent as to how many milkmen supplying large cities, or smaller for that matter, are

ready to furnish a guarantee to their patrons, based on the use of the tuberculin test, that there is no possible chance of disease lurking in the herds furnishing the milk. 2, in dairies producing milk intended for children and invalids, the necessity for the fulfillment of this recommendation needs no emphasis from the physician who knows only too well the great susceptibility of the immature system of the child, or of the enfeebled one of the invalid to tuberculosis, and yet how long shall we continue to prescribe a milk diet without any guarantee of the purity of the milk? This demand can now be met with comparative ease by the dairyman and the consuming public need but say the word that will make it imperative for him to furnish the requisite guarantee. 3, in the purchase of new animals the tuberculin test should be passed successfully by the animal in question. The justice of this recommendation is self-evident from whatever standpoint taken, and it is particularly the duty of the family physician to see to it that this demand is fulfilled whenever cows are purchased by any of his patrons for the purpose of supplying children or invalids with absolutely pure milk. It is quite plain that if the demands for non-tuberculous milk were carried to the extent included in these recommendations, then tuberculosis among cattle would be almost entirely stamped out in the course of time, and it would seem the plain duty of local health departments and of the State Boards of Health to take an active part in educating the public and the medical profession up to a point where the importance of this comparatively simple method of preventing tuberculosis would be fully understood and enforced—by direct legislative means, if necessary.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

New Orleans: October 19 to 26, 18 cases, 3 deaths.
Michigan, Detroit: October 19 to 26, smallpox reported;
Rochester, October 19 to 26, smallpox reported; Hamburg
Twp, October 23, 1 case.

SMALLPOX—FOREIGN.

Buda-Pesth: October 7 to 14, 1 case.
Cairo: October 1 to 7, 3 deaths.
Calcutta: September 14 to 21, 1 death.
Madrid: October 8 to 15, 7 deaths.
Moscow: September 28 to October 5, 1 case.
Naples: October 12 to 19, 7 cases, 7 deaths.
Nogales: October 19 to 26, 1 case.
Odessa: October 5 to 12, 1 death.
Rotterdam: October 12 to 19, 1 case.
Zurich: October 5 to 12, 3 cases.
Manzanillo: September 1 to 30, 17 deaths.
England, London: October 12 to 19, 1 death.
Dublin: October 12 to 19, 2 cases.

CHOLERA.

Bombay: September 24 to October 1, 1 death.
Calcutta: September 7 to 21, 28 deaths.
Madras: September 21 to 27, 1 death.
Singapore: September 13 to 17, 2 deaths.
Austria-Hungary: October 1 to 7, 19 cases, 18 deaths.
Russia, Dept. of Volhynia: September 15 to 28, 4,269 cases,
1,701 deaths; Dept. of Kew: September 19 to 26, 14 cases,
18 deaths.
Turkey: Constantinople, September 24 to 26, 4 cases, 4
deaths; Hudaendkjar: September 20 to 29, 9 cases, 5 deaths;
Diahekir: September 12 to 26, 21 cases, 18 deaths; Maschuk:
September 25 to 28, 10 cases, 6 deaths; Mossoul: September
20 to 24, 1 case, 2 deaths.
Formosa: July 28 to August 10, 150 cases, 56 deaths.
Tangier: September 23 to October 2, 197 cases, 142 deaths.
Japan: from outbreak to October 3, 50,431 cases, 34,719
deaths.

YELLOW FEVER.

Cienfuegos: October 14 to 27, 2 deaths.
Sagua la Grande: October 12 to 26, 10 cases, 1 death.
Santiago de Cuba: October 13 to 26, 50 deaths.
Vera Cruz: October 17 to 24, 1 death.
Taribacoa: September 1 to 30, 18 cases.

ASSOCIATION NEWS.

Treasurer's Notice.—The Treasurer has received the following for membership dues with which names were not sent: \$5 (currency). Envelope post-marked Boston, October 27, 10 P.M.

\$5 (currency) wrapped in piece of purple paper. Envelope post-marked Los Angeles, Cal., October 30, 1:30 P.M.

\$5 check not signed. No. 71, Cincinnati, Ohio, on the National LaFayette Bank.

Any information in regard to the above will be appreciated by the Treasurer, H. P. Newman, Venetian Building, Chicago.

MISCELLANY.

Protonuclein.—Protonuclein is the last of the many substances which is recommended as "a positive and never-failing" cure for cancer.

Correction.—In our issue of October 26, in mentioning the Case Recorder of Dr. Lyon, his address was given as Milwaukee. It should have been 921 Milwaukee Avenue, Chicago.

Antitoxin is Vaccine Virus.—The second definition given by the Century Dictionary for "vaccine virus" is: "In a general sense, the modified virus of any specific disease introduced into the body by inoculation, with a view to prevent or mitigate a threatened attack of that disease or to confer immunity against subsequent attacks." Adopting this meaning of the term, the Board of the United States General Appraisers at New York, decided July 23, 1895, that antitoxin is vaccine virus and as such is exempt from duty under paragraph 664, act of August 28, 1894.

Heredity in Longevity.—The *Dublin Journal of Medical Science* quotes an interesting statement by Sir Benjamin W. Richardson concerning his observations on the duration of life of the offspring as compared with that of the parents. He considers that if the ages of the two parents and of the four grand-parents be added together and divided by six, the age of the case in point will be told with an average variation of not more than two. If the ages of the parents are high, the offspring tends to improve on them; if low (say an average of 40 or lower), the life of the offspring will probably be shorter.

The Hahnemann Monument.—The *Medical Century* (homeop.) says that the sculptor, Mr. Chas. Niehaus of Pittsburg, has the final model of the Hahnemann statue under way and concludes thus: "In this connection it may not be amiss for us to take a little uncton unto ourselves because of the success attending our endeavors as monument builders. The Allopathic Association, which is also negotiating with Mr. Niehaus for the Rush monument, has raised \$5,000 in two years for their monument. The homeopaths have raised \$25,000 in less than a year." We presume our erring contemporary by the term "Allopathic Association" intends to refer to the AMERICAN MEDICAL ASSOCIATION, and although we reject the epithet "allopathic," we must admit the truth of the remainder of the statement.

Treatment Provided for North Dakota Drunkards.—There are several provisions in the law passed by the last Legislature of North Dakota which distinguish it from the enactments of some of the other States on the same subject. Here it is provided that the drunkard is to be sent to a reputable institute, designated by a committee of three persons to be appointed by the Governor. Section 11 of the Act says that it must be some reputable institute for the treatment of such disease, that will treat the same at the lowest figure; but the board of county commissioners shall not be compelled to send him to the institute making the lowest bid

unless, in their judgment, the best interest of the drunkard shall be promoted thereby. Furthermore, his cure and treatment is at all times to be under the supervision of the board of county commissioners, who may at any time they see proper, stop the treatment of any such drunkard, or change him from one institute to another, as to them shall seem meet and proper.

Memorial Hospital, Brooklyn.—On October 30, a new hospital was opened in Brooklyn, the central building and one wing being built and in readiness to take up the work that has hitherto been carried on at 1453 Pacific Street, at a cost of \$100,000. According to the plans of the architect, the hospital, when complete will have another wing. The present completed structure has accommodations for the three departments of the institution—the hospital proper, the training school for nurses, and the memorial dispensary. There are accommodations for 100 patients and 40 nurses. The branch dispensary on Bedford Avenue will be maintained as heretofore. From seven hundred to one thousand patients are treated there monthly. The Memorial Hospital for Women and Children was founded in 1883. The plot of ground owned by the hospital comprises an area of not less than 26,000 square feet, in a very eligible location.

Invalid Aid Society of New Mexico.—According to the *Albuquerque* (New Mexico) *Citizen*, of October 25, the following petition is being circulated for signatures throughout the United States, at the instance of the Invalid Aid Society of New Mexico:

To the Honorable, the Senate and the House of Representatives of the United States:

The undersigned, residents of the State of —, interested in the welfare of the vast numbers who are suffering from pulmonary diseases and other climatic ills in the United States, and believing that the climate of New Mexico is admirably adapted for the alleviation and cure of diseases of the air passages and lungs, respectfully petition your honorable bodies to set aside one or more tracts of land recognized as adapted to such uses, containing 10,000 acres each, to be used as homes and resorts for the benefit of such invalids; the provision for such donation to be incorporated in the bill for the admission of New Mexico as a State.

A Series of Ten Thousand Cases of the Serumtherapy of Diphtheria.—The New York *Herald's* European edition publishes deductions drawn from statistics collected by a Berlin physician, Dr. A. Eulenberg, of diphtheria cases treated with antidiphtheritic serum between Oct. 1, 1894, and March 31, 1895 in private practice. "Out of 10,240 cases of diphtheria reported to him, 5,790 were treated by the antitoxic serum, and 4,450 by other methods. The report says that of the 5,790 that formed the first group 552 died—that is to say, 9.5 per cent; of the 4,450 patients of the second group 652 died—that is to say, 14.6 per cent. The compiler is of opinion, however, that the cases treated by serum were mostly bad cases of diphtheria, while those treated by the other methods were not so serious. This inference is rather confirmed by the report of Dr. Kurth, of Bremen, who had only 6.8 per cent. of deaths among patients treated by serum, but 24 per cent. of deaths among the others." Dr. Eulenberg's statistics show also that the efficacy of the serum treatment is greater when it is begun in the very early stage of the diphtheritic attack. Thus the total death rate among the patients with whom the serum treatment was begun on the first or second day of the attack was only 4.2 per cent., whereas among patients who did not receive an injection of serum until the third day of the complaint, or even later, the death rate was four times as large (16.8 per cent.). In cases of children less than 2 years old, the relative difference in the figures is still marked. In the *Deutsche Medicinische Wochenschrift*, for September 19, appears Dr. Behring's last paper on the progress of serum treatment, entitled, "*Leistungen und Zeile der Serumtherapie.*"

Bicycle Fatigue Utilized.—According to the *New York Medical Journal*, an Italian specialist in otology has undertaken the study of the influence of fatigue on audition. He made examinations of twenty-four bicycle riders after they had ridden thirty-two miles in two hours and a quarter. Two of the men complained of subjective noises only, while, in nearly all of them the perception of sound by aerial conduction was less marked than in the normal condition, and the experiment showed negative result. In the riders who were subjected to an examination with tuning-forks, a slight diminution in the perception of loud sounds was ascertained. The competitors were again examined after a rest of from two to seven hours, and in six of them the auditory powers were found to be the same; in two it was not so good, and in the sixteen others it was better; the aerial perception had increased from a few centimeters to a meter and a half. The men in whom the amelioration was most marked, in whom, consequently, the hearing had undergone the greatest change, were those who had had little experience or training. Conclusions: physical fatigue evidently causes a temporary weakening of the auditory power. This fact demonstrates also that the effects produced by great physical exercise are not shown by muscular fatigue only, but they remotely affect the entire organism, and especially the nervous system, while the special senses, on account of the delicacy of their function, are more likely to reveal the effects.

The Dishonest Nurse a Rarity.—An instance of that rare form of culprit—the thievish nurse—has recently been brought to light in Brooklyn. From the editorial page of the *Eagle* of that city the following comments on the case are selected:

"Ethel Oliver, a good looking damsel of 22 years, had made a confession. She has been a nurse in the Seney Hospital, and in that capacity had used her opportunities to steal. She robbed the hospital, she robbed her fellow nurses, she robbed the patients, even as they were dying, and she entered the dead-house to despoil the corpses. She was so rosy and innocent in her appearance that nobody thought of suspecting her. If there is any foundation for believing that a habit of stealing can be a disease, surely this instance seems to support it. There was no urgent need for theft. The young woman was making fair wages, she had clothing and board and shelter, some comforts and even luxuries. She had none of the usual motives that are urged in extenuation of this mean form of crime."

The incident is a sad one and would be an unsettling one, were it not for the fact that such events are of the rarest; it is one of those cases that prove the contrary rule. In hospitals, asylums and in private homes thousands of men and women are employed as nurses, and not one in a thousand is known to violate his or her trust. The advantages for theft are uncommonly ample. The people who may be robbed are helpless, and some are out of their wits, so that they would not know whether they were robbed or not. There are no watchers to oversee the nurses and report on their conduct. They are in a position of absolute power, for the nonce. Yet they almost never presume upon their position and power.

Medical Men in Politics.—The *Boston Medical and Surgical Journal* comments upon the slender influence over wholesome legislation that comes within the power of the medical profession. Doubtless every community has its quota of physicians who are not too much occupied with professional work to give a share of their time to political interests. Doubtless, also, a small proportion is willing to engage in legislative duty if called upon so to do by the community wherein they respectively dwell. But it is unfortunately, also, the case that those who "go to the front," from our profession, for such legislative functions are not from the representative men in medicine; they are ordinarily chosen to represent something bearing upon "spoils" or "bone-hunting." Their interests with the sanitary and medical interests of their constituents are commonly subordinated to relatively small issues. Then, as the *Journal* remarks, the kind of work that is called "political" is, for the most part, distasteful to men of the type who make a success in medical life, and may even be by them regarded as

incompatible with professional success. The *Journal* closes its article by citing an instance which speaks for itself, regarding the kind of selection of a politico-medical representative, that may sometimes be made even in enlightened New England:

"A conspicuous example of the influence of the medical man in politics in retarding legislation for the benefit of the public health, was the attitude taken by Senator Gallinger, of New Hampshire, who had been a medical practitioner in that State, on the bill appropriating money for a bacteriologic laboratory and disinfecting service and for the distribution of antitoxin in the District of Columbia. It will be remembered that his attitude, as noted in our issue of Feb. 7, 1895, was against the passage of the bill, and that his influence was thrown squarely against this legislation for the public health rather than in favor of it. There can be no doubt that there is need of the representation of the medical profession in our Legislatures by the right class of men from the highest ranks of the profession. And inasmuch as active participation in legislative work is impossible for the rank and file of the profession, it becomes the duty and privilege of what may be called the medical leisure class to do this work; we mean those of independent means, who are not dependent upon the practice of their profession for their living."

Senator Gallinger is supposed to be a homeopath and his actions must be viewed from that standpoint.

The Medical College of To-day.—The *Boston Medical and Surgical Journal*, September 28, prints Dr. H. O. Marcy's address before the Syracuse University Medical Department, in June last. Dr. Marcy's subject was "Personal Service as the Especial Exponent of a Great Profession." One of the consequences of this Commencement anniversary, was the raising of a fund of \$100,000, contributed largely through the instrumentality of the alumni of the University, to be devoted to the erection of a new building, which is already rapidly approaching completion. Of the old and the new in medical colleges, he spoke as follows:

"The medical college of to-day demands another building, or a series of buildings, than that of the former pattern. The amphitheater as the lecture-room—cramped crowded, stifled in the upper rows; to the last degree inconvenient of access; reached by garret stairs, to descend to seats, as upon an illy-constructed ladder; a nightmare dream of our earlier years—should be relegated to the past. Bright, airy, well-lighted rooms are required, made pleasing and attractive, with good seats and tables, where the personal work may go on under the direction of well-trained assistants. The modern medical college should be so closely connected with the hospital that the clinical teachings may be made illustrative and profitable. Indeed, the hospital should be the *workshop* in the better sense, where the student becomes familiar with the 'living pictures' of our poor broken humanity, the reconstruction of which is to be his future life-long labor. Hospitals are important for the care, especially, of the poor, the home for the friendless. These, the public have long held in kindly interest and support. As a rule, the best physicians of the respective localities have willingly rendered gratuitous service; but the medical college has been too often looked upon as a private affair, a doctor's business venture, entered into for gain. Should it not, the rather, be considered by the public as a *technical school* of the highest order? Within a few days I have examined with some care the Johns Hopkins Hospital in Baltimore, in regard to the advantages offered for the instruction of medical pupils. Here the usual process is reversed. The hospital predominates; but there are laboratories in considerable number with facilities for the teaching of the *science* of medicine, while the *art* is in daily practice in its many splendid wards. The medical college proper is yet to be, but the thought tends directly in the line of small classes, personally trained by competent teachers. These to be competent require special instruction in the art of teaching, now more lacking in medicine than in any of the great departments of science."

Philadelphia Notes.

JAMES E. GARRETSON, M.D., Professor of Anatomy and Dean of the Philadelphia Dental College and Emeritus Professor of Oral Surgery in the Medico-Chirurgical College of Philadelphia, died of inflammation of the bowels at Lansdowne,

October 26. He was born at Wilmington, Delaware, October 1828. He studied and practiced dentistry for several years with Dr. Thatcher of that city; subsequently he attended lectures in Philadelphia and graduated in dentistry in 1857, and two years later he was graduated in medicine at the University of Pennsylvania. He joined Dr. D. Hayes Agnew in conducting the famous Philadelphia School of Anatomy in 1862, and later was made professor of anatomy and oral surgery in the Philadelphia Dental College. He rendered valuable aid in re-organizing the Medico-Chirurgical College and in placing it upon a broad and secure foundation, and for some twelve years was professor of oral surgery in that institution, being made Emeritus on his retirement from the Medical College a year ago. He continued his active connection with the Philadelphia Dental College until his death. He was the author of a text-book on oral surgery and also of works of a popular philosophical and literary character, first published under the name of John Darby. The principal of these are "Odd Hours of a Physician," "Brushland," "Man and His World," and "Nineteenth Century Sense," which gained for him considerable literary reputation. He delighted in the society of students, who held him in such admiration that a Garretsonian Society was formed several years ago, which has met monthly ever since, for discussion of scientific and philosophical questions.

Hospital Notes.

THE Naval Hospital of New York harbor, located in the Brooklyn Navy Yard, is now undergoing some very important improvements. The old structure dates back to 1839, and has long been in need of modernizing treatment. Congress has appropriated the sum of \$60,000 for its improvement. The changes will consist mainly in improving the interior of the old building, reconstructing most of the wards, and the construction of two new buildings. The principal of these will be of brick, three stories high. It will contain the mess-hall of the convalescents and a private dining room for the officers; a dispensary, and on the third floor a completely equipped operating room. This will have tiled floors, enameled iron furniture and fittings, operating tables of enameled iron and glass, and glass sinks and lavatories. In connection with the operating room there will be a "recovery" room, a sterilizing room and a surgeon's chamber and lavatory.

Society Notes.

THE ALLEGHENY MEDICAL SOCIETY held a meeting in Pittsburgh October 15. The following resolutions were adopted:

WHEREAS, The sanitary conditions of Allegheny County are objectionable in many respects, and

WHEREAS, It is believed that methods for their improvement are readily available; therefore, be it

Resolved, That it is the opinion of this society that every reasonable effort should be made to improve the character of our drinking water by removing from it pernicious material which it contains, and by persistent and energetic measures to prevent its pollution.

Resolved, That persons affected with contagious and infectious diseases, including pulmonary consumption, should be subjected to such regulations and restrictions as will afford reasonable protection to the community at large.

Resolved, That all establishments for the propagation of vaccine virus should be subject to the most rigid inspection, and such rules for their management adopted as will best prevail against infection. It is hereby recommended that the vaccine virus distributed by our boards of health shall be subject to such tests as may be practicable against the presence in it of septic material.

The annual meeting of the Military Tract Society was held in Monmouth, Ill., October 18. The following officers were elected for the ensuing year: President, Louis Becker, Knoxville; First Vice-President, C. R. Harrel, Colchester; Second Vice-President, E. J. Mitchell, Roseville; Secretary and Treasurer, O. B. Will, Peoria. The next meeting of this society will be held in Peoria.—The regular meeting of the Kansas City, Mo., Academy of Medicine was held October 26.—The Jasper County Medical Society held a regular meeting at Newton, Iowa, October 30.

St. Louis Notes.

THE ST. LOUIS MEDICAL SOCIETY.—The program for the meeting of October 31 was made up of papers devoted to diphtheria. Dr. Meisenbach discussed diphtheria from a surgical standpoint, and while favoring antitoxin, pointed out the fact that as a practical necessity in many cases, intubation and tracheotomy would still be required. Dr. King treated the subject from a medical point of view, and Drs. Martin, W. W. Graves and Sutter gave their experience in the treatment of the disease with the antitoxic serum. The general discussion was most favorable in the light it threw upon the value of the antitoxin, and the majority expressed views in favor of its employment.

THE ST. LOUIS BOARD OF HEALTH now requires that a report of the results of treatment of cases of diphtheria for which it had furnished tubes or serum be made, in order that statistics may be compiled.

Detroit Notes.

THE WAYNE COUNTY MEDICAL SOCIETY.—Looking back upon a year of success, the society enters upon a new year with the following officers: President, E. B. Smith (re-elected); Vice-President, W. R. Henderson; Secretary, T. S. Hough; Treasurer, C. Henri Leonard; Trustees, Drs. W. J. Brand, K. Gunsolus, L. E. Maire, T. J. Parker, O. P. Eaton. The President entertained the society at his home on the evening of the 8th ult. About two hundred were present.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION.—This organization held its annual meeting on Monday, the 8th ult., when the following officers were elected: President, E. T. Tappey; Vice-President, C. W. Hitchcock; Treasurer, A. P. Biddle; Secretary, W. S. Anderson. The retiring President, Dr. Eugene Smith, entertained the members with a sumptuous repast.

DETROIT GYNECOLOGICAL SOCIETY.—On October 3 this society held its annual meeting, at which the officers for the ensuing year were elected: President, N. W. Webber; Vice-President, Florence Huson; Secretary-Treasurer, R. A. Newman. A banquet followed the business meeting, given by the retiring President, Dr. E. T. Tappey.

DETROIT ACADEMY OF MEDICINE.—The following officers for the coming year were elected at the annual meeting of this body held on Tuesday, October 9. The President, Dr. A. H. Bigg, entertained the members and invited guests at dinner. President, W. R. Chittick; Vice-President, D. La Ferté; Secretary, C. W. Hitchcock. Director for a term of three years, J. E. Emmerson.

PERSONAL.—Dr. W. J. Brand is a candidate for alderman on the Independent ticket. He has running against him both a Democrat and a Republican.

MORTALITY REPORT FOR THE WEEK.—The report of the Health Office shows that during the week there were 107 deaths in the city, 52 being children under 5 years of age; 11 occurred from diphtheria.

BIRTH REPORT FOR THE WEEK.—One hundred and five births were reported for the week, of which 52 were males.

REPORT OF CONTAGIOUS DISEASES.—There are at present 41 cases of diphtheria, of which 28 are new; 9 cases of scarlet fever, 3 being new; 1 case of smallpox.

Louisville Notes.

Edward R. Palmer Memorial Meeting, held in the Alderman's Chamber, City Hall, Louisville, Ky., Oct. 26, 1895, under the auspices of the Louisville Surgical Society. The meeting was called to order by Dr. Geo. W. Griffiths. The Secretary, Dr. Henry E. Tuley, read letters of sympathy, and regrets for inability to attend the meeting from Drs. James Nevins Hyde, Chicago; Lyman Beecher Todd, Lexington, Ky.; Arch Dixon, Henderson, Ky.; John Blake White, New York city; William Judkins, Cincinnati; John A. Larrabee and Ap

Morgan Vance, of Louisville. The President then called upon the speakers appointed.

Dr. Jos. M. Mathews said: When the committee representing the Louisville Surgical Society asked me to be one of the speakers to-night, I gladly consented, because it was an opportunity to pay a slight tribute, at least, to my dead friend. And yet when I was confronted with the duty of writing the same, I must confess that my pen near failed me. The question was, from what standpoint shall I speak of Palmer? As Ed. Palmer, my friend? As Dr. Palmer the successful physician and surgeon; as Professor Palmer, the distinguished lecturer; or as Palmer, the wit, orator, dilettante? If one were standing on a street corner, and were to see a horse dashing down the street driven by a handsome man, of small features, a small but attractive moustache, spectacles adjusted to a nicety and hair brushed as if to attend an evening reception, with sparkling eyes, and with dash and enthusiasm, with negligé shirt and coat to fit the man, with a "Hello, old boy!" That is Ed. Palmer. If one happened in the sickroom and heard a knock at the outer door, which upon being opened admitted a man above the average height, with a countenance beaming with bright smiles, a hand that clasped another with firmness and fidelity, with a voice as musical as a woman's, with a step as vigorous as a girl's, with words of cheer and hope for the patient, with the bringing of flowers in lieu of medicine, and smiles instead of tears, who with his going out, left the sick and afflicted the better that he had come. This is Dr. Palmer. If your footstep should have been near the door of the lecture hall of the old university down on Chestnut Street, on some pleasant afternoon, you would have seen a man run up the flight of stone steps with the agility of a boy, disappear a moment from view; when the voices of many students and the clapping of many hands would betoken that a favorite stood before the class. If you were within distance to hear the clear-cut sentences, the logical reasonings and deductions, the beautiful similes, the wonderful descriptions, the drawing of word pictures, amid the shout of applause. This was Professor Palmer. But if you would see the man in his element, go with me where sat at table friends in a banquet hall. Amid the strains of music, the perfume of flowers, the clattering of glasses as they bespoke mirth and good fellowship, the laughter of the guests, the presence of women, this is where Palmer was wont to linger. As a voice was heard, like the clear ringing of a bell, so well known to all of us, silence at once prevailed, ears were held expectant, eyes were strained in the effort to see, men and women alike stood for vantage ground, and every word that fell was as a gem divine, every sentence as refreshing as the falling dew to flowers. Dramatic in delivery, terse in expression, a voice as musical as a rippling brook; in form like an Apollo; his dress a model; his elocution that of a finished orator; the climax like the calm that succeeds the storm. Before the applause has ceased the soft low notes of the voice that had entranced in declamation, now soothes to rest in song, and many an eye is dimmed with tears and hearts made glad as the strain of "My Old Kentucky Home" is sung as he alone could sing it. This is Palmer the superb. Palmer possessed many characteristics that stamped him with originality. He was a positive character, and yet, unlike other men, did not make enemies by being so. He had no secrets; what he said or did was open to the inspection of the world. He was an enthusiast about all things. He thought the United States the best of all nations; his State the best of all States; his city the best of all cities. His horse could outrun any other horse, and his dog could whip any cur in town. His friends, he believed, were as true as steel, and his sons—why, other boys weren't in it! This enthusiasm was born of his nature, and he loved those things so well that he was brought in contact with, that nothing could shake his faith. His wit scintillated like the diamond and was as sparkling as champagne. Jokes told by him suffered nothing by age. A medical gathering without Palmer was stale ale without its froth. His nature was continually effervescing, and running over with good humor; with a physique that was perfect, and continued good health, it is no wonder that he always expressed himself as feeling like a "2-year-old," and that he was in the race to win. Sorrow never had an abiding place in his breast and he had no time

for tears. He threw melancholy to the winds, and often physio to the dogs. His laughter was contagious and his good humor perennial. He did not "fling away ambition," but profited by it. His industry was wonderful and his success unbounded. He wasn't governed by policy, but every one knew where to place him. He was either on one side or the other and knew no middle ground. Had he been a politician instead of a doctor, he would have gone to Congress or to the Senate. Had he turned his attention to music, the opera would have had a brilliant star. He believed that life was worth the living and that croakers should be killed. He died as he had lived; he sped through life like a meteor, brightening everything in its path, and went out with a flash. I would not clothe his bier in black or lay him away with mourning. Rather strew flowers upon his grave and let the rose and hyacinth waft their fragrance back to us, emblematic of his life. He speaks to us through laughter and good cheer, and we will remember him in sunshine and not in rain. Peace to his ashes!

Dr. L. S. McMURRAY said: It is an old custom of our profession to render deserved honor and respect to the memory of our departed colleagues by public eulogy. An eulogium of any man is confessedly a difficult task; but the embarrassment is greatly increased when, as in the present instance, it must be brief and the subject is an active, talented, accomplished, versatile individual, who for years occupied a familiar and conspicuous place in public and professional esteem. Edward Rush Palmer was no ordinary man; indeed, in more senses than one, he was a remarkable man; an acute thinker, a facile writer, an erudite and accomplished teacher, an orator, a resourceful and successful practitioner, pursuing his work with the activity of an enthusiastic mind in a vigorous body. In all these relations he was prominent among his contemporaries, recognized and esteemed by the profession at home and abroad. Though dying in mid-career, Palmer had occupied a prominent position in the profession for almost thirty years. Few men ushered into responsible professional duties at so early an age as equal to the demands and exigencies imposed upon them. He was on the rostrum when he had barely passed his majority; he was actively engaged in practice while almost a youth. Others, more competent than I, will speak of his abilities as a teacher. I knew him best as a practitioner and a fellow-member of our medical societies. For years I have been in cordial and pleasant association with him in these organizations. Of late years the medical societies have grown in importance as a means of scientific improvement. They are the post-graduate schools of the profession. In our city the medical societies have cultivated social along with scientific advantages, bringing the members in more intimate and cordial relations. In State and national organizations Palmer was a prominent figure, always a favorite with the delegation from his city and State. Upon our local societies he was a regular attendant and participated actively in the discussions. He was the life and charm of those occasions when social pleasure abounded. Who that knew him can ever forget his great animation, his vivacity, his rich sonorous voice, his personal charm, his bright face and handsome form, his magnetism, and the ease and grace of his manner? It was the possession of these qualities, superadded to a thorough knowledge of his profession, which made him such an attractive and impressive figure in the medical societies to which he belonged. I would not convey for a moment the impression that his function in these organizations was unimportant; on the contrary, he was a worker. Some here present will doubtless recall his last paper read before the Academy last spring, containing many original views upon a subject of great practical importance. His papers always bore evidence of careful study, presenting bold and often original views, with practical application. As an after-dinner speaker he was the equal of the best the profession of Kentucky has ever had, and this is saying a great deal. It will be many years before those who heard his brilliant speech at the banquet in Frankfort three years ago will forget it. It was on the occasion of the annual meeting of the Kentucky State Medical Society, and while the subject was announced (at his request) as "Where are we at?" the sentiment could more appropriately be expressed as "Kentucky, its products and its people." His remarks were preceded by singing the first lines of that song of which he never tired, "The Old Kentucky Home." Indeed, he was at his best on such occasions, and carried his audience with him by the magnetism of his person and manner, the charm of his voice, and the power of his eloquence. He will be keenly missed in our medical societies, where he was an attractive and marked personality. The Louisville Surgical Society

was, as has already been stated, his special pride and care, he having been the moving spirit in its organization and an active promoter of its usefulness. I doubt if those who had only a cursory acquaintance with Palmer during his latest years have any adequate idea of the extent of his general literary culture. In an address delivered some years ago he said: "I remember when I entered the profession that I despaired of ever being a successful doctor, and became almost half convinced that I had mistaken my vocation. Under that cloud I laid my Watson and Stillé aside and spent much of my time with the best poets, essayists, and fiction-writers of the age. As I remember now the course I took, it is with a pleasure which more than repays me for the serious misgivings I then felt, in thus supplementing the course which my seniors had advised. Perhaps it was this experience which has led me to believe in a doctor's being a man of varied learning, and in his cultivating a taste for some improving pursuit or study with which to occupy his leisure hours."

For those who saw Palmer only in his hours of merriment it was difficult to realize that there was a serious and earnest side to his nature. His physical endurance was most remarkable, and enabled him to appear as a man of ease and pleasure after a day given to the toil and exactions of a busy doctor's life. In him, Nature had blended, in an exceptional manner, apparently opposing qualities. When he had passed the fiftieth milestone his body, mind, and heart seemed as gay and undaunted as when in the twenties. One could scarcely realize at times that he was a hard-working physician and surgeon, devoting his life to our profession and making a handsome competency for his family.

For a number of years Palmer was actively engaged in a large general practice. During the last decade of his life he limited his practice to the specialty with which he became so prominently identified. He was thoroughly in sympathy with all classes of people, and was eminently successful both in general and special practice. It needs no argument in this presence to prove that such success is born of merit; that such attainment in our profession comes only by virtue of earnest labor, ability, self-denial and determination.

No human character is, or can be, entirely perfect. All men have their defects, their sins of omission and commission, and their faults. Palmer had his, but of one base quality known to human character he was singularly free; that is hypocrisy. Concerning his own life and conduct he had no secrets, and ignored all concealments on all occasions. He was equally popular with the people and the profession. His humanity drew to him friends from the lowest classes, and his sunny genial nature attracted the highest. Nothing could more strikingly attest this than the large representation of all classes of the people who composed the immense gathering on that midsummer day when the last sad rites were held above his lifeless body.

Mr. President: the setting sun, as it sinks into apparent oblivion, illuminates with indescribable splendor the horizon, making beautiful the very mists and clouds which obscure its passing radiance. Our friend and colleague passed from life and joy and health and vigor into the silence and apparent oblivion of death almost within an hour. Like the setting sun, the memory of his life of cheerful duty, his bright genial nature, his generous friendship and his humanity will illumine the horizon of the present long after his departure. When in the years to come, we think of him, we would believe with the poet:

"There is no death; the stars go down
To rise upon some fairer shore."

Dr. T. L. McDERMOTT, said: I scarcely know where to begin the recital of a story, so prolix in detail, so embellished in its outline, so redolent of glamour and variety. The lovely lines that permeate its majestic horoscope are aglow with all the radiant hues that fancy, in her wildest weavings, could adorn a human mold. A career begun in youth with all its exuberant ardor undimmed through a stately manhood and rounded out in its fullest fruition before age had painted a line on its progress or dimmed a single lustre of its renown. Possessed of a spontaneity so homogeneous and irresistible that thought and action were simultaneous, he charmed every circle that he entered and left a regretful void as he sped his checkered way. There was no half-hearted, lackadaisical symposium in its meteoric flight; over breakers or buffets, or velvets or violets it pursued the same tremendous tenor—undaunted by obstacles that seemed insurmountable and hopeful under reverses before which many have succumbed. The indomitable pluck that dominated his youth continued perennial to his end. A child of audacious genius he was fruitful in resources and skilled by in-

tuition. Intellectually omnivorous he gathered as he grew, and scattered with lavish generosity from the primrose path over which he completed his triumphant career. The geniality of his manner obliterated every milestone on the journey, and the unfaded garlands of its blushing youth bedecked his ageing brow. He seemed never to grow older. The sunny warmth of his charming personality was a conspicuous attraction in this paragon of good fellowship. It irradiated the shadows of a festivity, however umbrageous, and glinting through the darkness betokened the star from whence it shone with such graceful brilliancy. Robust in thought, fertile in expedients and princely in execution he was a fitting rival for contemporaneous distinction. Always facile of speech and lordly of presence he commanded attention in any gathering, social or professional, where Fate's fitful caprice enticed his intrinsic display. A jolly fellow with the boys on the hustings, a rampant lion in debate, a serious doctor at the clinic, he was the same representative disciple of advancement and progress, versatile always, and always a leader. No pent-up Utica contracted the stubborn exploitation of his views, nor minimized the logical deductions of his philosophy. As a youngster, in his own estimation, his gun was the truest, his pointer the keenest of scent and trail, his neckwear the brightest, his horse the fastest. In manhood the same effusive enthusiasm enkindled the most rapturous admiration of his possessions. His undertakings of whatsoever nature were conspicuous for the domineering push which brooked no restraint, and were dampened by no defeat. His mirth and *bonhomie* were contagious and inexhaustible, and many rare hours were the gifts of his genial companionship. All classes, high or low, paid tribute to his infinite zest and sparkling good humor. I knew him intimately for more than thirty years, and in that long interval found much to admire in his frank and friendly intercourse, so that if my faint praise may seem eulogistic, it is assuredly true and unqualifiedly sincere. I am sure that at this time I can not express the deep grief universally felt at his sudden and untimely departure. In the midst of the most active plans for future work, surrounded by all the associations that might insure happiness and reward, his star of ascendancy was rudely snatched from its zenith, and science and the hearthstone despoiled at a blow.

Such fateful catastrophes are rarely realized, as is usually the case, on their occurrence, but as time in its flight portrays the void, the bitter reflection enhances the sorrow of his loss. Would I had the power to wreath in tender words the chapter of anguish that would indelibly express our mournful regret, or fittingly picture the measure of our enduring esteem. He certainly had no enemies of his own seeking, for he was frank and forgiving and generous to a fault. If any such survive him they do him a grievous wrong. His instincts were always peaceful and his pursuits led into reposeful enjoyment. A day at the garden, a night at the fireside, or frolics in the club, with a quiet circle, accorded best with his measure of fun. There was nothing sinister or bellicose in his temperament, possessing to a rare degree the gentle courtesy that abhorred the brawl. A most exemplary trait in his disposition was the utter absence of vindictiveness. He never brooded over a rancor nor encouraged an enmity. "Life was too short," as he tersely expressed it, to cherish an acrimony. He believed in extracting the sweets and avoiding the thorns that infested the way. Into politics, as everything else, he plunged with a rush, betraying the intensest interest in its various details, and commanding success by his ultimate triumph over some obstinate and powerful opposition. With the resignation of his trust the city lost one of its foremost friends and ablest legislators. He was a constant student through his entire life. I well remember his close application to the prosecution of his studies when we first became intimate. For hours each day, during the coldest winter, he and his pal pursued a course of dissection in the vacant university building, depending for warmth upon a jug of hot water procured from home. There was quite a contrast between the angular scrawny youth of that day, and the handsome, cultured and accomplished Chesterfield of our own era. As the callow student blossomed into the full-fledged doctor, there was no more familiar or popular figure on the public ways than Ed, and his trusty little yellow mare, called "Puss," who shared the fruits of his attenuated exchequer, but drove him finally to prominence and wealth. His wandering spirit has found an abiding peace where we hope he is happy and in repose. "Alas, and our poor Yorick!" no more shall set the mellow table in a roar, nor paint incarnadine the laggard steps of revelry. No more above the din and choir of wine and wassail will

his shouting accents breathe the poet's fire, nor sing the roll of music's measure to hearts and ears that loved their roundelay. No more his lingering tones around the festive board, when sterner speech gave rein to flowing thought and wisdom broke the spell and the mists of noisy rioting. No more the "Round Table" conclave, with sparkling wit and ready repartee, where the tint and tinsel of social commingling gave the lifeless limit to enduring friendship and unending joy. Gone, all gone, and there remains in the storied urn the ashes of a magnificent conflagration whose coruscation delighted the past and will live in the future. Gone the hearty smile, the cheering words, the breezy greeting; gone the attentive counsel, the helpful hand, the winsome friend. In a labyrinth of love is garnered the choicest remembrance of his communion, and in a silent niche of memory will survive for all time the idol of his day.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from October 20, 1895, to November 1, 1895.

First Lieut. James M. Kennedy, Asst. Surgeon (Camp Merritt, Mont.), is granted leave of absence for one month, with permission to apply for an extension of two months.

First Lieut. Merritt W. Ireland, Asst. Surgeon, will proceed from Ft. Stanton, N. M., upon the abandonment of that post, to Benicia Bks., Cal., and report for duty at that station.

Capt. William B. Bannister, Asst. Surgeon, is granted leave of absence for one month, to take effect on or about Nov. 10, 1895, with permission to apply for an extension of one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 2, 1895.

Surgeon M. H. Crawford and P. A. Surgeon J. E. Page, to the U. S. S. "Boston."

P. A. Surgeon E. P. Stone and Surgeon G. P. Bradley, to hold themselves in readiness for service on the "Indiana."

P. A. Surgeon F. J. B. Cordeiro, to the U. S. T. S. "Constellation."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the sixteen days ended October 31, 1895.

Surgeon George Purviance, granted leave of absence for twenty-five days Oct. 23, 1895.

P. A. Surgeon G. M. Guiteras, granted leave of absence for thirty days, Oct. 18, 1895.

Surgeon W. H. H. Hutton, granted leave of absence for twenty-five days, Oct. 23, 1895.

P. A. Surgeon G. B. Young, relieved from duty in laboratory of Bureau, and directed to rejoin his station at Key West, Fla.

Asst. Surgeon E. K. Sprague, to proceed from Key West, Fla., to Key West Quarantine Station, for temporary duty, Oct. 16, 1895.

Asst. Surgeon Emil Prochazka, to proceed from Cairo, Ill., to Detroit Mich., for duty, Oct. 31, 1895.

LETTERS RECEIVED.

American Laundry Machinery Co., Cincinnati, Ohio; Ayer, N. W. & Son (3), Philadelphia; Anthony, H. G., Chicago; Anderson, G. K., New York city; Avant, Dr. A. L. R., Patterson, Ga.; Allen, Dr. F. C., Brownville, Tenn.

Burr, C. B., Flint, Mich.; Bacon, C. S., Chicago, Ill.; Brown, F. F., New York city; Boston Daily Advertiser, Boston, Mass.; Blodgett, F. J., New York, N. Y.; Boehringer & Soehn, New York city.

Coe, H. W., New York, N. Y.; Coehran, Jerome, Montgomery, Ala.; Chambers, J. H. & Co., St. Louis, Mo.; Conrad, C. H., Warner, N. Y.; Colgrove, E. H. & Co., Chicago.

Dukehart, Thos. M., Baltimore, Md.

Fairchild Bros. & Foster, (2), New York city.

Gibson, Dr. C. R., 159 Bloor Street, Toronto; Gaenslen, Dr. Fred J., Madison, Wis.

Hummel, A. L., Advertising Agency, New York, N. Y.; Helena Public Library, Helena, Mont.; Hilla, J. D., West Haven, Conn.; Hubbell, Alvin A., 212 Franklin Street, Buffalo, N. Y.; Haldenstein, I., New York city; Holland, Dr. J. W., Philadelphia; Harvey, G. F. Co., The, Saratoga Springs, N. Y.

Instant Cut-Off Co., Pt. Huron, Mich.

Kegan, Paul, French, Trübner & Co., Ltd., London, Eng.; Kyle, D. Bradden, Philadelphia; Kell, Dr. J. Baillie, New Cumberland, Ohio.

Laplace, Dr. Ernest, Philadelphia.

Matos, R., New Orleans, La.; Magruder, Dr. G. L. (2), Washington, D. C.; Miller, Geo. W., Joplin, Mo.; Mariani & Co., New York city; Massey, Dr. G. Botton, Philadelphia; Marks, A., New York city; McKesson & Robbins, New York city; McCollom, Wm., Brooklyn, N. Y.

Post-Graduate Medical School, Chicago, Ill.; Priest, W. R., Concordia, Kan.; Prentiss, S. B., Washington, D. C.

Roy, C. Dunbar, Atlanta, Ga.; Robinson, Dr. W. D., E. Orange, N. J.; Regar, Geo. H., Advertising Co. (2), Philadelphia, Pa.; Ryman, H. M. (2), New York city; Roseberry, B. S., Lacon, Ill.; Ridlon, J., Chicago, Ill.

Stratton, F. C., New York city; Schering & Glatz, New York city; Shlensky, I., Peoria, Ill.; Small, J. W., Yonkers, N. Y.; Savage, G. C. (2), Nashville, Tenn.; Stillson, H., Seattle, Wash.; Sykes, G. A. (2), New York city; Schwartzkopf, P., Chicago; Smith, Dr. L. E., Chattanooga, Tenn.; Smith, Alfred A. & Co., Washington, D. C.; Schimmel, M. S., Baltimore, Md.; Seiler, Geo. Alma, Wis.; Smalley, Dr. J. G., Cornersville, Ind.

Thomann, Gallus, New York city; Trowbridge, L. S., Detroit, Mich.

United States Army and Navy Journal, Bennett Building, 93-101 Nassau Street, New York.

Vogeler, Adolf G., Chicago; Vance, Dr. A. J., Harrison, Ark.

Warren-Scharf Asphalt Paving Co., 81 Fulton Street, New York;

Walker, Dr. W. H. (2), Oakland, Texas; Watkins, Dr. W. W., Moscow, Idaho.

Zumo Pharmacal Co., St. Louis, Mo.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, NOVEMBER 16, 1895.

No. 20.

ORIGINAL ARTICLES.

THE OPHIDIANS.

BY JOSEPH JONES, M.D., LL.D.

MEDICAL DEPARTMENT TULANE UNIVERSITY, NEW ORLEANS, LA.

In the summer of 1851, I began on Colonel's Island, Liberty County, Ga., a series of investigations upon the anatomic and physiologic differences and relations of various animals, and especially of closely related species. These have been continued from time to time in my leisure moments, but the interruptions necessary upon the performance of the practical duties of an arduous and exacting profession, and wholly unavoidable during four years of active service in the Confederate Army, 1861-1865, have prevented the rapid and continuous prosecution, and the desired perfection of these, to me, interesting labors. The preparations which I have dissected, injected and preserved, numbering over two thousand, are at present deposited in the Museum of the Medical Department of the University of Louisiana (now Tulane), and serve as illustrations of some of the results of these investigations.

The following measurements and drawings with the accompanying observations are mere fragments of my labors, which were designed to illustrate the principles of classifications, and the natural relations of animals, and especially the relations of species; we hope, however, that they will be sufficient to illustrate the proposition that closely related species present anatomic differences which can not be referred to the action of mere physical forces or to any process of gradual evolution or transmutation of species.

We shall confine our observations almost entirely to the *Ophidia* or serpents, as they form a natural order, presenting peculiar anatomic and natural characters; and being without feet, or obvious external organs of locomotion, they appear to present the simplest and best field for the investigation of the anatomic relations of closely allied species.

The investigations will be confined chiefly to the relative positions of the internal organs and the minute anatomic differences presented by the position, size and structure of the respiratory organs.

As the *Chalcida* form the connecting link between the *Sauria* especially, and the *Ophidia*, we will examine in the first place, the *Ophisauris ventralis* Linn., which is vulgarly regarded as a true *Ophidian*, and familiarly known as the glass snake.

GLASS SNAKE (MALE)—OPHISAURIS VENTRALIS—DAUDIN.

Anterior extremities rudimentary. Inferior extremities rudimentary; ossa innominata present. The tongue resembles this organ in the *Scincoidea*, as in the *scorpion*, or red-headed lizard (*Plestodon erythrocephalus*). The *Ophisauris* unlike the true *Ophidians* has two lungs. Right lung much larger and longer than the left, as shown in the figures. The lungs are

much more vascular than those of serpents, are without terminal membranous sacs, as in serpents, and are provided with distinct divisions, as in the *Chelonians* and *Sauria*. The heart is situated opposite the bifurcation of the bronchial tubes and their junction with the lungs. The vascular portion of the lungs lie chiefly below the position of the heart. The lungs are not placed symmetrically in the general abdominal and thoracic cavity, but are apparently adapted to the general form of this cavity. The left small lung lies higher up than the right or long lung. Numerous dissections of both male and female specimens of various sizes and ages confirmed the preceding observations.

The gall bladder is situated in the liver, and not at a distance from the liver, as in the case of true serpents. The general shape and appearance of the liver and also the situation of the gall bladder resembles more nearly that of the congo snake (*Amphiuma*). Distance of gall bladder from anterior border of liver four inches, length of abdominal cavity seven inches. The liver lies principally to the right, and the stomach to the left of the median line. Spleen disconnected from the pancreas, and on left of median line. Pancreas resembles the appearance of this gland in *Ophidians*.

This family, *Chalcida*, is evidently from its anatomic structure, closely related to the family *Scincoidea*.

Kidneys, lobulated and elongated, resembling in their symmetrical position and in their slender lobulated shape and yellowish color the kidneys of *Ophidians*. The kidneys, on the other hand, in the *saurians* are short and leaf-shaped and lobulated in a different manner.

OPHIDIA—BROGNIART—SERPENTES—CUVIER.

The name *Ophidia*, was first given by M. Alexandre Brogniart to this order which comprehends the animals designated by Linnaeus under the collective appellation of amphibia serpents; the order *Ophidia* adopted by M. M. Cuvier includes three families: *Anguis*, *Pseudophus ophisaurus*, *Anguis* and *Aconitas*, *Amphisbæna* and *Serpentes* or true serpents.

CROTALOIDEA—CROTALUS DURISSUS (BANDED RATTLE-SNAKE).

The specimen furnishing the following observations was a female. It had 180 large broad plates in the abdomen, 18 broad plates in anterior surface of tail, and 6 divided plates, making 27 plates upon posterior surface of tail.

The bronchial tube or windpipe passes down through the entire length of the vascular portion of the lung, and expands finally into a membranous bladder, without cellular divisions, consisting of a strong transparent membrane, the circumference of which when inflated is equal to that of the animal. The upper portion of the lungs are thicker and more vascular than the inferior portion, the vascular gradually

diminishing until the lungs expand opposite the superior portion of the liver, into the large membranous sac. The small undeveloped lung opens into the bronchial tube opposite the ventricle of the heart. The bronchial tube or windpipe, consists of semi-annular cartilages, which not only give off branches and meshes of fibrous tissues to the lungs, but is divided along its four surfaces; the edges being serrated and so arranged that pressure, like that of an animal in the esophagus during the act of swallowing, will cause the complete closure of the elastic rings, the serrated edges fitting accurately into each other; and by this arrangement it is possible for the air to pass to those portions of the lungs which lie below. The length of the vascular portion of the lungs which begin near the opening of the windpipe, lying on either side of it was about nineteen inches. The heart is situated near the line of the disappearance of the more vascular portion of the lungs. The vascular portion of the lungs are composed of small hexagonal and pentagonal and irregularly shaped ovules, vesiculæ or cells as represented in the figures and especially in the magnified view. The diameter of these cells, varies from one-hundredth to one-tenth of an inch in diameter. The walls of these cells appear to be without doubt derived from the circular rings of the windpipe, as if the latter was the basis or skeleton of the lungs. The hexagonal shape of the cells of the lungs resemble those of the poison moccasin (*Trionocephalus piscivorus* in their general shape; they are, however, not so much elevated along the borders. The upper portion of the lungs of the *Crotalus durissus*, resemble somewhat the vesiculæ or cells of the lungs of the alligator, gopher and frogs, in that they are abundantly supplied with blood vessels, and appear when the lung is opened, of a florid red. On the other hand, the large bladder in which the lungs terminate resembles, to a certain extent, the lungs or membranous sacs of the water heart.

The length of the alimentary canal in the *Crotaloidea*, is a little less than that of the entire body; thus in a specimen of the *Crotalus adamanteus*, forty-eight inches in length, the entire alimentary canal measures forty-two inches. The esophagus or gullet is, as a general rule, nearly equal in length to the stomach and intestines, when the alimentary canal is devoid of food. Both the esophagus and stomach are capable of great distension. When the rattlesnake swallows an animal, as the rabbit or squirrel, the diameter of which is greater than that of the reptile in its ordinary state of fasting, the esophagus expands and receives the animal which, gradually, by the action of the muscles is forced into the thicker and more muscular stomach. Digestion proceeds in the stomach and not in the gullet, and appears to be more active in the inferior portion of the stomach where it joins the alimentary canal.

I have examined the alimentary canal of *Ophidians* in all stages of digestion, from the moment the prey has been swallowed until it is completely dissolved in the gastric juice, and I have carefully dissected and preserved such specimens.

I have witnessed the battles of reptiles with each other and observed that when they devour one another, they always swallow the head first, and when the conquered enemy is nearly of the same length with its captor, its head is pushed down to the farthest extremity of the cavity of the stomach, which may be greatly displaced downward, reaching nearly to the anus.

I have specimens in which the gastric juice has completely digested and cleaned all the flesh from the bones of the head and from the cervical vertebræ, while those portions in the gullet are in their natural state, without the disturbance even of the scales and skin. By the movement of the intestines, the bones after the removal of the flesh become enveloped in the hair and fur of the animal swallowed.

The liver in the *Crotaloidea* is a large flat organ. The color of the liver appears to be somewhat lighter than in other *Ophidians*, being light brownish red; its size is relatively larger, and its general shape broader, thicker and shorter than in the *Trionocephali* *Columbers* and other *Ophidians* of America. In full-grown specimens the kidneys vary in length from five to seven inches and, like the kidneys of *Ophidians* generally, are divided into numerous lobuli; these organs, however, are shorter, broader and thicker, relatively to the size of the serpents in the *Crotaloidea*.

After a careful comparison of the anatomy of the *Crotalus adamanteus* with that of the *Crotalus durissus*, I have been unable to determine any essential differences in the structure of the lungs, the arrangement of the bronchial tube, or in the general form of the organs. The former attains a larger size than the latter, and has a much more circumscribed range, not being (as far as is known) found north of Carolina.

On the other hand, the *Crotalus durissus* is found in nearly all parts of the United States. In both species, the musk glands opening near the anus are large and will develop and emit a most nauseous, depressing and heavy odor.

CROTALOPHORUS MILIARIUS—("GROUND RATTLESNAKE" —"HOGNOSE RATTLESNAKE").

The specimen which yielded the following measurements was a male, 19½ inches in length, with 128 abdominal plates, 26 subcaudal plates, two rattles and a button. The bronchial tube runs down through the vascular portion of the lungs, and expands into a membranous sac (as in the *Crotalus durissus* and *adamanteus*) half an inch below the apex of the heart. The bronchial tube is well defined, having two free borders with serrated edges, and giving off fibrous rings to the lungs, as in the *Crotaloidea*. The vascular portion of the lungs is divided into hexagonal cells, the fibrous walls of which are divided from the bronchial rings. These cells resemble in their structure and shape and their relations to the bronchial tube, those of the *Crotaloidea*; the only difference is, that they are small, having a diameter from less than one-twentieth to less than one-hundredth of an inch in diameter. Right lung longer than left, and situated a little higher up in the abdominal cavity. The liver, kidneys and the lungs are more delicate in shape than in the *Crotalus*.

The general anatomy of the *Crotalophorus*, however, is similar to that of the *Crotalus*; the rattles and the poison bag and fangs are also similar in their structure.

TRIONOCEPHALUS—OPPEL—TRIONOCEPHALUS PISCIVORUS—LACÉPÈDE—(WATER MOCCASIN).

The lung of the water moccasin presents an analogous arrangement to that of the rattlesnake in this respect—that the bronchial tube runs down along the vascular portion of the lungs, and sends off divisions which are arranged into distinct hexagonal cells.

The lung of the water moccasin, however, is more vascular and more distinctly cellular than that of the

rattlesnake. The cells of the lungs of the water moccasin are much more perfect in their form than those of the *Crotalus*, being regular hexagonal figures, like the honeycomb. The diameter of the cells are more uniform and somewhat larger than those of the *Crotalus*, as a general rule, although the largest do not exceed in diameter one-tenth of an inch. The liver of the *Trigonocephalus piscivorus* is large, but not so broad and relatively short as in the *Crotalus*.

TRIGONOCEPHALUS CONTORTRIX—LINNÆUS—(COPPER-HEAD).

The length of the specimen (female) from which these measurements were taken was thirty-one and one-half inches. It was captured in the spring of the year 1862, in Liberty County, Georgia, in company with a male reptile of the same species. They were evidently mates. The chief difference which I noted between the two, which were very nearly of the same size, was that the head of the male was larger. They appeared to have shed their skins recently and in both their colors were brighter. With the exception of the generative apparatus, no special difference of anatomic structure or arrangements were noted upon careful dissection and comparison. These reptiles were kept in confinement for some time, and I instituted a series of experiments with their poison, causing them to strike dogs, cats and fowls. The results of these experiments will be noticed elsewhere. I will simply observe, that the effects of the poison of the copper-head resembles that of the poison of the rattlesnake, and cause profound changes in the capillary circulation and in the constitution of the blood. The dissections are preserved in my private collections.

The rudimentary lung of the female opens into the bronchial tube, opposite position of apex of heart. The bronchial tube runs down through the vascular portion of the lungs as in *Crotalus* and *Crotalophorus* and *Trigonocephalus piscivorus*. The arrangement of the bronchial tube is similar, being open or slit along the median line in the interior of the membranous vascular bag, constituting the lung, and the edges are serrated. Cells of the vascular portion of the lungs are hexagonal, as in *Trigonocephalus piscivorus*; they are more numerous, more regular, more inclined to the ovoid form, and have more elevated and better defined margins than in the *Crotalus* and *Crotalophorus*. Diameter of cells vary from one-tenth to one twenty-fourth of an inch. The meshes or fibrous cells issuing from the annular rings of the bronchial tube, increase in size gradually from above, downward. The largest meshes or cells which exceed one-tenth of an inch in diameter are to be found at the commencement of the membranous bag or sac into which the lungs expand, below the apex of the heart. Many of the cells in the central and more vascular portion of the lungs present an oval form, losing their hexagonal figure gradually in the oval or circular.

It will be seen from the preceding observations that the poisonous *Crotalus*, *Crotalophorus* and *Trigonocephalus*, which present several points in common in their exterior form and appearance; the *Crotalus* having the rattle at the end of the tail in common with *Crotalophorus*, and the latter having the plates in the head; and the three genera having, similarly, large triangular heads with poisonous fangs and glands, also manifest marked affinities in their internal structure. It is certainly a point of great inter-

est that the arrangement of the bronchial tube and the general structure of the cells of the lungs should be similar in the three genera and almost identical in the closely related species.

The *Elapsoidea*, *Elaps* of Schneider and Cuvier. Only one genus of this family inhabits the United States; the *Elaps fulvius* (bead-snake, harlequin snake) is the northern representative of the dreaded *Elaps lemniscatus* of South America.

ELAPS FULVIUS—LINNÆUS—(BEAD SNAKE—HARLEQUIN SNAKE).

This reptile has been described by Dr. John Edwards Holbrook and others, as being characterized by fixed and permanently erect fangs. As far as my observations extend, the fangs are capable of some motion, although ordinarily occupying a more erect position than the fangs of the *Crotalus*, *Crotalophorus*, and *Trigonocephalus*. This reptile is generally regarded as harmless, in the southern portion of Carolina and Georgia, where it is comparatively abundant, being frequently dug up during the harvesting of the sweet potato (*Convolvulus batatas*). Dr. Holbrook¹ in his "North American Herpetology," says: "The individuals I have seen have been of very mild character and could not be induced to bite under any provocation whatever. Indeed, although possessed of poisonous fangs, they are universally regarded as innocent snakes, and are constantly handled with impunity, never to my knowledge, having injured any one. It is worthy of remark that this animal, which is the northern representative of the dreaded *Elaps lemniscatus* of South America, should be so gentle and harmless, although possessed of the same instruments of destruction."

Marc Catesby, in his "Natural History of Carolina, Florida and the Bahama Islands," evidently describes this reptile under the name of the "Bead snake." He says: "They live mostly under the ground and are seldom seen above, but are frequently found and dug up with potatoes, at the time these roots are taken out of the ground, which is in September and October. They have nothing of a viper, either in form or quality, but are very inoffensive."

Catesby figures with this reptile, in the same plate the Virginian potato; and while the colors are somewhat different, still the general form of the snake, and the shape of the head is characteristic of this reptile, and this alone.

As I possess a copy of Catesby's "Natural History," I have been able to examine and compare his figures and descriptions with the actual specimens at my leisure, and I feel with Dr. Holbrook, that Dr. Garder's criticism is too severe.

After careful examination and inquiry concerning this reptile I am convinced that it is by no means harmless, but that its bite is dangerous and may cause death, even in the human being. I have not only known small animals to be killed by it, but during the late war, a Confederate soldier was killed at Pensacola, Florida, by a bite from one of these snakes upon the throat. Believing that the reptile was entirely harmless he was playing with it at the time that he received the fatal stroke. Death took place in the course of a few hours. I saw the snake which caused death, and it was the *Elaps fulvius*.

¹ North American Herpetology, or a Description of the Reptiles inhabiting the United States, by John Edwards Holbrook, M.D., etc. Vol. III, p. 51.

The *Elaps fulvius* is also at times, at least, rapacious, and preys upon other reptiles. Thus, I have in my possession, an *Elaps* which has swallowed a black snake (*Coluber constrictor*) nearly equal to it in length. The stomach has been pushed nearly to the anus, and the gastric juice has completely dissolved the flesh from the bones of the head and cervical vertebra, while the main portion of the snake, including the body and tail lying beyond the stomach in the distended esophagus, is in a state of perfect preservation. The bronchial tube extends down alone for five and one-half inches below the apex of the heart, where it expands into a bright vascular sac, with small well-defined cells. The rudimentary lung opens just opposite the apex of the heart. The cells of the vascular portions of the lungs are perfect hexagonal figures. The cells are much smaller than in the lungs of the *Crotalus*, *Crotalophorus* and *Trigonocephalus*, the largest being not more than one-fiftieth of an inch in diameter, and the smallest not less than one one-hundredth of an inch.

In the *Elaps fulvius*, the bronchial tube does not extend through the vascular portion of the lungs, as in *Crotalus*, *Crotalophorus* and *Trigonocephalus*, but after the expansion of the vascular pulmonary bag, its rudimentary existence is marked by a fibrous band running down the central portion of the vascular lung. Length of vascular portion of lung, two and one-fifth inches.

It will be observed that marked differences of anatomic structure and especially of the lungs, are found in the four genera of poisonous snakes found in the Southern United States of America, viz., *Crotalus*, *Crotalophorus*, *Trigonocephalus* and *Elaps*. The three former correspond to a certain degree in external conformation and internal anatomic structure; the latter differs in both external conformation and internal anatomic structure. The *Elaps fulvius* resembles, in the general shape of the body, as well as in the shape of the head and neck, the *Rhinestoma coccinea*, of Blumenbach. The position of the heart, and the relations of the bronchial tube, as well as the general shape of the organs are similar in the two genera. Like the lung of the *Elaps fulvius*, that of the *Rhinestoma* begins below the apex of the heart.

Schlegel errs greatly when he associates the *Rhinestoma coccinea* with the *Heterodontes*, for it differs from them, not only in its external form, but also in the structure, relative size and position of the internal organs and especially in the position and structure of the lungs. In the American vipers (*Heterodon Niger*, *H. platirhinos* and *H. simus*) the bronchial tube joins the lungs or vascular portion at an acute angle, and one branch of the lung runs up as a distinct sac, along the bronchial tube toward the head.

OPHISAURIS VENTRALIS—DAUDIN—GLASS SNAKE (MALE).

Length of this snake, twenty-five inches; length of right lung three-eighths inches; left lung one-third inch; tail thirteen and five-eighths inches; distance from tip of head to apex of heart three inches; to superior border of liver three-fourths of an inch; length of the liver one inch; breadth four-tenths of an inch.

CROTALOIDEA—CROTALUS DURISSUS—(BANDED RATTLE-SNAKE).

The specimen furnishing the following measurements was a female; length of snake from extremity of head to the junction of the rattles with the tail,

fifty-one inches; length of head and body, forty-seven and one-half inches; length of tail, three and one-half inches; length of abdominal cavity forty-seven and one-half inches; distance of apex of nose to apex of heart, nineteen and one-half inches; to superior border of liver, twenty inches; length of liver, twelve inches; breadth, one and three-tenths inches; distance of inferior border of liver from gall bladder, one and one-half inches; as usual there was a small separate liver along the course of the vena cava.

CROTALOPHORUS MILLIARIUS—(GROUND RATTLESNAKE, HOGNOSE RATTLESNAKE).

This specimen was a male and yielded the following measurements: length of head and body, sixteen eight-tenths inches; length of tail, two and seven-tenths inches; length of abdominal and thoracic cavity (as there is no diaphragm, the entire cavity is included under the head) sixteen inches; length of alimentary canal, sixteen and one-half inches; distance of apex of heart from extremity of head, six and four-tenths inches; length of vascular portion of lungs, four and four-tenths inches; distance from end of head to superior border of liver, six and seven-tenths inches; length of liver, two and eight-tenths inches; breadth of liver, three-tenths of an inch.

TRIGONOCEPHALUS CONTORTRIX—LINNÆUS—(COPPER-HEAD).

The length of this specimen (female) from which these measurements were taken was thirty-one and one-half inches; length of head and body twenty-seven and one-half inches; length of tail four inches; number of abdominal plates 153; of subcaudal plates, 44; the tail terminated in a horny point, or hook-like button, which appears to be the representation of the rattle in the *Crotalus*. Length of abdominal and thoracic cavity twenty-six inches; length of alimentary canal twenty-six inches; distance from end of head or point of nose, or snout, to apex of heart, nine and one-half inches; length of vascular portion of lung eight inches; distance of extremity of head from superior portion of liver, nine and three-fourths inches; superior border of liver situated one-fourth of an inch from the apex of heart. Length of liver, five inches; breadth, three-fourths of an inch; length of right kidney three and one-half inches; breadth of right kidney, four-sixteenths of an inch; length of left kidney two and one-half inches; breadth, five-sixteenths of an inch; distance of inferior border of kidneys from anus, one and one-half inches.

ELAPS FULVIUS—LINNÆUS—(BEAD SNAKE—HARLEQUIN SNAKE).

The specimen furnishing the following measurements was a female: length, twenty-six and one-half inches; it had 221 abdominal plates and 34 subcaudal plates. Distance of apex of heart to extremity of head, five and one-half inches; distance of superior portion of liver from apex of heart, six and one-half inches; distance of apex of heart from superior border of liver one inch; length of liver six inches, breadth, three-tenths of an inch; length of abdominal cavity, twenty-three and three-fourths inches; length of head and body, twenty-three and three-fourth inches; length of tail, two and one-fourth inches; length of right kidney, one and one-half inches, breadth, two-tenths of an inch; length

of left kidney one inch, breadth, three-sixteenths of an inch. Kidneys small and flat. Ovaries contained eggs in various stages of development. Length of alimentary canal twenty-three inches.

CONCLUSIONS.

From the preceding observations, it is evident that:

While all *Ophidians* are formed upon a general plan and resemble each other in the general form of the body, and structure and arrangement of the internal organs, at the same time the different genera are distinguished by essential differences of structure.

Closely related species present essentially the same structure and arrangement and relative position of the internal organs, and the similarity of external appearance and form and of habits and instincts, is attended by a comparative similarity in the structure and relations of the internal organs.

It might well be doubted whether, in certain cases, as in the *Crotalus* and *Heterodon*, some of the species of naturalists might not be mere varieties springing originally from the same common stock or original parents.

Marked differences are observed in the position and structure of the lungs in different genera, and, in fact, of all the organs; this is the best plan adopted for minute and differential anatomic investigations. That the arrangement of the bronchial tube and hexagonal cells is not characteristic of the poisonous *Ophidians* is shown, on the other hand, by the absence of such arrangement in the *Elaps fulvius* (harlequin snake) which is poisonous, and, in the other, by the presence of a similar arrangement of the bronchial tube in the *Coronella getula* (king snake). At the same time there is a wide difference between the structure of the lung in the latter and in the *Crotaloidea*.

We can only attribute these marked differences of internal structure in animals of the same growth, the same colors, and subjected to precisely the same climatic influences, to the original endowments or characters of the originators of the different genera; such characters being impressed by the Creator by his direct creative act. We can not conceive of a harmless reptile developing in virtue of "innate powers," or in virtue of innate desires and selection a poisonous gland, any more than we can conceive that by such causes the peculiarities of its lung were gradually altered and evolved.

These researches establish the important fact, that peculiarities of genera are dependent upon peculiarities of internal structure. Similar well-marked differences may be shown to exist in the different classes of warm-blooded animals; but the demonstration is more clear and more valuable in the lower and more simply constructed *Ophidians*.

The influence of physical agents upon the developments and variations of species is confined chiefly to alteration of color, size and vigor, and the cutaneous and osseous system, and not to direct structural alterations of the internal organs. This will be illustrated by investigations chiefly into the changes of color in the human race, and more especially of albinism in the negro race.

THE WILLIAM F. JENKS MEMORIAL PRIZE of the College of Physicians of Philadelphia, for 1895, has been awarded to Dr. Abram Brothers, of New York, for an essay on "Infant-mortality During Labor, and its Prevention."—*Medical News*, Nov. 9.

A REVIEW OF URETERAL SURGERY.

An Address delivered by request before the Toledo Academy of Medicine, June 28, 1895.

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The revelations of modern surgery are daily demonstrating that the ureter, like the appendix vermiformis, has for ages been the cause of numberless fatalities that have been credited to idiopathic causes.

Each one of them covers an exceedingly important sphere in abdominal surgery, and to the modern observer it seems strange that both of them should have escaped careful observation all these years. One, although having no known physiologic place in the human economy, plays a very decided pathologic rôle when affected with disease. The other has a distinct physiologic function to perform, which if interfered with, is liable to cause grave disturbance, if not rapid dissolution.

In glancing over the mortality records of the last decade, we are not surprised at the large death roll attributed to the so-called idiopathic peritonitis, especially when we remember that death from disease of, or injury to the ureter, as well as that of the vermiform appendix was seldom if ever recorded. Within the last ten years—thanks to aseptic and antiseptic surgery which have made possible the modern advancement of abdominal surgery—surgeons have discovered that much if not all the so-called idiopathic peritonitis is *secondary*, and much of it has been attributed to diseases of the vermiform appendix. Likewise the laparotomist has discovered that the ureter, which for cycles unknown has rested undisturbed, has played an important part in the diseases peculiar to the abdominal cavity. It is astonishing when we look over the literature pertaining to the ureter that prior to 1880, when an article was written by Emmet, we are unable to find anything on this important subject. Following Emmet, we find an article by Staples, written in 1884, and another by Galland, of Paris, in 1885.

From this on, reference to the surgical treatment of the ureter becomes more frequent, until up to the present time there have been written more than eighty different articles, pertaining either directly or indirectly to the surgery of the ureters. That the ureter opens up a legitimate field of surgery, is beyond a question. That the proper surgical treatment of the ureter may save a nephrectomy or even life is without controversy.

These facts have led various operators to make numerous experiments, with a view of not only discovering some reliable method for the surgical treatment of the ureter, but to simplify them and, so far as possible, rob them of much of their danger and establish them as legitimate and reliable surgical procedures. To Dr. Howard A. Kelly, of the Johns Hopkins University of Baltimore, the profession owes much for the modern advancement in ureteral catheterization.

It is true, Simon sounded the ureter as early as 1875, Grunfield in 1877, Skene in 1889, Morris and Wells in 1893. Yet none of these distinguished authors have given us so much valuable and practical information in reference to the catheterization of the ureter as Kelly. With the aid of the cystoscope, the electric light and the delicate ureteral catheter, not

only the walls of the bladder may be subjected to ocular inspection, but either ureters may be sounded or catheterized at the will of the operator. The ureters may be catheterized without the cystoscope by simply depending on the touch, but this is not nearly so reliable, and where the walls of the bladder are thickened by disease it is often impossible. With the aid of the ureteral catheter, such as I herewith exhibit, devised by Dr. Kelly, we are enabled to relieve stenosis of the ureter where it occurs within the lower third; or where there is disease of one or both kidneys, we are enabled by catheterizing each ureter to determine by an analysis of the urine collected in this manner whether both of the kidneys are diseased, or, if but one, which one. The use of the ureteral catheter is, therefore, not only an important factor in the diagnosis of renal diseases, but of no small value for the treatment of stenosis of the ureter.

Where valve formation and stricture of the ureter occurs so high up as to be beyond the reach of the catheter or sound, resulting in hydro- or pyonephrosis, nephrectomy and even nephrotomy may often be avoided by an operation with a view to the reestablishment of the lumen of the ureter.

Fenger of Chicago, reports a number of cases of this character relieved by plastic operation after the method of Henecke-Mikulicz, which consists in a longitudinal division of the stricture and transverse union of the longitudinal wound, which shortens the ureter in proportion to the length of the stricture. Professor Fenger prefers this method of operating to that of resection of the stricture as performed by Kuster. Yet they both require great care in order to avoid extravasation of urine and they are both done at the expense of the length of the ureter. Either method, however, we consider much more desirable than implanting the ureter into the vagina, perineum or the abdominal walls.

Page of London, reports several cases of rupture of the ureter, in the *Annals of Surgery*, for May, 1894, the treatment of which was anything but satisfactory. He closed his article by saying "that the question of treatment can not be closed without a consideration of the possibility of suture of the ureter and the prevention thereby of all the trouble which these various cases suffered." Notwithstanding this suggestion, he rather discourages the plastic operation and suggests in the treatment of a ruptured or stenosed ureter that, "it is one thing to find and expose the ureter in these conditions, and quite another thing when there is no fixed calculus to mark its position."

Herman Mynter, of Buffalo, New York, reports a case, in the *Annals of Surgery*, December, 1893, of valvular stricture of the ureter, which was closed by a plastic operation, which resulted successfully and in fifteen days after the operation the patient was discharged feeling well. In a recent number of the *University Medical Magazine*, Prof. Chas. B. Penrose, of Philadelphia, reports a successful operation where the ureter was involved by a scirrhus cancer of the cervix uterus, in which it became necessary to excise an inch of the ureter, which was afterward implanted high up in the bladder, after Van Hook's method. In this case there was no symptom of bladder or renal disturbance and the patient left the hospital twenty days after the operation to all appearance well, although six months later she is reported suffering pain in the right iliac region, suggesting the probability of recurrence of the disease. This operation

shows that the implantation of the ureter high up in the bladder is a successful and practical procedure.

In an exhaustive paper read by Dr. Weller Van Hook of Chicago, before the Section of Surgery and Anatomy of the AMERICAN MEDICAL ASSOCIATION at its Milwaukee meeting, the Doctor arrived at some thirty-two conclusions in reference to the surgical treatment of the ureter among which he states, in conclusion 6: "Longitudinal wounds of the ureter at any point, heal without difficulty in the absence of septic processes, under the influence of ample drainage."

In conclusion 14, he says: "In complete transverse injuries of the ureter in continuity, union must not be attempted by suture."

In conclusion 16, he advises: "In complete transverse injuries of the ureter very near the bladder, the duct may be implanted, but with less advantage, into the bladder directly." The feasibility of this latter method is demonstrated in the case referred to above, by Professor Penrose. In conclusion 15, Dr. Van Hook states that: "In complete transverse injuries of the ureter in continuity, union without subsequent scar contraction may be obtained by the writer's method of lateral implantation."

Where the ureter is too short to reach the bladder, Dr. Van Hook recommends the making of a vesical diverticulum. This is accomplished:

1. By implanting the ureter upon the skin of the abdomen in the median line as near the bladder as possible. Close the abdominal walls as usual, except for the presence of the ureter.

2. When the patient is fully recovered from the primary operation, open the structures composing the abdominal wall, between the ureter and the pubes, down to the peritoneum and bladder. The peritoneum must not be opened. The bladder may be extended and raised exactly as in suprapubic cystotomy.

3. Make two incisions in the bladder parallel to the median line, beginning as near as possible to the peritoneum without prejudice to its integrity, carry them down at a distance of about 15 mm. apart toward the neck of the bladder under the guidance of the finger. With scissors curved on the flat, the two incisions are now united at the lowest point and hemorrhage is controlled with pressure forceps. It will be seen that we now have at our disposal a vesical flap of considerable extent hinged above by a nutrient pedicle.

4. The ureter is loosened from the skin and brought well down toward the flap, which is simultaneously raised to meet it. The vesical flap is firmly fastened back in its new position by catgut sutures, passing through the neighboring muscles of the fascia, and the end of the ureter is held in position by light catgut sutures which pass through the loose peri-ureteral connective tissue, if possible, and through the muscular structures near at hand.

5. We are now in position to sew together the edges of the flap to form a tube, in the upper end of which the ureter is introduced, and to carry a similar row of light catgut sutures down the bladder wound itself. The lower angle of the vesical opening would best be left open for the sake of drainage. It will in all probability cause no trouble in healing. The upper part of the skin wound together with the fasciæ may be closed. Under careful antiseptic treatment this procedure ought to be practicable, and as easy as the majority of the operations daily undertaken.

The Doctor says he has practiced this method with considerable success on the cadaver, and argues that "we may safely say that, without opening the peritoneum, the bladder can be plastically extended to meet the ureter when that duct is brought out of the abdomen at any point not exceeding three and one-fourth inches inferior to the umbilicus." Hypothetically this is a very handsome operation, but before we would feel like indorsing it we would like to see its results on the *living* rather than the *moribund* subject. There is no question but what the ureter, when sufficiently long, could be implanted in the bladder, or it may be successfully connected with the vagina, but we are frank to admit that we do not consider the latter a very advisable operation, for reasons which we shall state hereafter. The question now arises, What method of surgical procedure shall we adopt where it is impossible to perform a plastic operation on the ureter that will unite it, when severed, or that will connect it with some other than normal connection with the bladder. In order to furnish, if possible, a connecting link in this very important part of the surgical treatment of the ureter, we have conducted numerous experiments with a view of implanting the ureter into the rectum, and so far as the implantation of a single ureter is concerned, our experiments have been fairly satisfactory and successful, as you will see by the specimen herewith submitted for examination.

Dr. Van Hook, however, takes serious exceptions to this method of disposing of the ureter. In his criticism he says: "The implantation of one or both ureters into the rectum is absolutely unjustifiable under all circumstances," and gives as his principal reason that these delicate tubes are inserted into the filthy rectum or intestine filled with solid, liquid or gaseous material to distend and defile the ureter and the pelvis of the kidney. Almost with the same breath the Doctor advises the implantation of the ureters into some portion of the abdominal wall and bring it out on the surface of the skin. Just as if the skin were not septic and would subject the ureter to septic infection as well as the intestine, beside placing the ureter in an unfavorable position while the patient is on his back for natural drainage, to say nothing of being occluded by the bowel when the patient is in the erect position.

Did it ever occur to the Doctor that the ductus communis choledochus in connection with the pancreatic duct commit the awful crime of discharging their contents into the descending portion of the duodenum? It would appear from the criticisms of Dr. Van Hook that even this would be unjustifiable under all circumstances. The Doctor seems to have forgotten that there is a law of natural immunity which not only protects us from infection from the septic material of the duodenum which might otherwise cause sickness and death, but protects the other natural channels from the same dangers, and makes it possible for him to make an opening for the ureters through the integument and the patient live, who if it were not for this law of natural immunity would become infected and die.

We were not neglectful of the fact that the intestines were septic, but we maintain that it gives the patient a better chance for recovery, especially where only one ureter needs to be implanted. It is certainly a much more desirable operation than bringing the ureter out to the surface of the skin and afflicting

the patient with a urinary fistula the remainder of his days. The chance for stenosis is much greater on the one hand than on the other. In fact, there is more liability of stenosis where the ureter is brought out through the intestines and the walls of the abdomen than where it is implanted in the bowel or rectum. Where implantation into the rectum is successful, the patient is not disturbed with the foul odors of decomposing urine as he is in the case where it is implanted in the walls of the abdomen or the vagina. If I were to make a choice to-day between implanting the ureter in the walls of the abdomen or vagina and making a nephrectomy, I should prefer the latter, with the single exception of where there were but one kidney left to operate on, and then it would be folly to perform a nephrectomy and there would be nothing left but to implant the ureter in the walls of the abdomen, vagina, or the intestinal tract. To the unbiased mind it seems to me there is no question as to which of these three methods would be preferable. It is true in either one if septic infection or stenosis takes place, a nephrectomy can be made afterward but if this is not necessary, where each are successful, there is no question as to the comfort of the patient on one hand and the discomfort on the other.

In the case operated on by Dr. Leet of Scranton, Pa., where the ureter was implanted into the rectum and the patient recovered from the operation, but died subsequently of an entirely different disease not connected with the operation, I am told the patient suffered no inconvenience from the ureter being implanted into the rectum, and when a post-mortem was made there was found to be complete union without consequent nephritis so frequently referred to by Dr. Van Hook as the result of septic infection, neither was there stenosis of the ureter itself which he prognosticates as a most probable sequela in these operations.

Practical experience is always preferable to hypothetical theory. Notwithstanding the severe criticisms offered by Dr. Van Hook, on the implantation of the ureters into the rectum, we find in an article by Chaput, published in the *Archives Generales de Medicine*, January, 1894, that this distinguished operator performed this operation upon a patient Sept. 13, 1892, in which he states the results of the operation were excellent. Fever was entirely absent and the patient recovered without a single complication. In speaking of this operation, DeForest, in an editorial published in the *Annals of Surgery* for August, 1894, page 198, says: "At the end of a year a comparison of the discharge from the rectum and from the bladder for twenty-four hours gave the following results: vesical urine, 1,250 cubic centimeters; urea 24 grams per liter. Liquid material eliminated by the rectum, 270 cubic centimeters; urea, 4.5 grams per liter. The patient has three liquid movements daily which contain solid matter in suspension. These passages are easily retained in the rectum, and there is no discomfort experienced. The left kidney is not enlarged, and the amount of urine excreted is not abundant. The diminution in the amount of urea in the urine of this side is explained by the fact that secondary changes had occurred in the kidney as a result of the contraction of the orifice of the ureter during the existence of the fistula."

On Nov. 25, 1892, Chaput again implanted the ureter into the rectum for chronic inflammatory thickening of the bladder. Three months after the

operation the general condition of the patient was fairly good. There were but four or five passages daily. The anastomosis of the right ureter with the cecum was decided upon, and this operation was performed on the first of March, 1893, or about three months after the implantation of the left ureter. In this case the ureter was as large as the thumb and its walls were thickened and congested. No fever followed the operation, but the patient became comatose and died on the same day, which confirmed the conclusion arrived at by the writer in his experimental work, that the implantation of one ureter was comparatively free from danger but the implantation of both was a hazardous operation. Chaput "concludes as a result of this observation that this form of anastomosis is a favorable one, since, notwithstanding the adverse conditions, the operation itself was successful and was free from unfavorable complications either on the side of the kidney or on the side of the intestine. The frequency of the discharges from the rectum, which decreased toward the last, is to be attributed to the polyuria existing in a kidney already diseased. It is fair to assume that eventually the large intestine would have become sufficiently dilated to act as a reservoir for the urine, and so render the evacuations less frequent."

After briefly reviewing the progress made in the last few years in the surgery of the ureter, we are led without further light, to the following legitimate conclusions:

1. That where it is possible, a traumatism of the ureter should be repaired by a plastic operation which has for its object the union of the distal and proximal ends of the ureter.

2. Where it is possible to reach the superior portion of the bladder it is advisable to implant the distal end of the ureter into the bladder.

3. Where it is impossible to either unite the distal or proximal end or implant the distal end into the bladder, we would advise, as a matter of choice, the implantation of the ureter into the alimentary canal, rather than into the vagina or the making of a fistulous opening through the skin.

150 East Broad Street.

SOME POINTS IN THE SURGERY OF THE URETERS.

BY WELLER VAN HOOK, A.B., M.D.
CHICAGO.

An interesting work on ureteral surgery¹ has recently been published in Paris. The author devotes his entire attention to anatomy; to the methods of exposing the ureter for surgical treatment; to ureterotomy for removal of calculi and for the relief of stenosis, and to resection. Inasmuch as he omits the consideration of such important branches of the subject as diagnosis, the use of catheterization of the ureters for various purposes and the implantation of the ureters upon the skin, into the intestinal tract and into the bladder, his work must be regarded as a valuable and timely discussion of the topic touched upon, but not as the systematic treatise upon the general subject of surgical ureteral diseases which the title and the size of the volume lead one to expect.

The position assumed by the present writer upon a

former occasion² in reference to the subjects of suturing longitudinal wounds of the ureter and of union of that duct after transverse division, have been adversely criticised, although Dr. Glantenay agrees in the main with his conclusions upon other topics.

In that article it was shown that unsutured longitudinal wounds of the ureter must heal by granulation, inasmuch as the continual passage of the urine out of the wound would suffice to prevent the accurate coaptation of the edges of the duct necessary to *prima intentio*. Provision for the free escape of urine by drainage being presupposed, the abundant connective tissue in the neighborhood of the tube must soon be covered by granulations, to which the duct will speedily become attached. The wound edges will then be in position to favor their epidermization, and as no more than normal resistance will be offered to the outflow of urine by the bladder, the discharge of the fluid will soon take place by the natural passages instead of through the drainage tract after the drainage tube is removed. Since the mucous membrane strongly tends, during the time the wound is open, to proliferate over the granulations extending from their edges toward the drainage tract, the lumen of the tube after healing has occurred will be, if altered at all, greater at the site of injury, just as the urethra, after external urethrotomy for stricture, has a greater caliber at the site of the longitudinal incision. The advantage of surgically utilizing this mode of repair lies in the fact that if scar contraction take place after such healing, it must bring about a shortening of the tube rather than a diminution of its caliber.

Dr. Glantenay holds that we should, as far as possible, adopt the suture in dealing with these wounds. There are several manifest objections, however, to the application of sutures to longitudinal wounds. The first of these is that the tube is so small and delicate and its situation often so difficult of access that the operation will usually be trying and unsatisfactory. The record of Tuffier's experiments is sufficient proof of this fact, if demonstration be required.

A second objection is that the needle is liable to penetrate the mucosa of the tube in the course of the application of a number of sutures, and to leave fastened in its lumen a thread upon which calculous deposits may form. Should suppuration occur from previous infection of the urine, or from contamination at the time of operation, the presence of sutures would be worse than useless, since they would act as foreign bodies, keeping up a purulent discharge, and would also act as centers for the deposit of urinary salts.

Beside these objections the sutures must inevitably produce an immediate coarctation of the tube, seeing that they can only close the wound by making tangential traction upon its walls.

Dr. Glantenay has collected fifteen cases of longitudinal incisions in the ureter, of which five were sutured with silk, the remainder being allowed to heal without stitches. Of the five patients in whose cases sutures were placed one died. Of the remainder, one had a persistent fistula. One patient died, among the ten treated without suture. Of the nine which recovered under this treatment, three had temporary fistulae, a fact scarcely worth mentioning, since the very statement that sutures were not applied would lead us to expect a temporary discharge of urine by

¹ Chirurgie de L'Uretère, par le Docteur Glantenay, Paris. J. B. Balliere et Fils, 8 vo. pp. 291, 1895.

² JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The Surgery of the Ureters, Dec. 16, 1893, et. seq.

the drainage tract. One case is also recorded in the table with the remark, "guérison, fistule?" Obviously, the number of cases thus far reported is too small for statistical study, yet one is irresistibly impressed with the favorable results in the cases in which sutures were not applied. So that Dr. Glantenay's arguments are in a measure, actually confuted by his own statistics.

The rare longitudinal wounds of the aseptic ureter occurring in the course of transperitoneal operations must be disposed of by suture, if possible. But if the duct is not readily accessible for this purpose, drainage through a posterior incision may be required.

Certainly we have much to learn on the subject of longitudinal wounds of the ureter: but our knowledge can now be advanced by clinical experience alone. Meantime we should be careful to properly estimate the value of the materials already at hand.

Dr. Konrad Buedinger³ has recently discussed complete transverse injuries of the ureter, detailing the methods of Poggi and of the present writer for the reunion of the duct after such traumatisms. Dr. Buedinger tried the method of Poggi upon a dog. This method, it will be remembered, consists in the end-in-end invagination of the upper ureteral fragment into the lower. To do this by means of a traction suture was found so difficult that he gave up the effort. For, in the first place, the invagination would not succeed, since the upper end always slipped out of the lower end as soon as peristaltic action occurred, and, in the second place, the ureter was stretched too much transversely. Becoming discouraged with Poggi's method, Buedinger gave up experiments in this line. If he had tried the writer's method by lateral implantation of the upper end of the ureter into a slit in the lower portion of the tube, these objections would have disappeared.

Glantenay describes the writer's method so fully and clearly that he evidently understands it, but at last discards the procedure utterly, evidently influenced by the paper of Buedinger, since he mentions no experience of his own. His sole objection to the method lies in the fear that the invagination suture (by which the upper end of the ureter is drawn into the slit in the side of the lower portion) may be left in the ureter and may form a nidus for the formation of a concretion. This theoretical objection is wholly refuted by the fact that this suture does not need to pass through the mucosa of the upper fragment, the muscular and connective tissue layers of the duct being thick and strong enough to give substantial hold for the thread. It must also be remembered that the catgut suture would at first be likely to bury itself by cutting deeper and deeper into the walls of the ureter, and later on would be absorbed completely.

Glantenay coolly states that the case operated upon by the writer's method by Dr. H. A. Kelly, "does not seem rigorously demonstrative. If it proves the harmlessness of the maneuvers which this complex procedure necessitates, its efficacy is not evident to us, for where is the proof of the reestablishment of the course of the urine by the injured ureter?"

The child-like naïveté of this inquiry almost disarms one. Yet perhaps we should take him seriously, especially as he complains that he could not find the detailed report of the case, a statement which would seem to imply that he did not have access to the *In-*

der Medicus and the *Annals of Surgery* even in Paris. The proof which he desires lies in the following facts: 1, no urine escaped through the abdominal drain leading down to the site of injury; 2, no accumulation of urine in the peritoneum or symptoms of resorption were noted; 3, a normal quantity of urine was passed and no symptoms of ureteral obstruction occurred.

It may be added that Dr. Doherty of Georgia, has sent the writer a very brief account of a similar case, in which he accidentally cut the ureter across during a laparotomy and immediately closed the injured duct by the same method. His patient recovered without an untoward symptom.

103 State Street.

THE INFILTRATION METHOD OF ANESTHESIA IN OPHTHALMIC PRACTICE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. V. WÜRDEMANN, M.D.

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MILWAUKEE, WIS.

Just six months ago we brought to the notice of the medical profession our¹ conclusions obtained by following out the line of experiments instituted but a few months before by Schleich,² of Berlin, relative to the anesthetic properties of water, and its application in surgical practice. The experimental stage has been passed and we are now able to substantiate some of his statements made in our first article which at that time were not yet proved.

A brief resumé of Schleich's experiments may be advisable: this investigator was employed in research for the production of a better and less harmful method of local anesthesia than that which has hitherto obtained. He first experimented with hypodermatic injections of cocain and other drugs, finding that a 2 per cent. solution of cocain was the weakest which would produce anesthesia when introduced beneath the skin. A couple of syringefuls of this solution would be the toxic dose and such an amount would be necessary in many trivial operations. It is well known that cocain injection is dangerous to life and even small quantities of the drug may give rise to very unpleasant symptoms.

Our investigator discovered that by injecting the solution into but not under the skin in the surprisingly small quantity of .002 to 1.00, a practical anesthesia would result throughout the whole thickness of the skin and insensibility more profound than that by hypodermatic injection of a solution one hundred times this strength could be obtained. The logical deduction followed that the drug itself could not be the main agent in causing the anesthesia. Injections of distilled water were tried and produced anesthesia but these were painful, *i. e.*, the infiltration of the water into the skin produced a burning pain which transcended that of the knife. Complete anesthesia, however, followed the infiltration.

Could it be the infiltration alone that produced the pain of injection and later obtunded the sensibil-

¹ "Explanation and Demonstration of the Infiltration Method of Anesthesia." JOURNAL AMERICAN MEDICAL ASSOCIATION, Dec. 29, 1894.

² Schleich, "Schmerzlose Operationen," Berlin, 1894.

ity? Injections of the normal salt solution (.6 per cent.) were made but no anesthesia followed, yet the injection itself was painless. The proposition to be solved then was as follows: if infiltration of water alone into the tissues produced pain followed by complete anesthesia, while the injection of .6 per cent. sodium chlorid was painless but made no alteration in the sensibility of the nerve ends, there must be between these two extremes a salt solution of a certain strength which would at the same time be so similar to the normal fluid of the blood as to cause little or no pain in infiltration and yet be sufficiently like water to produce anesthesia of the parts so injected. Experiments proved that a .2 per cent. salt solution met these requirements. Solutions above or below these strengths were either painful to inject or produced no anesthesia. Operations may be painlessly done by a .2 per cent. salt solution. I have personally experimented with various fluids: the ethers and alcohols are similar to water in that they cause burning pain on injection, followed later by anesthesia. Ether, however, produces capillary hemorrhage and alcohol coagulates the albumin of the tissues and both substances, aside from this, are too irritative to be of use in this method. The various oils are not painful to inject but afford no anesthesia. They are usually absorbed without producing material change in the tissues.

Cocain .2 per cent., morphin .2 per cent., ac. carbol .2 per cent., bromid of potassium 3 per cent., methyl violet 1 per cent., caffein 2 per cent., sugar 3 per cent., and other substances in aqueous solution were found to allow of the anesthetic action of water upon the nerve filaments. The anesthetic drugs, cocain, ac. carbol. and morphin have a special characteristic: *i. e.*, their addition in very small quantities to the .2 per cent. salt solution prevented the paresthesia incident to injection of simple saline solution and the infiltration of inflamed or hyperesthetic areas could be made without pain.

The narcotics were more active when used in the .2 per cent. salt solution and could be used in even lower attenuations, for instance, .01 per cent. cocain in a .2 per cent. salt solution prevented paresthesia. It was also found that if the solutions were used cold, their efficacy was increased many fold, and that when used at the temperature of the body, little or no anesthesia followed.

The following formulas are advocated by Schleich:³

R	Cocain mur	20
	Morph. mur	025
	Natr. chlor.	20
	Aqu. dest. ad	100
M.	Sterilisat. adde. sol. ac. carbol. 5 per cent. gtt ij.	
S.	Solution No. 1, strong. For operation upon highly inflamed or hyperesthetic areas.	
R	Cocain mur	10
	Morph. mur	025
	Natr. chlor.	20
	Aqu. dest. ad	100
M.	Sterilisat. adde. ac. carbol. 5 per cent. gtt ij.	
S.	Solution No. 2, medium. For most operations.	
R	Cocain mur	01
	Morph. mur	005
	Natr. chlor.	20
	Aqu. dest. ad	100
M.	Sterilisat. adde. sol. ac. carbol. 5 per cent. gtt ij.	
S.	Solution No. 3, weak. For superficial operations upon nearly normal tissues.	

³ The "keeping" qualities of these solutions are improved by the addition of a few drops (gtt jii) of a 5 per cent. solution of trikresol as recommended by Parke, Davis & Co.

At my request, Parke, Davis & Co., of Detroit, Mich., have prepared tablets, triturates and compressed tablets from which these solutions may be extemporaneously made by dissolving one tablet in 100 cubic centimeters (3ij) of distilled or boiled water. These will be found convenient in practice.

All are to be kept strictly sterile; glass stoppers or scorched cotton such as are used in bacteriologic experiments for the bottles; small quantities to be poured out in smaller vessels for each operation. Just before operation the solution should be cooled by laying the bottle containing it on ice. The common form of hypodermatic syringe with the finest of needles is all that is usually needed. Dr. Chas. Denison of Denver, Colo., has given us an aseptic syringe of larger capacity, with piston packing of asbestos which is particularly applicable for aseptic injection. The syringe is kept in good order by being frequently soaked in a 5 per cent. carbolic solution and the needle sterilized after each operation.

The discovery of these truths so valuable for the question of local anesthesia is due simply to a slight change of method; the application of the solution within and not under the skin. The anesthesia is caused by the replacement of the normal fluids of the tissues by a fluid of less specific gravity (the water) which causes anemia, compression and cool-

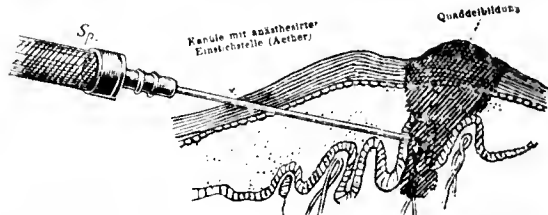


FIG. 1.—Diagram of a section of the skin, showing formation of the first wheal.

ing, producing thereby a temporary paralysis of the nerve filaments. The pain of the infiltration of indifferant solutions is abolished by the minute doses of narcotic drugs, (morph. cocain, carb. ac.).

It is perhaps well to here go into the technique of the production of local anesthesia by this method. The field of operation is made aseptic in the usual manner. Having the required formula, the solution aseptic and cold, we fill the sterilized hypodermic syringe; pinching the skin slightly between the thumb and forefinger of the left hand; the needle is then passed obliquely under the epidermis to the papilla, intra-cutaneously, until the lumen is fully inserted. A few drops are then injected, thereby producing a white elevated wheal, the infiltration extending throughout the whole thickness of the skin. (See Fig. 1.) There is immediate and complete anesthesia throughout the extent of the infiltration which lasts from ten to twenty minutes according to the density of the tissue so edematized. The needle is then reinserted at the periphery of the wheal and the area infiltrated to the required extent and depth. No tissue offers any deviation from the dictum: every structure is made anesthetic that can be artificially edematized; this holds good for skin, mucous and synovial membrane, periosteum, fascia, muscle, lymph glands, nerves, viscera, and even bone.

Anesthesia exists only within the area infiltrated by the solution and outside of that, normal sensation remains. In operations on or through the skin and mucous membranes the first wheal is increased to the size of a dime by increased pressure on the piston;

the needle is moved and re-inserted at the periphery of the wheal, but still within it, and a new wheal raised. In this way the line of incision is marked out to any desired length or breadth. (See Fig. 2.) In general surgical operations we would then infiltrate the underlying tissues, by slowly pushing in the needle and injecting a few drops at a time until the deeper tissue is edematized.

By cooling the spot selected for the formation of the first wheal by ether or rhigolene spray, or on mucous membranes by touching the spot with a strong solution of carbolic acid or applying cocain, the first injection may be made, if so desired, without even feeling the prick of the needle. This is seldom necessary as a very fine needle may be inserted without pain even in very tender tissues such as the eyelids. The succeeding injections may now be made without causing sensation. There is no sensation to the infiltration proper.

Where the tissues are inflamed the sensibility is pathologically increased. Here it is indispensable

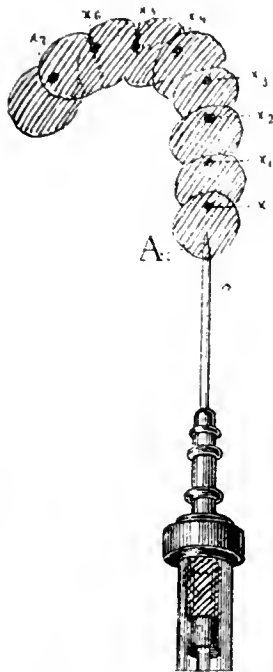


FIG. 2.—Formation of the cutaneous wheals. A, spot made anesthetic by ether spray for the first injection.

that the infiltration be begun in sound tissue and carried over into the part to be operated upon. (See Figs. 3-4.) The dilated blood and lymph channels of the inflamed skin allow us to anesthetize quite a large spot from one puncture.

The injection should be done slowly at first and when the infiltration is only felt by its tension we may rapidly flood the part to the required extent. Under no circumstances must fluid be primarily injected into an abscess, an exudation or a pathologic focus. The only result is increased tension and pain. We must not lose sight of the cardinal fact that the anesthesia exists only within the area infiltrated by these solutions and that outside of that there is normal sensation. The method rests principally on the production of a complete artificial edema of the tissues. Wherever we wish to operate with exact anesthesia, the field of operation must be tensely filled with the solution so that it exudes from the cut surface.

It should be remembered that our use of attenuated solutions of the narcotic drugs has nothing akin to the doctrine of the followers of the dogma "*similia similibus*," etc. These statements may be readily substantiated upon your own persons, as I have done many times on myself and other physicians. I need not call to your attention the well-known dangers of chloroform and ether anesthesia and the waste of the surgeon's time, the discomfort to the patient, and the necessity for skilled assistance. Cocain injection of the solutions of the usual strengths (5 to 10 per cent.) is certainly far more dangerous to life than the administration of chloroform. The higher solutions of cocain surely diminish the exudative process and retard the healing and, in some cases, actually destroy the trophic filaments so that gangrene has been known to occur. Nothing of the sort has been found to result from the infiltration of the solutions recommended in this article. Anesthesia is complete and occurs immediately and lasts long enough for almost any external operation. There is no objection at any time to repeating the injection if feeling should return during the operation. Indeed, we might safely operate for hours upon a small area if so inclined. The advantages of the method are also evident from its simplicity, safeness and celerity.

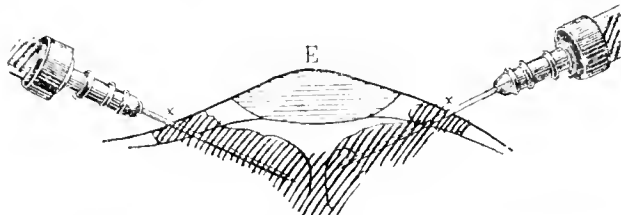


FIG. 3.—Infiltration of inflamed surfaces.

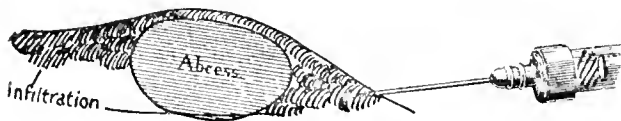


FIG. 4.—Infiltration of abscess.

The method has gained credence and is now in common use by many busy practitioners. Operations have been done, from the removal of ovarian tumors and amputations down to the opening of boils without pain, and with satisfaction both to the physician and patient. I have personally done half a hundred operations upon the eyelids, etc., by this form of anesthesia, as well as various operations upon other parts of the body while prosecuting the investigation. My first operation was done upon a deep seated felon. I have assisted at a number of circumcisions, excisions of tumors, and minor operations, making the injections myself; I have had reports from many surgeons in different portions of the United States of its use for operations varying in severity from ingrowing toe-nail to hernia, in which the anesthesia has been satisfactory. Healing has been by first intention and in only three instances have we had reports in which it has been delayed.⁴

In the foregoing, I have purposely said little about its use in ophthalmic practice, leaving this to be inferred from what I have said concerning minor surgical procedures in other localities. Indeed, infiltration anesthesia is of greater value to the general

⁴ In one of these, an operation for removal of tumor in axilla, the patient used the arm freely after the operation. In the other two, the patients were scrofulous and healing would have probably followed the same course if a general anesthetic had been given.

practitioner and surgeon than to the oculist, as the instillation of cocain into the eye is sufficient for most of our operations. For obvious reasons this method is applicable only to operations in our practice upon the eyelids, etc. The resultant edema would interfere with most operations within the orbit such as enucleation.

However, I bring the subject to workers in ophthalmic surgery, believing it will be an advantage to the ophthalmic surgeon for most operations in which instillation of cocain is inapplicable, but which may be deemed too trivial for a general anesthetic and yet are attended with considerable pain. In my practice it is in daily use for chalazia, tarsal tumors, opening of abscesses and plastic operations. For most office operations the Schleich method is an invaluable contribution to our therapeutics. It should do away with the injection of dangerous solutions of cocain and take the place of general anesthesia for many operations.

The technique of the injection was then shown upon the arm of one of the ophthalmologists there present after which by the kindness of Dr. Harry Friedenwald, of Baltimore, a patient was shown with two sebaceous cysts of the forehead. Dr. Würdemann injected the skin covering of this tumor with solution No. 1 and the growths were dissected out by a surgeon, without the patient experiencing the slightest pain or feeling either the injection or the operation. Six stitches had to be taken in the wound of the larger, and two in that of the smaller growth.

805 Grand Avenue.

REPORT OF COMMITTEE ON EXAMINATION AND CARE OF EYES DURING SCHOOL LIFE—INSTRUCTION OF TEACHERS AND SCHOOL AUTHORITIES AND LEGAL PROVISIONS.

Read in the Section on Ophthalmology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

B. ALEX. RANDALL, CHAIRMAN.
PHILADELPHIA, PA.

Mr. Chairman and Gentlemen:—Your Committee in approaching the subject assigned to them, find themselves of one mind in advocating advance in this important field of preventive medicine; but can less easily concur upon the exact lines within which they deem it practicable to advise action at the present time. Located in cities of various sizes and widely separated portions of the country, the environment of each member must react distinctly upon his view of what it is judicious to attempt, for it is practically self-evident that the popular mind is but little prepared for any active steps in the matter, and that it will be very unwise to take a position too advanced to secure the indorsement of reasonable men, medical and lay. Public opinion alone can carry this project through; and even in the profession—nay, even among our ophthalmic colleagues—this opinion has still largely to be shaped. Our steps must be guarded, therefore; yet they need not be timid nor indecisive. We must form the advance guard, sure that the rank and file will lag behind the standard which we place before them, however wisely chosen. Let us look, then, not for our idea of the maximum now everywhere practicable, but rather for the minimum that can be held efficient and satisfactory.

The opposition likely to be encountered in our efforts to advance the cause will come primarily, perhaps, from professional jealousy rather than from

school inertia or individual restiveness and assertion of freedom. That too many men intrusted with such investigations may try to coin profit to themselves from them, must be conceded; yet we contend that still more men of the first rank will refuse, or will hesitate to accept, such a trust because of the unworthy motives likely to be gratuitously imputed to them. In our noble profession there are hundreds capable and willing to take up this or any other self-sacrificing task with no thought of personal exploitation—finding their sole rewards in the knowledge thus gained and the beneficent work accomplished. There may be exceptions among those who have already wrought in this field; but we know of none. Yet any one of us in offering to do such work in his own community gratuitously, much more if claiming compensation, would be very careful to whom he broached his proposition, knowing how probably he would be misconstrued.

Let us deal frankly and fairly with this matter, individually leaving its execution wholly alone, if we have not the interest or can not afford to undertake it without more compensation than is likely to be given—and leave others unhampered by any insinuation of baser motives in being willing to carry forward the needed work.

The next line of obstruction is to be found in the school authorities. The cramming process now in vogue demands more time than can be found; so they will grudge every minute that is given to medical examinations. Ill-paid as are most of our teachers, they will at times demur to taking more work on their shoulders, or that any of the scanty school funds should be diverted to paying medical examiners. School discipline is apt to suffer in being broken in upon by such investigations; and some will fear, like the parents, lest we "put notions in the children's heads." An officially constituted group of "lame ducks" for whom forward seats, special illumination or lightened burdens would be required, is an incubus from which some would gladly escape.

Yet it is but just to another noble and valuable class in our midst to insist that the great majority of teachers will cheerfully, if not enthusiastically, hail the promise of better ocular hygiene for their pupils and make any reasonable sacrifice to do or to permit the good work. As a body they will welcome any system which will enable them to do all they can to obviate or relieve danger to their little charges. This spirit should be fostered; and they should be given test-cards and taught how to use them and make other examinations within their scope; for much—all that is possible for some localities, perhaps—can be thus done through the agency of the teachers.

The scholars and their elders will occasionally offer opposition, regarding such examinations as invasions of their liberties. This will rarely occur unless provoked by some indiscretion or arbitrary order of the examiner or school authorities. Yet it can be avoided only by the most scrupulous bearing on the part of the investigator, not only in setting such a study on foot, but even when it is apparently progressing most favorably. An unwilling pupil may be gently ridiculed and passed over until in better frame of mind; any coercion is likely to prove disastrous in these delicate positions. The examiner should even be very cautious as to any leading questions and very chary of remarks as to his findings, generally declining to report in any but the official form. This had

better be in a concise untechnical statement to the school authorities of the vision of each eye, the character of any refraction error and, in the needful cases, that medical aid should be promptly sought, leaving them to transmit it to the parents. Unless officially charged with such a duty, the examiner will be wise to refrain from all prescribing.

When an examination has been authorized, how, where, and by whom shall it be made? We may look forward with hope to a time, not probably in this century, when the new pupils will present themselves for examination, physical as well as mental, before the school opens in which they desire to be enrolled. For the present, we will do well if we secure the investigation of those accepted and beginning their school work. For the examination of these, suitable accommodations at the school itself should be perfectly practicable; and with the needful appliances duly arranged, the study can there be made with the minimum cost of time to examiner and scholar.

Many of the medical examinations thus far made could have been as well, if not better done, by an intelligent layman. Little practice is needed to fit one to measure the acuity of vision. The prime requisite in this and other tests, is the conscientious carrying out of the routine; and in this medical examiners may be as faulty as laymen. So too as to the choice of astigmatic lines, the testing of the color-sense and even taking the range of accommodation. Pennsylvania railroad clerks do this very efficiently under the system devised by Dr. Thomson. Tests of the refraction with spherical glasses and of the muscles with prisms are rather beyond most laymen, as indeed beyond most non-expert physicians. Ophthalmoscopy and ophthalmometry demand the highest skill of the oculist.

What then shall we attempt? Shall we test vision at four feet and seek H. with a +1 lens and then set down as emmetropic and normal, all not thus proved ametropic? Such a piece of work by one ranking as an authority, is probably more quoted than any other study yet made. As well record as all-sufficient, statements of the pupils themselves! Thus much the teachers will probably do more patiently than a physician.

Every simple means of learning the real and important conditions of the eyes should be utilized; since no single examination can possibly be infallible, and we might easily fail to learn the most fundamental facts if we slur our work at all. A study as complete as we give to a puzzling case in private is none too elaborate; for we ought to test the color-sense as well as the vision for far and near, the muscle relations and the accommodation, and determine the refraction and eye-ground conditions. Field-taking can generally be omitted; and, although well used in some of these studies, ophthalmometric measurement of the cornea may be more scientific than practical.

Possession of normal visual sharpness does not at all assure present comfortable use nor future safety, any more than defect of distant vision proves myopia. We must know as accurately as possible what is the refraction, and test the power of the external muscles and of the accommodation, in order to know how the vision is attained and what are its chances of being maintained. Nor will this suffice; for health of the intra-ocular tunics is essential for good function; and we waste one of our best means of

forestalling danger if we ignore the ophthalmoscopic showing as to the eye-ground. Probably we can do no better than follow the scheme used by Risley in the Philadelphia schools fifteen years ago, slightly modified by Randall and employed in his work at the University of Pennsylvania and in the William Penn Charter School, as reported to this Section in 1892. Part of the work can be done by assistants, who need not be medical, just as the employees of the railroad are examined by clerks in the superintendent's office under Dr. Thomson's plan; the methods and results being under the control of the examiner-in-chief, who can largely confine his labors to the strictly expert procedures. Making and recording all the steps himself; the ophthalmologist can easily study from a dozen to twenty scholars in an hour—and division of labor can double the number. Hence two hours a day for a month or two, would suffice for the examination of a thousand pupils, at only such cost of time and effort as most of us habitually give to our clinics.

While few of us may feel moved to inaugurate such studies, in which we should be unhonored laborers and the targets of unfriendly criticism, many would feel in duty bound to consider, and probably accede to, a request from the constituted authorities to undertake such work, even though no honorarium were attached. Many a study has been thus made in the interest of ocular hygiene; and we must look to this as a needful course in many instances in the future, before this matter is placed upon its proper footing. There is evident limit, however, to the possibility and desirability of this; and equity demands that compensation, in small amount at least, should be offered in acknowledgment of the service. This can not often be made more than a mere honorarium, which may induce the best men to accept the duty and thus exclude the unscrupulous, who would try to profit illegitimately by these appointments. One hundred dollars for each thousand examinations made, should be well within the financial possibilities of the school authorities and yet a fee not unworthy of acceptance for a month or two of public work. It would bring an expense of \$12,000 to \$15,000 to Philadelphia annually; but that is little more than Boston is now paying for medical inspection of her schools, merely to guard against infectious diseases, with such a study as we have outlined only in the dim background of the future. Like the vaccine physician and other sanitary workers, the school physician must expect but nominal remuneration, especially while trying to convince the public of his disinterested motives in advocating examinations of the eyes in the schools.

The details of the examination should be recorded on forms spaced for record of the date, school and class; the name, age and sex of the pupil; the report as to the general health as well as that of the eyes, with note of objective evidences of inflammation of lids, conjunctiva, cornea or tear-passages, squint, photophobia, etc.; the visual acuity (stating test and illumination, when unusual), and choice of astigmatic lines at a distance and the near point of accommodation (with far point when limited); the muscle balance by Maddox rod for distance and Graefe test or pen point for near; the color sense by Holmgren's worsteds for each eye; the refraction by retinoscopy and direct ophthalmoscopy, with note of the eye-ground conditions, elaborated perhaps by lens

tests with sphericals in fixed series for retinoscopy and manifest measurements. To this we should add mensuration of length of leg, thigh, back and elbow height in relation to proper seating.

B. ALEX. RANDALL, Philadelphia, Chairman,
W. F. SOUTHARD, San Francisco,
H. B. YOUNG, Burlington,
A. R. BAKER, Cleveland,
G. H. PRICE, Nashville,
Committee.

THE IMPORTANCE OF MINOR CHOROIDITIC CHANGES, ESPECIALLY CONUS.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY B. ALEX. RANDALL, M.D.
PHILADELPHIA, PA.

Among the hundreds of thousands of eyes that have been examined more or less carefully in the schools as to their refraction, but a few thousand have been even looked at with the ophthalmoscope; and only a few hundred studied with reference to the pathologic changes in the eye-grounds. Search for the causative factors in the production and increase of axial distension has led to great elaboration of many phases of the subject; yet this really fundamental one has been commonly neglected. Loring and Derby, Koppe, Scheiding and a few other investigators have recorded the frequency of conus, and Paulsen has also noted its direction in seafaring men, to learn if their frequent upward gaze made them specially prone to conus downward. But few have studied, like Risley and myself, the general normal or unhealthy condition of the fundus in its bearing upon changes of the refraction in actual progress.

This matter in its relation to general ophthalmic practice as well as in school examinations, is worthy of far better attention. In the routine recording of almost every case, the condition of the nerve margins, the macula and the general eye-ground should receive careful scrutiny and record. I have heard this laborious detail on the part of some Philadelphia men strongly criticised as superfluous by men trained in the best foreign clinics and returning to instruct their countrymen. If Hirschberg, Landolt, Fuchs, Nettleship and others do this only in exceptional cases, why should we do otherwise? Another question may serve as answer. When the ophthalmic world regards myopia as a condition commonly, nay usually, progressive, why are progressive cases rare in the practice of these over-minute Americans?

That the macular region should habitually be closely studied, few will question; although some of the journal articles about it seem akin to old ophthalmoscopic hand-book statements that "some observers claim to have seen the macula in life."

The facility, if not indeed the practicability of such study is less to those who make little use of mydriatics or who accept failure in such scrutiny before they have even attempted it. Those who practice it whenever at all possible, will be well rewarded. Not only will many cases of renal disease be thus detected long before the usual symptoms have attracted attention; but many peculiar minor lesions will be noted, of which the meaning is not yet so clearly understood. Yet lesions in this region of supreme importance can not be too early or carefully investigated. Hirschberg asserted not long since

that the majority of senile eyes showed gross alterations at the posterior pole in a way that suggested that he had not long been as familiar as he should have been with these lesions, nor examined enough eyes carefully to have learned how many are totally free from them.

As to the "conus" and crescent formation at the nerve margin, much as has been done and written for its elucidation, there is great need for farther and better study. Little advance has been made since von Jaeger's investigations a quarter-century ago, although many a backward step has been taken, which has complicated the matter for later students. Some deny, like Stilling, that there is an inflammatory element in its causation; regarding the white crescent more or less exposed, as a glimpse into the distended nerve sheath. Yet daily observation teaches us that this is rarely true, and that the common changes at the nerve-margin have no *certain* relation to the distended nerve sheath and other gross posterior alterations. We have most of us seen these crescents appear as orange-red areas where there was little pigment-heaping to obscure the process; and, perhaps have seen them disappear with quite the same rapidity. Those who have failed to make verbal or pictorial note of this, have doubtless distrusted their observations; for hardly any one has written about it. More often the change has been in the absorption of the pigment ring, both at the outer and inner margin; and this becomes broken, gray, double-ridged, then semi-atrophic and before the cycle is completed by its full atrophy and uncovering of the sclera, the process is being repeated in one or more crescents beyond the first. Three and sometimes four of these crescents will be seen in one eye, revealing at one glance the steps of the change; the outermost being fairly recent and perhaps still amenable, like any other choroiditic patch, to treatment by mydriatic rest and alteratives. That they are generally of inflammatory nature can be doubted by few close observers; too often they have passed unstudied if not noted, and their significance has been lost sight of. At the inner margin, the double-ridged gray crescent is regarded by Nagel as a *supra-traction* of the choroid, such as v. Jaeger described and drew in his "*Einstellungen*," and Weiss has demonstrated in myopic eyes. This is quite clearly the case in a few instances, and the curvilinear nasal reflex of Weiss, to which I have several times called attention, is present to show the distorted prominence of the locality. Yet any one who will sketch a few thousand eye-grounds will find his portfolio, like mine, more stocked with exceptions than instances of most these ill-grounded theories.

Transparent as is the normal retina, its fibers are usually visible to close study along the larger vessels above and below the disk; while weak illumination will make still other of its structures apparent around the margin. The increase of this opacity is very marked in some cases of retinitis; but short of this, we may have many undefined grades of haze which belong, like the exaggerated striation, to conditions better termed irritative than inflammatory. This phrase should not imply that they are not due to true low-grade inflammation. It marks in the usage of some men, that they have little tendency to progress into the serious infiltrated and extravasating lesions which we commonly associate with the name retinitis. Usually accompanying the minor retinal

alterations are parallel changes in the choroid, due to little more perhaps than hyperemia, yet generally quite recognizable. The delicate stipple of the retinal pigment layer is lost in the fluffier appearance that Risley has well likened to canton flannel. Let this long persist unrelieved, and absorption will become evident, which lays bare the larger choroidal vessels and heaps the pigment in their interspaces. Most juvenile eyes, even in brunettes, show in the periphery some uncovering of the choroidal circulation; and in blondes this almost attains the albino type. But it is quite another thing to find visibility of the vessels of the choroid near the disk; and clouds of pigment heaping in the stroma between them, mark the pathologic nature of the process. There should be as little question as to the meaning of the picture, in these commonly ignored cases, as in those where it forms part of most serious processes.

The apparent vascularity of the nerve-head has wide variations within normal limits; depending largely upon the size and depth of the central excavation, the visibility of the scleral ring, the size of the pupil and even the refraction. One can at times see his own optic disk flush under the irritation of prolonged autophthalmoscopy, and realize that similar fleeting variations are often presented to his study. With any persistent hyperemia, there is apt to be a visible distension of the lymph sheaths surrounding the retinal vessels and pulsation, often very striking, in the large retinal veins. No single feature of this may be beyond possibly physiologic limits, yet the complex is one that should be unmistakable to the careful ophthalmoscopist. Slight tortuosity of the smaller vessels may be indistinguishable from their normal sinuous course; but this aberration can not seldom be actually followed through every stage up to that of marked neuro-retinitis, in cases where eye-strain from refraction error seems the only assignable cause. The configuration of the disk, with the form of its *porus* and the trend of the vessels on and near it and the other features of what Thomson has termed "drag," also deserve distinct note, as furnishing evidence that the tissues near the pole are actually undergoing the plastic changes for which the hyperemic softening has prepared them.

Minute observation and note of the conditions of margins and excavation of the nerve, the trend of the vessels, the absorption of the choroid ring and the general hyperemia and pigment disturbance of the eye-ground, repeated at intervals, will generally demonstrate progressive changes about the posterior pole and serve to explain why the patient suffers so much asthenopia in the process. Sketches, however rude, can give accurate portrayal of the proportions of disk, vessels, *porus*, crescent, etc., and serve better than any verbal note to make evident the changes from time to time. And this not only in eyes progressively myopic or other cases of changing refraction, but in a few where the hypermetropic refraction remains unaltered. And in the cases of progressive myopia, a group to which Risley has called attention, will be brought more clearly forward, in which no alterations appear at the posterior pole to indicate staphyloma there, while the marked choroiditic disturbances at the equator mark this as the site of the stretching which is lengthening the optic axis.

1806 Chestnut Street.

A STUDY OF THE REFRACTION OF SEVENTEEN HUNDRED EYES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. BERT. ELLIS, M.D.
LOS ANGELES, CAL.

The question of refraction is one that plays no unimportant part in the daily work of many oculists in our large cities, and of most oculists in our medium and smaller cities. With many it forms the great bulk of their work.

I present for your consideration to-day, in tabular form, a study of the refraction of 1,700 eyes, representing 869 patients taken from the last 1,000 consecutive eye cases coming under the care of the writer in his private practice. Of the 131 cases not incorporated in this study, some were infants with various inflammatory troubles and some operative cases, five only being presbyopes with emmetropic eyes. Thus you will see that about 87 per cent. of all my eye cases required correction of ametropia. Dr. Geo. M. Gould in a paper on these very lines, read before this Section in 1891 said that 93 per cent. of his eye patients required correction of errors of refraction. If, therefore, from 85 to 95 per cent. of all eyes that come under the oculist's care need errors of refraction corrected, it will be wise for all of us to give the subject some little consideration.

Of the 869 patients whose eyes form the basis of this study, 613, 70 per cent., were females, and 256, about 30 per cent., males, a proportion of nearly 2.5 to 1. The same general laws underlie this disproportion between the sexes in ophthalmologic practice that cause a similar disproportion of males and females in other branches of medical work, *e. g.*, among the women we find less general vigor; less active life, with closer confinement; more constant and finer work in the application of the eyes; and last but not least a more sensitive and high-strung nervous mechanism.

Although 19 per cent. of the patients were presbyopic, no account is taken of the presbyopia in these tables. In 66 per cent. of the patients under 40, a mydriatic was used; ordinarily I employed ophthalmic disks composed of homatropin and cocain, of each 1-50 gr., to produce mydriasis. Where the use of three or four of these disks in each eye within a period of one and a half hours failed to quiet accommodation, I used a few drops of an atropin solution, 4 grs. to the ounce, in each eye four times daily for three days. I have, however, had but few cases in which I have had to resort to this method. I have left out of this study all aphakic eyes, and all eyes in which disease of the refracting media or fundus had impaired refraction. In the preparation of my tables I followed the same general plan adopted by Dr. Gould in his paper of four years ago.

I have in Table I given the general refraction of 1,700 eyes; 1,371, or a little over 80 per cent., were hyperopic; 282, 16.59 per cent., myopic; while 47 were myopic in one diameter and hyperopic in the other. Of my hyperopic cases, I found only 16 per cent. with simple hyperopia, 84 per cent. had astigmatism simple or compound, the simple astigmatism amounting to 37 per cent. of all the hypermetropia. Among the myopic patients we find very nearly the same proportion; 17 per cent. of simple myopia, 32

per cent. of simple myopic astigmatism and 51 per cent. of myopia with myopic astigmatism.

Table 2 gives the amount of hyperopic correction in 867 eyes, but does not include the astigmatism. It will be noted that 42 per cent. of the eyes had hyperopia of 0.50 D., or less and 31 per cent. had less than 1.75 D. The eyes having hyperopia combined with astigmatism outnumbered the simple hyperopic eyes more than 3 to 1. Although the table shows so large a number of eyes with small hyperopic errors, it must not be supposed the total error was correspondingly small, because with small amounts of hyperopia, I frequently found large amounts of astigmatism.

Myopia is classified in Table 3. In comparison with the hyperopic table, we find only 31 per cent. of the eyes have errors of 0.50 D. or less, against 42 per cent. of the hyperopic eyes; and 62 per cent. against 81 per cent. with errors less than 1.75 D. On the other hand, it will be seen that over 21 per cent. of the myopic eyes have between 5.50 D. and 22 D. of error, while less than 2 per cent. of the hypermetropic eyes had corresponding errors.

Of the 1,700 eyes whose refraction was measured, 1,434 were astigmatic, but in 47 of these the astigmatism was mixed, and I have consequently given them a table by themselves. The varying amounts of astigmatism in the remaining 1,387 eyes is given in Table 4; 1,158 of the eyes, 83 per cent., had hypermetropic astigmatism. In 72 per cent. of all the astigmatic eyes the error was less than 0.75 D., while 92 per cent. of the eyes had errors less than 1.75 D.; 494 of the eyes had only 0.25 D. of astigmatism, and yet I found it both wise and expedient to correct the greater number of these small errors. As we would naturally expect, we find relatively a large number of small degrees of hyperopic astigmatism, and proportionately large errors of myopic astigmatism; for instance, 20 per cent. of the myopic astigmatic eyes had errors above 2 D., while only 3 per cent. of the hyperopic astigmatic eyes had correspondingly large errors.

The axes of the 1,434 astigmatic eyes are classified in Table 5. I have used the term unsymmetrical, in a somewhat narrow sense and not with its usual significance. In Table 5, unsymmetrical simply means the departure of the axis of any given eye from 90 or 180° without reference to the axis of its fellow, excepting where the axes of the pair is symmetrical. Under axis 90°, I have included every eye having its axis so placed, irrespective of the fact of the fellow eye having no astigmatism, or the axis at 180° or some oblique angle; and, similarly, all axes at 180° are placed together; 55 per cent. of all astigmatic eyes had their axes at 90°, while 25 per cent. had them at 180°, leaving only 20 per cent. with oblique axes. Among the hyperopic astigmatic eyes, 62 per cent. were according to rule at 90°, and 20 per cent. contrary to rule at 180°; while in the myopic table only 51 per cent. are according to rule at 180°, and 24 per cent. against the rule at 90°. The unsymmetrical cases were relatively more numerous among the myopes.

The unsymmetrical axes or those varying from 90° and 180° are grouped in Table 7, and it will be seen that, among the hyperopic eyes, 49 per cent. of the unsymmetrical eyes had their fellow eyes with astigmatism at 90°, and 12 per cent. at 180°; and in the myopic division 9 per cent. had fellow axes at 90°, while 21 per cent. had them at 180°. Of the 201

unsymmetrical eyes, 52 per cent. have the axis of their fellow eye at 90° or 180°. In studying the deviation of the axes from 90° and 180°, I find no definite rule, but simply a tendency of the hyperopic axes to be near 90°; and of the myopic axes to depart but little from the horizontal diameter. For instance, thirty-six of the hyperopic astigmatic eyes had their chief diameter at 75°; twenty-four at 105°; thirteen at 60°, and seventeen at 20°. Seventy per cent. of these hyperopic variations diverged within 30° of the perpendicular diameter on either side. In the myopic variations, six were at 165°; seven at 150°; seven at 15°, and twelve at 30°, while 65 per cent. were within 30° of the horizontal diameter, which is in accord with the ordinary teaching. In Table 5, the axes of all my astigmatic cases were given; but in Table 4, the refraction of forty-seven eyes, the mixed astigmatic cases, was omitted. The refraction of these forty-seven eyes, expressed in terms of crossed cylinders, is given a table by itself. We have, however, no particular lesson to draw from it, or point of interest to call to your attention, excepting a fact, which the table itself does not show, and that is, that it required but weak glasses to make the correction in the greater number of these eyes.

TABLE 1.—GENERAL REFRACTION—1,700 EYES.

	Eyes.	Per cent. of II	Per cent. of all.
Simple hyperopia	218	15.90	12.82
Simple myopic astigmatism	504	36.76	29.65
Hyperopia plus hyperopic astigmatism	649	47.34	38.18
	1,371	100.00	80.65
<hr/>			
		Per cent. of M.	
Simple myopia	48	17.05	2.82
Simple myopic astigmatism	89	31.56	5.24
Myopia plus myopic astigmatism	145	51.41	8.53
	282	100.00	16.59
<hr/>			
Mixed astigmatism	47		2.76
	1,700		100.00

TABLE 2.—REFRACTION OF 867 HYPEROPIC EYES, ASTIGMATISM NOT INCLUDED.

0°	II	II Ah	II II and Ah	Eyes.	Per cent. of II	Per cent. of all.
1-4	8	112	120	364	41.98	21.41
1-2	68	176	244			
3-4	31	94	125			
1	35	79	114	239	27.56	14.06
1-4	21	32	53			
1-2	9	36	45			
1-3-4	7	19	26	50	5.77	2.94
2	6	18	24			
2-4	4	10	14			
2-1-2	2	11	13	53	6.13	3.12
2-3-4	3	11	14			
3	4	8	12			
3-1-4	1	4	5	28	3.23	1.65
3-1-2	7	7	14			
4	4	5	9			
4-1-2	3	13	16	20	2.30	1.18
5	0	4	4			
5-1-2	1	3	4			
6	3	3	6	15	1.73	.88
7	1	1	2			
7-1-2	0	1	1			
8	0	2	2			
	218	649	867	867	100.00	51.00

In Tables 8 and 9 are given respectively, tabulated statements of "ocular reflexes" and "reflex neuroses of possible ocular origin" occurring in the 869 cases of refraction which this paper includes. That Table 8 shows a total of 1,467 cases is explained by the fact that two or more of the symptoms frequently occurred in the same individual. Distress from reflected

light I find to be the most common ocular reflex complained of, while aching or pain in the eye was not infrequently mentioned, and blepharospasm and blepharitis were quite common. There were ninety-seven cases of marked conjunctivitis and seventy-eight cases of excessive lacrymation. Of the symptoms in the reflex neuroses of possible ocular origin, I can only say I have emphasized possible, and will only add that they existed singly, in pairs and sometimes *in toto*, but to say that they all arose from eye strain is far beyond my desire. That many of them were of ocular origin I have but little doubt, and this is especially so in regard to the headaches which existed in 527 cases; about 60 per cent. of the

TABLE 3.—REFRACTION OF 193 MYOPIC EYES, ASTIGMATISM NOT INCLUDED.

0°	M	M Am	M M and Am	Eyes.	Per cent. of M.	Per cent. of all.
1-1	0	15	15	59	30.57	3.47
1-2	11	33	44			
3-1	5	11	16	42	21.76	22.47
1 1-1	9	17	26			
1 1-2	8	4	7	18	9.33	1.07
1 3-1	2	9	11			
1 3-2	1	6	7	14	7.25	.82
2 1-1	1	6	7			
2 1-2	1	1	1	6	3.11	.35
2 3-1	2	0	2			
3 1-1	1	1	1	10	5.18	.59
3 1-2	0	5	5			
4 1-1	0	4	4	3	1.56	.17
4 1-2	0	2	2			
5 1-1	0	2	1	3	1.56	.17
5 1-2	0	2	1			
6 1-1	0	2	1	3	1.56	.17
6 1-2	0	2	1			
7 1-1	0	2	1	3	1.56	.17
7 1-2	0	2	1			
8 1-1	0	4	4	4	2.08	.23
8 1-2	0	4	4			
9 1-1	0	3	3	4	2.08	.23
9 1-2	0	3	3			
10 1-1	2	0	2	41	21.24	2.41
10 1-2	2	0	2			
11 1-1	0	2	2	4	2.08	.23
11 1-2	0	2	2			
12 1-1	2	2	4	4	2.08	.23
12 1-2	2	2	4			
13 1-1	3	0	3	3	1.56	.17
13 1-2	3	0	3			
14 1-1	0	1	1	2	1.04	.12
14 1-2	0	1	1			
15 1-1	0	3	3	3	1.56	.17
15 1-2	0	3	3			
16 1-1	0	2	2	2	1.04	.12
16 1-2	0	2	2			
17 1-1	0	1	1	2	1.04	.12
17 1-2	0	1	1			
18 1-1	0	3	3	3	1.56	.17
18 1-2	0	3	3			
19 1-1	0	2	2	2	1.04	.12
19 1-2	0	2	2			
20 1-1	0	1	1	2	1.04	.12
20 1-2	0	1	1			
21 1-1	0	1	1	2	1.04	.12
21 1-2	0	1	1			
22 1-1	0	1	1	2	1.04	.12
22 1-2	0	1	1			
	48	145	193	193	100.00	11.35

TABLE 4.—REFRACTION OF 1,387 ASTIGMATIC EYES.

0°	H As	M As	M As and H As	Per cent. of H As	Per cent. of M As	Per cent. of H As and M As
1-4	460	34	494	78.06	41.45	71.88
1-2	900	97	997			
3-4	102	63	165	13.27	25.21	15.28
1	51	27	78			
1 1-4	20	7	27	3.81	7.27	4.40
1 1-2	44	17	61			
1 3-4	6	10	16	1.82	6.41	2.60
2	21	15	36			
2	15	9	24	1.91	14.10	3.97
2 1-4	7	5	12			
2 1-2	9	9	18	1.91	14.10	3.97
2 3-4	22	33	55			
2	0	4	4	.87	2.14	1.08
3	6	15	21			
3 1-4	1	1	2	.87	2.14	1.08
3 1-2	6	3	9			
4	3	1	4	.26	3.42	.79
4 1-2	1	1	2			
5	1	5	6	.26	3.42	.79
5 1-2	0	3	3			
6 1-2	0	1	1	.26	3.42	.79
8	1	0	1			
	1,153	234	1,387	100.00	100.00	100.00

It will be noted that reflected light forms a very large percentage of complaints among the ocular reflexes. This is without doubt a greater factor with us in Southern California than in the other parts of the United States, accounted for solely by the fact that we have very white roads and streets, accompanied by about three hundred bright sunshiny days each year. When correction of the error of refraction fails to relieve this distressing symptom, I have found that greater relief is given by light blue than London smoked glasses.

107 North Spring Street.

SYMMETRICAL AND ASYMMETRICAL MERIDIANS OF THE CORNEA IN ASTIGMATIC EYES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. D. RISLEY, M.D., AND JAMES THORINGTON, M.D.
PHILADELPHIA, PA.

Much practical interest attaches to the symmetrical and asymmetrical direction of the principal meridians of corneal curvature in astigmatic eyes. My attention has been directed anew to the subject by the interesting papers of Drs. Knapp and Harlan, (*Trans. Am. Oph. Soc.* 1894) and by some recent studies of my own on the relation of asymmetrical meridians in the cornea and different grades of refraction error in the two eyes, to cases of abnormality of ocular balance. (*University Medical Magazine*, January, 1895). That these asymmetrical conditions give rise to the more severe forms of asthenopia can not be questioned. I have repeatedly brought forward statistics to show that emmetropia must be regarded as the standard refraction for the model eye, since emmetropic eyes and those which most nearly approximate this ideal state of refraction, bear the requirements of civilized life with a minimum of discomfort or peril. If this is true, eyes which do not conform to this standard are to be regarded as anatomically defective. It is a curious fact that these congenitally defective eyes should in so large a percentage of cases seem to fall under the operation of some law of symmetry. It has long been observed that in a large percentage of astigmatic eyes the meridian of shortest radius for each eye is either directly vertical, *i.e.*, 90° from a horizontal line, or symmetrically disposed to the vertical axis of the body. Knapp found this to be the case in 84 per cent and Harlan in 70.14 per cent. This fact awakens the most interesting inquiry regarding the anatomic conditions which determine it and also as to those which give rise to the very frequent variations. Any satisfactory answer, however, to such inquiries is extremely difficult to obtain.

Observations of certain anomalous conditions which obtain in cases of anisometropia with high grades of asymmetrical astigmatism seem to justify the belief that the form of the eyeballs is in great measure determined by the size of the bony orbits, and that the orbits are in turn modified in their various diameters by the abnormalities in the form of the skull. It is obviously difficult to secure the required data as to the form of the eyeballs in any given series and to subsequently measure the diameters of the orbits in the same individuals, but, a cursory in-

spection of a small number of dried skulls has shown me great variation in the measurements of the diameters of the orbits, that these variations were only a part of certain well-defined deformities in the diameters of the skull, and that the abnormalities in the orbits were associated with anomalous conditions in the bones of the face and nasal fossa. The purpose of the present study is to show to what extent these anomalous forms find expression in asymmetrical conditions in the direction of the principal meridians of curvature as expressed in astigmatic eyes. The present paper presents but one phase of the subject. I have observed in a number of patients presenting a wide difference of refraction in the two eyes, with high astigmatism in one and much lower in the other, and with asymmetrical meridians, that the condition was associated with a well marked difference in the two sides of the face. In a few instances the general deformity of the skull could be demonstrated by the latter's form. While the relation between these conditions and the ocular anomaly may seem quite obvious in marked cases of deformity, it is more difficult to demonstrate any association in minor degrees of error; nevertheless they suggest not only the probable etiology of the astigmatic eye and its asymmetries, but also the probable origin of many cases of absolute abnormality in the ocular balance.

The following tables are based upon the analysis of 2,500 pairs of defective eyes, 1,300 from the records in my private case-books and 1,200 from the Wills Hospital records. In both the cases were taken without selection in the reverse order of application for treatment. The corrections were all made with the eyes under the full influence of a cycloplegic, the design being to ascertain as accurately as possible the static refraction of each eye in every case. To this end the ultimate test was the subjective examination, but this was, almost without exception, aided by the employment of the ophthalmometer of Javal and Schiotz, and the shadow test, one or both. In the private records, in a large number of cases both were used, while in the hospital cases the shadow test was employed in almost every case. The two records are kept separate in the tables to show the importance of great care in determining the refraction of the eyes. In the haste which it is necessary to observe in the crowded clinic room where a limited time only can be devoted to the correction of a large number of patients, it is not possible to give the painstaking care that is given during the longer time devoted to work in the private office. The result of this greater care, to absolutely reduce every eye to the optical basis of emmetropia, is shown by the different results reached. Then in the public service it was not always deemed necessary to correct the eyes of those employed in coarse labor, with the same accuracy as would be observed in the case of those engaged in finer pursuits.

The analysis discloses the percentage of simple myopia and hypermetropia, of monocular and binocular astigmatism. In the latter group the symmetrical and asymmetrical direction of the meridians of shortest radius were carefully noted. The result is disclosed in the condensed tables, which have been prepared with great care by Dr. Thorington.

All cases are grouped as symmetrical, where the combined value of the inclination of the meridians was 180° of linear development on an arc, counting from 0° on a horizontal line. Thus, if the meridian

of shortest radius was at 90° in both eyes, or at 60° on one side and 120° on the other, or at 75° and 105° respectively, they were recorded as symmetrical, since the sum of their values is in each case 180° , and so for any other inclination, *e. g.*, 0° and 180° or 15° and 165° , and so on. These symmetrical inclinations are divided into those according to rule (homologous astigmatism), *i. e.*, where the shortest radius was at 90° or approximately so, and those against the rule (heterologous), that is to say where the shortest radius was found at 0° or approximated the horizontal nearer than the vertical direction. The asymmetrical cases were also grouped according as the direction of the meridians approximated the vertical or horizontal direction. All cases where the combined values in degrees were greater or less than 180° are placed in the asymmetrical groups unless the meridians were at right angles. They were then placed in the group of heteronymous astigmatism. In the rare instances where the meridians were inclined from the vertical or horizontal, but were parallel to each other, they have been placed under the head of homonymous astigmatism. For example, if the axis of the correcting cylinder were required at 90° on one side and 75° or 60° on the other, it will be found under the head of asymmetrical astigmatism according to rule. If the axis was placed at 0° and 150° , respectively, it was placed under asymmetrical astigmatism against the rule. If at 0° and 90° , respectively, the case fell under the category of heteronymous, whereas if both axes were required, for example, at 60° or at 120° , it was recorded as homonymous astigmatism.

SUMMARY OF REFRACTION ERRORS AND DIRECTION OF MERIDIANS OF SHORTEST RADIUS IN 2,500 PAIRS OF EYES—1,300 IN PRIVATE—1,200 IN HOSPITAL RECORDS.

	Private.	Hospital.
Simple myopia.	7 .5%	25 2.0%
Simple hypermetropia.	72 6.0	253 21.0
Monocular astigmatism.	70 5.0	94 7.8
Binocular astigmatism.	1,151 88.5	828 69.0
Total cases.	1,300	1,200
	Private.	Hospital.
Binocular symmetrical astigmatism.	694 60.2%	613 74.4%
Binocular asymmetrical astigmatism.	310 26.8	158 19.8
Heteronymous astigmatism.	123 10.6	40 5.2
Homonymous astigmatism.	24 2.1	17 1.2
Total binocular astigmatism.	1,151	828
Symmetrical astigmatism.		
(a) According to rule (homologous).	543 78.2%	559 97.7%
(b) Against rule (heterologous).	151 21.8	54 2.3
Total symmetrical astigmatism.	694	613
Asymmetrical astigmatism.		
(a) According to rule.	223 71.8%	126 79.1%
(b) Against rule.	87 28.2	32 20.9
Total asymmetrical astigmatism.	310	158
DIRECTION OF MERIDIAN OF SHORTEST RADIUS IN ALL CASES OF SYMMETRICAL ASTIGMATISM.		
Meridian at 90°		57.0+%
Meridian inclined 15° or less on each side.		19.7+
Meridian inclined from 15° to 30°		4.0—
Meridian inclined from 30° to 45°		1.0
Meridian at 180° or 0°		12.0
Meridian inclined 15° or less.		4.0—
Meridian inclined from 15° to 30°		2.0
Meridian inclined from 30° to 45°5

1772 Walnut Street.

LATENT ASTIGMATISM.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HORACE M. STARKEY, M.D.
CHICAGO.

For a number of years the conviction has been deepening in the mind of the writer that latent astigmatism plays a much more important rôle in the production of asthenopia than is usually supposed, if

one may judge from the attention given to this subject in text-books and monographs. This conviction has been more decided, since it has become more common to give patients lenses correcting the apparent error, to be worn continuously for one or more days, after which another test of the refraction is made.

Some of the members of this Section may remember that the writer one year ago mentioned with praise the practice, common with some ophthalmologists, of giving lenses, not only spheres but cylinders, to patients to be worn a few days for trial before writing the prescription for permanent glasses. Again, your attention is called to this procedure with the certainty that no one of you who may employ it will willingly discontinue a plan so satisfactory both to physician and patient. For convenience, the oculist must provide himself with a number of pairs of light spectacle frames, of various dimensions and differing in no way from ordinary spectacle frames except that the cells must be round instead of oblong, so that cylinders and prisms may be rotated in any direction. With a supply of lenses ground to fit these frames the oculist can, in a moment, adjust almost any combination. It is all very well to say that a cycloplegic must be used in every case and that full correction of the error thus found must be prescribed. But often this is absolutely impracticable. Many patients will not submit, but will go to the optician and take whatever he may offer, rather than subject themselves to the action of even the most evanescent of the cycloplegics. Many of the busy men and women in banks, stores and schools who most need skilled services, are willing to take half an hour or an hour a day for a week or two if necessary, but absolutely refuse to give up the whole of one or more days. While not ideal this method has much to commend it and leads to correct results. Not the least point in its favor is the fact that it keeps the patient comfortable from the first; which with the nervous, the irritable and the skeptical is no small matter. Since proceeding in this way with many cases, the frequency with which latent astigmatism is a very important factor in the causation of asthenopia has been forced upon the writer's attention as never before. And this because it presents a much more vivid object lesson, when one works out the refraction as carefully as possible with the ophthalmoscope, the retinoscope and the test lenses, gives a cylinder which seems to correct the error and finds, when the patient returns in one or two days, the former amount of manifest astigmatism doubled, and after a further time, that a still higher degree of astigmatism has become manifest. This method presents a much more vivid object lesson than the correction of the same error under a cycloplegic. These object lessons became so frequent that they could not be ignored and led to a re-examination of the text-books on ophthalmology to learn the teaching of the authorities on this point. This teaching, as shown by twelve recent works, may be briefly summarized as follows: in the following, De Schweinitz, 1892; Juler 1893; Norris and Oliver 1893, and Kies 1895, nothing on this topic could be found.

Nettleship, "Diseases of the Eye," 4th American Edition, 1890, page 354, has the following: "There seems no doubt that in young persons with vigorous accommodation, the astigmatism of the cornea is often partly corrected by the ciliary muscle acting unequally on the different meridians of the

lens; and that the seemingly greater frequency of astigmatism in the presbyopic is due to the impairment of this power."

Schmidt-Rimpler (Roosa) 1889, "Ophthalmology and Ophthalmoscopy," pp. 82, 83, says: "Differences in the meridional curvature of the lens occur occasionally from partial contraction of the ciliary muscle and, if situated in the opposite direction, serve to diminish the corneal astigmatism." . . . "In rare cases, astigmatism depends solely on anomalies in the curvature of the lens and disappears after the use of atropin." And again, page 88: "In all these tests the results are often disturbed and confused by partial contraction of the ciliary muscle, which as we have mentioned may cause diminution, and even abolition of the astigmatic error of refraction. The use of atropin relieves this difficulty, but it is to be noted that the correcting lenses which are then found, are often discarded by the patient on the restoration of accommodation."

From "Errors of Refraction," Valk, 1890, page 158: "Let me caution you at this point that you may meet cases of astigmatism that will be concealed or caused by irregular contraction of the ciliary muscle, thus changing the refraction of the lens in different meridians. This condition you will discover by the action of atropin, and by the ophthalmoscope." He also gives several examples among the "illustrative cases," where astigmatism was made evident or increased by use of atropin.

Fuchs' "Text-book of Ophthalmology," 1892, p. 655: "Another cause of asthenopia lies in the endeavor of the astigmatic patient to correct his astigmatism by means of his accommodation. For this to be effected, it is necessary that the act of accommodation shall take place with a varying degree of force in the separate meridians of the lens. That this can be done, is proved by the fact that after atropinization the astigmatism is not infrequently found to be considerably higher than before."

Berry, "Diseases of the Eye," 1893, page 556, teaches that corneal astigmatism according to rule is lessened by lenticular astigmatism, while that contrary to rule is increased by the action of the lens.

"Anomalies of Refraction and of the Muscles of the Eye," Tiffany, 1894, p. 208: "Astigmatism is frequently concealed by the power of accommodation, especially in the low degrees. In these individual cases, as before said, complete mydriasis is imperative that the true conditions may be revealed."

Noyes, "Diseases of the Eye," 1894, p. 114: "Astigmatism of the lens may increase or diminish that of the cornea. Javal has shown that a small fraction of the total astigmatism is due to the lens; he has also shown that by accommodation the lens may partly or wholly neutralize asymmetry of the cornea. He, and before him, Dobrowsky, attributes this to unequal contraction of the ciliary muscle." . . . "Latent and manifest astigmatism refer to the influence of the accommodation in concealing or modifying the error."

Roosa has considerable to say about the position and shape of the lens as permanently modifying corneal astigmatism, but says little about astigmatism becoming latent. Roosa, "Treatise on Diseases of the Eye," 1895, p. 497: "The subtraction of half a dioptré," (from the corneal astigmatism as shown by the ophthalmometer) "for the neutralizing action of the lens will generally give, in astigmatism with

thé rule, the degree that remains for correction, and as Donders stated in 1864, in the English language, the total astigmatism of the dioptric system of the eye: . . . "In corneal astigmatism against the rule, the action of the lens does not, (whatever it may be) practically relieve the astigmatism. It must then be fully or over-corrected in order to relieve the symptoms."

We find that of these well-known authors, four do not mention the subject; two speak of the lenticular astigmatism as modifying that of the cornea, but do not mention the correcting action of the ciliary muscle, and six show such action as an important and always to be remembered factor. In so far as any mention is made of the point, it is taught that the action of the lens only corrects corneal astigmatism when the latter is according to rule. The writer's cases, however, show that a portion of the astigmatism may be latent, whether the meridian of greatest curvature is vertical, horizontal or diagonal. To illustrate how latent astigmatism may be rendered manifest by the use of cylinders, ten cases seen in private practice during the last four months of 1894 are taken. Each of these showed an increase of from 0.25 to 1 D. in the manifest astigmatism. They were all relieved of severe asthenopia by the use of cylinders and have had no return of the asthenopia in the intervening time, four to eight months. (About the same number of similar cases have been seen since Jan. 1, 1895.) For lack of time but four cases are given in detail.

Case 1.—Mrs. H., stenographer, age 28. Had been unable to work for several months on account of headache from which she has always been a sufferer. Apparent astigmatism of 0.37 D. according to rule increased by use of glasses two days to 0.62 D., which gave complete relief so that work was resumed. Relief has continued to the present time without further increase of astigmatism.

Case 2.—Mr. M., medical student, age 22. Apparent astigmatism of + 0.37 D. at 105° and 100° increased to + 0.88 D. at same angles.

Case 3.—Frances F., age 13. Apparent astigmatism of + 0.37 D. × 90 each eye, increased to + 1 D. and + 0.88 D. × 90.

Case 4.—Mrs. Dr. W., age 41. First seen Sept. 6, 1894. Eyes tire quickly and she has much headache, particularly after going to theater or other places where faces are watched. Examination shows astigmatism, which appears to be corrected by + 0.37 D. C. × 90 each eye, which glasses seeming very restful, are given for use for twenty-four hours. September 7. Requires + 0.75 D. C. × 90 each eye, which were given September 8. Requires + 1 D. C. × 90 each eye. Prescribed + 1 D. C. × 90 for each eye. These glasses have been worn continuously since with great satisfaction and comfort, though the left eye would now take + 1.25 D. C.

Case 5.—Mrs. J. F. D., age 31. Apparent astigmatism of + 0.62 D. and + 0.37 D. × 180 increased to + 1.25 D. and + 2 D. × 180. Subsequent use of cycloplegic showed this to be the total amount of astigmatism.

Case 6.—Miss C. E. W., trained nurse, age 29. Has had very severe and almost constant headaches for many years. October 2, apparent astigmatism + 0.62 and + 0.50 D. × 90, for which lenses were given. October 4 accepts + 0.88 and + 0.75 D. C. × 90. October 5. No headache, though eyes were used much by artificial light at fancy work, etc., to try them. Likes + 0.88 for each eye, which was given with complete relief.

Case 7.—Mr. J. B. C., age 24, copyist. Apparent astigmatism of + 0.37 D. and 0.25 D. contrary to rule increased to + 0.62 and + 0.50 D. at same angle.

Case 8.—Mr. R. A. S., medical student, age 32. Dec. 13, 1894. Has worn + 0.50 D. C. contrary to rule for each eye for about five years. Have not seemed right of late. Requires now + 1 D. C. × 15 and + 0.62 D. C. × 180. These are given. December 17. Has used above with much more comfort than former glasses. Now requires + 1.25 D. C. × 15° and + 0.88 × 180, which are tried. December 21, likes above very much, so prescribed + 1.25 D. C. × 15° and + 0.88 × 180, which give entire satisfaction.

Case 9.—Miss O. B., age 31. Dec. 12, 1894. Apparent astigmatism of right eye corrected by $+0.75$ D. C. $\times 60$; left eye hyperopic 1.25 D. These lenses worn till December 31, when R. E. requires $+1.50$ D. C. $\times 60$, which is given. Jan. 3, 1895, R. E. requires $+1.75$ D. C. $\times 60$. Further astigmatism not developing, $+1.75$ D. C. $\times 60$ and $+1.25$ D. S. were prescribed. These have been used with comfort ever since and eyes are used more easily than for many years.

Case 10.—Mr. G. H. C., age 24. Clerical work. Has constant headache and eyes tire easily. Appears to require -0.25 D. C. $\times 90$, but retinoscopy favors $+0.25$ D. C. $\times 180$. -0.25 D. C. $\times 90$ for three days were not comfortable. Used $+0.37$ D. C. $\times 180$ three days, without headaches and could use eyes much more easily. Now finds $+0.50$ D. C. $\times 180$ good, and three days later $+0.62$ D. C. $\times 180$, which were finally given. Eyes have since been used without headache or weariness.

We see that of these ten cases, four had astigmatism according to rule and a fifth had the angles but 10° and 15° from the vertical; three had astigmatism contrary to rule and one varied but a few degrees from this; one had the very irregular angle of 60° . Seven eyes show an increase of 0.25 D. in the astigmatism; three show 0.37 D.; two 0.50 D.; five 0.62 D.; one 0.75 D., and one 1 D. increase in astigmatism.

SUMMARY.

1. Latent astigmatism is a frequent and important cause of asthenopia.

2. The latent astigmatism may in many cases be made manifest without a cycloplegic and without interfering with the patient's business by giving lenses which correct the manifest error, which may be worn a day or two, when an additional amount of astigmatism will be manifest which may be corrected in the same way, and so on till all the latent trouble is unmasked.

3. This may be done without discomfort to the patient, and is therefore advantageous with the skeptical, irritable and nervous.

4. Recent text-books do not give this subject the attention its importance deserves.

5. Astigmatism may be latent whether the axis of greatest curvature is vertical, horizontal or diagonal.

3300 Indiana Avenue.

ANOMALIES IN OPHTHALMIC PRACTICE.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. C. CORR, M.D.

CARLINVILLE, ILL.

In presenting this paper I am not proposing to present anything new, but merely to bring in a few topics that, to say the least, are out of the ordinary way in ophthalmic practice, and therefore are entitled to be designated as anomalies.

Case 1.—*Congenital Interstitial Opaque Infiltration of the Cornea, not Syphilitic nor Cicatricial.* Dec. 1, 1893, was presented for treatment Anne H., a two months old, healthy, well-developed child. No appearance of disease, past or present, except that both cornea were nearly entirely opaque. At once I asked the mother when the baby had sore eyes, to which she replied: "Its eyes have not been sore." "When did you notice this condition of its eyes?" She replied: "When it was ten days old." "Has there been any yellow or gummy discharge from the child's eyes?" She replied: "There has not." "Had you any leucorrhea or whites before or about the time the child was born?" To which she replied, she had not. "Do you know what I mean by this discharge of 'whites' or leucorrhea?" She said: "Yes, for I had it when my second child was born and it made her eyes sore. They were very sore at once and for a long time and it made her eyes white, too, as you can see."

On closer examination of the child's eyes the cornea proved to be smooth and regular in contour, lids normal, eyes well formed, epithelium of cornea well formed and clear and smooth. Irides, hazel brown. Immediately below

the corneal epithelium there was almost a uniform white opacity. R. E., the opacity was so thick and uniform that the pupil could not be seen, and the iris but dimly, to lower and inner part. The opacity was thickest in upper and outer part. L. E., the pupil was visible only from lower and inner side under the opacity that extended from above and outward, where it was entirely opaque. This condition was in marked contrast to the eyes of the next older child, Minnie, aged 6 years, who had evidently had ophthalmia neonatorum. The cornea of her eyes was small and distorted, the surface irregular and not smooth, nor the epithelium well formed. The opacity was apparently in the epithelium and subjacent layers. The lids showed also signs of the past disease. The epithelium of the palpebral conjunctiva was degenerated, thick and cicatricial. This child, too, was well grown and healthy.

The eldest child, Teana, aged 9 years, was a well-formed, well developed child. Bright and intelligent, eyes without blemish. The teeth and jaws of the two older ones were well formed and normal. No history of skin disease was elicited.

The father, Fritz H., aged 30 years, of German parentage, about five feet, five; health good. Had never exposed himself out of wedlock so as to acquire syphilis. Physical examination revealed no signs of it.

Mother, Annie L. H., aged 30, medium size, well formed, health good, German parentage. Pregnant three times only, and three children as above. Never had falling of hair, skin disease, nor cutaneous discolorations. Says her husband does not drink, and is attentive to his family. They are a neat, clean and tidy family; farmers, living in small town.

Dr. C. W. Johnson, of Litchfield, Ill., a well-informed physician, graduate of Jefferson Medical College, in active general practice, saw the patient and after hearing the history said, that it was a great curiosity. The merest tentative treatment was prescribed: aqua pura, 3i; acid carbolie, gts. i; acid boracic, gr. xv. Mix with collyria.

Sig., put a few drops in each eye three times daily.

In the meantime, I addressed a letter to Dr. M. Thomas, B. S., the family physician, a physician personally known to me, of good reputation, in active general practice for ten or more years, who wrote under date of Dec. 12, 1893: "I have investigated the matter. The child has not had inflamed or sore eyes since its birth. I am satisfied it was born as you see it. Nor have the parents had syphilis. I know them well."

December 15. Mother thinks the eyes are improved, child is developing well in every way, other than condition of eyes. Slight lateral nystagmus. Treatment same.

Jan. 19, 1895. Condition of eyes perceptibly improved. Pupil can be seen through apex of cornea in L. E. and through lower and inner part of cornea of R. E., child enjoys looking at light of lamp or window. Nystagmus present. Child developing nicely. Thickest part of nebula above and to outer side both eyes. Ordered collyria continued and a little Pagenstecher oint. well but lightly rubbed on outside of lids daily.

March 2, 1894. Child doing nicely. Developing well; corneal opacity clearing up more perceptibly in both eyes. Nystagmus. Continued medicine as before.

April 13, 1894. Improvement marked, yet not so rapid apparently. Treatment same.

May 25, 1894. Much improved. L. E., cornea clear except a small area. Child developing well. Follows objects with eyes and uses its hands with fair accuracy to grasp at objects apparently seen. Oint. and collyria as before continued.

July 20, 1894. Corneal opacity improving. Pupil of R. E. clearly seen through apex of cornea. Nystagmus less.

Sept. 7, 1894. Corneal condition improving. Slight signs of internal strabismus of R. E., continued treatment.

Dec. 14, 1894. Now one year and fourteen days under observation, and child one year and two months old. Condition of eyes much improved. L. E., nearly entirely clear. R. E., slight haze below apex of cornea and almost imperceptible over apex of cornea. Slightly more decided opacity above, as if sclera was slightly advanced on to contour of cornea. Nystagmus still perceptible, R. E., strabismic. Divergent power normal when L. E. is covered. Has four incisor teeth above and below and two bicuspids just emerg-

ing in upper jaw. Teeth not deformed, blackened nor decayed. Health good. Eats some at table and amuses itself with toys.

April 28, 1895. The child has grown and is well developed; walks and amuses itself with playthings, and its vision is apparently good. Has many teeth—none decayed; on focal illumination of the left cornea, there is slight nebula of former opacity seen. In R., corneal opacity is seen plainly without illumination. The apex of the cornea is nearly perfectly clear, but there is a ring around the apex of the cornea about 3 mm. in diameter that is somewhat more marked, and at upper part of cornea the opacity appears as if the sclera was extended about 1 mm. on to the cornea. Nystagmus less. Squint mostly in R. E., but alternating.

Case 2.—Keratitis-materni, twice recurring. Nov. 12, 1892, Mrs. Eva S. presented herself for treatment of her sore eyes; 24 years old; married. Two children, youngest seven months and nursing. Eyes have been sore two months. Patient, medium-sized, not well nourished, pale and anemic, dark hair and fair-complexioned; hazel brown eyes. Conjunctiva of both eyes hyperemic. On right eye the cornea was involved with what seemed to be an unusual variety of keratitis. It consisted in a band of brownish red, almost the entire circumference of cornea on inner and lower portion, about 1 mm. wide; loss of epithelium and linear extension of capillary blood vessels from conjunctiva on to the cornea to the extent of the width of the band. The cornea was not otherwise hazy, aqueous clear. Pupil not sluggish, nor other evidence that iris was involved. Photophobia marked in R. E., and pain and tenderness complained of, mostly in R. E. The eye was cocainized and the band examined with probe. It bled freely on being slightly touched. The eyes were washed out freely with boric acid solution. Pupil of R. E. dilated with atropia, yellow oxid oint. with atropia applied nightly in the usual way and both eyes washed out with boric acid solution, two and three times daily.

Nov. 20, 1892. No improvement. The band had extended entirely around the cornea and was widened. Pupil well dilated and other indications of the medicine having been properly used. Conjunctiva of L. E. much more hyperemic. Photophobia increased. Being somewhat astonished at the condition, I inquired more closely into the constitutional condition of the patient. I found no clue to a specific disorder, but not knowing what else to do, I suspended the oint. and prescribed pot. sol. iod.; hydrarg. chlor. corros. Take a teaspoonful, four times daily.

Dec. 10, 1892. Condition much the same; certainly not improved. Whereas she had before been screening eyes with London smoked coquelles, I ordered R. E. kept bandaged, and in addition to the above, ordered quinia grs. xxx, taken in next twenty-four hours and quinia grs. iij taken every morning at 9 o'clock.

Jan. 20, 1893. No improvement. The band had widened in R. E. to near 2 mm. and same condition had involved nearly the circumference of L. E. The non-involved surface of both cornea clear, and none of the white infiltration of cornea that usually accompanies keratitis. The margins of the band on the cornea were markedly even on both eyes. As my astonishment had in nowise abated I ordered the potassio-mercuric solution alternated every four hours with dessertspoonfuls of elixir of pyrophosphate of iron and calisaya bark; stopped the quinia and bandage left off; coquelles as before.

Jan. 28, 1893. Much improved; spirits much more hopeful. Keratitis much abated. Hyperemia of conjunctiva less. Photophobia less; appetite good; sleep good. Ordered the potassio-mercuric solution discontinued and elixir of pyrophosphate of iron and calisaya bark in dessertspoonfuls regularly every four hours. Measured refraction, and ordered full correction of $\frac{1}{2}$ D. hyperopia, worn all the time.

Feb. 27, 1893. Patient about well; only slight traces of trouble left; photophobia gone; doing all her work for family and has continued to nurse child all the time. Ordered dose of elixir three times daily and collyria discontinued.

March 15, 1893. Patient apparently quite well. Almost no signs of past keratitic trouble. Ordered elixir taken twice daily, as long as nursing continued. April and May saw the patient. She remained well.

Sept. 5, 1894. Patient again presented herself for treatment of eyes. Nursing third child, which was born in May, 1894. Eyes became sore in August, two months earlier than before. Condition of eyes exactly as before in the beginning. Brownish vascular band partly surrounding the R. cornea; both conjunctivæ hyperemic, with the addition of a slight redness and abrasion along the margins and tip of the tongue, with the characteristic scalded feeling of stomatitis

materni. This latter confirmed my notion that led to the prescribing of the elixir of pyrophosphate of iron and calisaya bark, that it was a keratitis caused by the conditions that gave rise to the nursing sore mouth that I had treated often in its purity while in general practice.

That sterling remedy which has proved more nearly a specific in stomatitis materni under my observation than anything else, the elixir, as before, was at once ordered in dessert spoonfuls four times daily, with an occasional washout of the conjunctival cul-de-sacs with the boric acid collyria.

October 15. The patient seemed about well. The disease had not extended and began to abate within a week after the remedy was taken.

November 10. Patient wrote she was well. I ordered her to continue the elixir in doses as before, twice daily while nursing. I am satisfied she is well of her eye trouble to date.

Now you may ask why do I call it keratitis materni? Because it originated as a part of the assemblage of symptoms that characterize that maternal disease of stomatitis and not amenable to ordinary treatment of the local eye disease, but readily and perfectly amenable to the constitutional and general treatment useful in the disease known in general and obstetrical practice as stomatitis materni.

Case 3.—Piece of Orbital Bone Encapsuled in the Globe, two and a half years. Choroid not Totally Disorganized. July 15, 1892, Mr. C. R. B., presented himself for consultation in reference to the future sight of his right eye which was injured on July 4, by a rocket that did not sky. He said he was sitting some distance—forty yards—from the stand where the fire-works were being exhibited and that one rocket, after the fuse was lighted, fell so it flew off horizontally and struck him in the eye. There was a deep lacerated wound of the skin just at lower margin of orbit, and tissues generally bruised and discolored. The tension of the globe was minus. Cornea normal and clear. Anterior chamber well formed. Pupil slightly dilated. Lens normal with a pink reflex. No reflex from fundus. Eye sightless. These facts together with the evident severity of the contusion led me to send the attending physician a note that the eye would be sightless and would better be removed.

I saw no more of the case till I was called Jan. 8, 1895, to remove the eye. At this time there was a deeply sunken and adherent cicatrix at the middle and margin of the lower orbit, lower lid everted, and slight whitish secretion in lower conjunctival cul-de-sac. Globe shrunken about one-third and only slightly tender. Tension minus. But little of cornea visible, sclerotic nearly normal in appearance. Patient said the globe had been tender by spells, and he had some discomfort about the orbit. Bits of bone had been discharged through the skin wound and the nostril had discharged more or less secretion all the time. The globe was removed in the ordinary way and without any incident worthy of note. Immediately after its removal, I incised the globe and found inside a shrunken opaque lens and some fluid contents, rather clear than opaque, choroid only partially disintegrated and adherent to sclera in places. At posterior and lower part near the disk, a hard lump of dense tissue was noted, which rattled under the knife when cut and, by close work, I dissected out the bone you see in the hardened specimen. It is about three-eighths of an inch long, little more than one-sixteenth of an inch in lateral dimensions, slightly irregular in shape and has a smooth notch near its middle as if a margin of a foramen—probably the infra-orbital—and had been evidently encapsuled in the interior of the globe since the wound by the rocket, July 4, 1892, two and a half years ago.

Case 4.—Hemorrhage of the Iris, as a Result of Slight Iridectomy in Cataract Extraction. July 29, 1894, Mrs. M. A. T., a lady 65 years old, took her place on the chair for cataract extraction on R. E. She was prepared in the usual way. The first incision was made wholly in the corneal tissue. An iridectomy was decided upon because the pupil did not dilate round, but rather oval, vertically, and the cataract was of long standing. The iridectomy forceps was introduced and the inner edge of the iris grasped, drawn out and snipped with the scissors so as to just allow of the passage of the lens. Not more than one-half of the width of the iris was cut out. The instant the iris was cut, the anterior and posterior chambers were filled with blood which could be plainly seen, issuing from the edge of the iris. Soon everything in both chambers of the eye was obscured by the blood, and no further progress could

be made till the blood was washed out. The corneal flap was made to gap, and a moderate jet of mildly borated water was made to enter the chambers from a dental bulb syringe until all blood stains were out of the way, when the operation was terminated and the chambers again cleansed by detergent force of the jet as before. No untoward effect followed the hemorrhage, except that there was more of the inflammatory exudate in the gap in the iris. This, however, was all absorbed, and after a secondary operation, a month later, the vision was fairly satisfactory. Of course such hemorrhage was unexpected, unprepared for, embarrassing and somewhat astonishing. The only thing unusual in the appearance of the eye was that one of the superficial conjunctival vessels dipped into the sclera within 2 mm. of the sclero-corneal junction just opposite to where the iridectomy was made. I do not remember having seen an account of but one such case in the ophthalmic literature that has come under my observation.

Case 5.—Calcareous Lens, Occluding the Pupil, Becoming Detached, Dislocated and Floating—Iritis—Requiring Removal. Nov. 21, 1894. T. R. H., a gentleman about 25 years of age, a mechanic, presented himself for consultation and treatment of right eye. He said the white in his eye had gone, and was moving around. I recognized the gentleman as one I had observed some time before, having the pupil of the right eye occluded as a result of plastic iritis caused by being struck in the eye with a ball when about 16 years old, since which time he had had the ordinary white and undilatable pupil which characterizes an occluded pupil. The iris was somewhat discolored as compared with its fellow. At this time the "white" in his eye was gone and was moving around. The tension of the globe was minus, but not markedly so; within the past few days the patient had sustained some slight stroke on the eye; so slight as not to attract attention only that he accidentally learned that the "white" in the pupil had been dislocated. On close examination of the eye, now, I found a white floating body about three-sixteenths of an inch in dimensions behind the iris, that was sometimes in the anterior and sometimes in the posterior chamber. At this date the eye did not show signs of irritation.

November 28. Patient presented himself with marked circumcorneal hyperemia and the eye tender. I advised no longer hesitation about its removal, to which patient readily acceded, but at this time I could not get the lens dislocated into the anterior chamber. So I at once produced homatropin mydriasis and had the patient lean far over with face on handa till the lens came forward into the anterior chamber when eserine was instilled, until the mydriasis was overcome and sufficient myosis was produced to retain it there and the operation was proceeded with. But, alas! not with the perfection I had anticipated. After the corneal incision the lens would not deliver easily. It seemed to hang to the iris. I introduced the ordinary iris forceps and grasped the lens a little too far back, being deluded by the media I was looking through, and the unexpected hardness of the body, and it slipped and went over into the posterior chamber. So an iridectomy was made and the operation completed in the ordinary way.

The result brought a good appearing eye and looks better than it did before when the pupil was occluded with a white spot. The eye has no perception of light, and no reflex obtainable from the fundus.

I meant to exhibit to you the pure specimen, but am obliged to present it crushed by the postoffice stamp. The crushed condition may be better for examination.

NOTES ON TWO CASES OF LARYNGEAL NEUROSES.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY S. K. MERRICK, M.D.

PROFESSOR OF DISEASES OF THE NOSE, THROAT AND CHEST, BALTIMORE MEDICAL COLLEGE, BALTIMORE, MD.

Case 1.—Mrs. O. H., widow, tall and rather slender, age about 63 to 65, native of Baltimore, was referred to me by Dr. Samuel T. Earle, of this city, is a woman of culture and refinement and has lived in affluence and ease most of her

life, but had met with some reverses of fortune some years before, and her physician told me that for years past she had been in poor health and was somewhat of a neurasthenic, but was never hysterical.

About three weeks before she came under my care she was seized with an acute laryngitis with aphonia. Dr. Earle applied the usual remedies, but finding the patient got no better, sent the case to me. On examination, the pharynx was highly congested, reddened and hyperesthetic. It was with great difficulty after several visits that I got a view of the larynx, partly owing to the overhanging epiglottis, but principally on account of the morbid irritability of the pharynx. Cocain in this case seemed to have little effect. A good view, however, of the larynx about the fourth visit was secured, and laryngitis was seen to be present, yet not reddening the cords throughout their entire extent, but an image was revealed, showing that I had to deal with a paralysis of the arytenoid muscle. The cords from the thyroid angle to the vocal processes were properly approximated on attempts at phonation, but the characteristic triangular space between this point and the posterior commissure left no room for doubt as to the diagnosis. The phonative waste which Von Ziemssen first appropriately called this loss of air in this form of laryngeal paralysis on phonation, was well marked.

The treatment at first was directed to the cure of the laryngeal inflammation by means of the usual local sprays, and later, strychnia in increasing doses and electricity were used—the faradic current locally and occasionally generally—for the cure of the neurosis, or stimulation of the recurrent nerve.

From February 6 to April 20, the patient came to see me on alternate days, generally, and by this latter date the normal color of the pharynx and larynx had apparently returned and yet the characteristic triangular space, the aphonia and phonative waste were all unchanged. I decided now to send the patient to the seaside; she accordingly went to Atlantic City, and remained there several weeks, when she returned and again reported at my office—"no better." The laryngeal image was in *statu quo*.

As the inflammation, as far as I could determine was gone from the larynx and not the least improvement in phonation had taken place, I was inclined to give an unfavorable prognosis. In the meantime local treatment, strychnia and electricity were resumed, and on June 14, six months after the beginning of her aphonia, I sent her to the country for the summer with no better voice than when she came under my care. I told her family I feared she would never fully regain the use of her voice. In this I was mistaken; about the middle of August she suddenly regained it and it has remained unimpaired up to this time.

Was this a case of paresis from acute laryngitis, penetrating into the deeper structures causing pressure on a branch of the recurrent laryngeal (the most usually assigned cause of this neurosis) or was there an hysterical element present also? That the acute cold was the exciting cause there is no doubt whatever, and it is not impossible that continual pressure on the nerve-twig supplying innervation to the arytenoids, had left the nervous energy so weakened, even after the entire disappearance of the inflammatory thickening, that a prolonged stay in the country was necessary to build up the tone of the entire nervous system before the twig could be excited into activity.

Sajous says this form of paralysis occasionally results from hysteria. Ingals says it most frequently results from acute or subacute laryngitis.

Lennox Browne says this form of paralysis may be seen in acute catarrh and it is a question whether this and some of the temporary paralyses may not be due to inflammation of the small glands which are situated around the terminal branches of the recurrent nerve.

Bosworth cites three cases reported by Proust—one due to incipient phthisis, one to hysteria, one to catarrhal laryngitis, and one by Johnson due to diphtheria. He further says that hysteria was the assigned cause in cases reported by Mackenzie, Luaga,

and Duncan, and Von Ziemssen has observed a case which followed directly upon cold.

This last case is one of only two mentioned in his (Bosworth's) work as having acute laryngitis as the cause. In looking over six authors I found this to be the most commonly assigned cause. But I did not find any reference made to the possibility of this dual causation, both factors acting at the same time.

My case was clearly due to acute laryngitis, but its failure to get well after all laryngoscopic traces of laryngitis had disappeared, and the sudden restoration of the voice months afterward, points to an hysterical etiologic element, which greatly delayed recovery. Knowing that acute laryngitis ushered in the aphonia, my efforts were at first all directed to the cure of the former affection, which yielded completely so far as laryngoscopic appearances could establish this fact; yet failing signally to relieve the aphonia after the very apparent cause had been removed and strychnia and electricity doing no good, I gave an unfavorable prognosis, which naturally distressed the patient and her family not a little. Had I suspected that hysteria was a latent etiologic factor, it is very probable I could have restored her voice at any time after the laryngitis disappeared.

Case 2.—Mrs. D., married, age about 50, mother of four children consulted me Jan. 16, 1893. I learned that in the previous November she had suddenly lost her voice without any premonitions except the "rising in her throat of a lump or ball the size of a large marble." From this time on, she had been unable to speak except in the whispered voice.

The laryngoscope revealed the characteristic laryngeal image of unilateral adductor or recurrent paralysis of the right side. On attempted phonation the left cord went beyond the median line and near its fellow, but not sufficiently close to produce more than the whispered sound on attempted phonation.

The patient was very despondent and often shed tears over what she considered her hopeless condition, and all assurances on my part that she would regain her voice were met by a shake of the head and tears.

I felt sure of her ultimate recovery and assured both her and her husband, who is a prominent clergyman of this city, that I had no doubt of restoring her voice. The husband was easily convinced, but all my assurances failed to produce any impression upon her and in consequence all my remedies—applications, sprays, electricity, etc., utterly failed to give relief, for you must all agree with me that the case was one of hysterical aphonia.

This being the first case of unilateral paralysis of clearly hysterical origin, that I had ever seen, I was anxious to verify the diagnosis, by curing the case so promptly that no doubt would be left as to its etiology. In this I was disappointed as I have before indicated. She remained under my care until warm weather, when she was sent to the mountains and after a month or more her voice returned as suddenly as it had disappeared, thus confirming my diagnosis.

When she returned to the city in the fall, she came to see me, and a surprise awaited me when I made a laryngoscopic examination. I found the right chord still in the cadaveric position and the oblique glottic space and over-riding left arytenoid on phonation (the same image) that of right adductor or recurrent paralysis—only the left chord now came close enough to its fellow for the purposes of phonation. She now made known important information, which she had withheld from me, fearing it would influence me, and cause me to give an unfavorable opinion at her first visit. She told me that seven years before, she had

consulted an eminent specialist of this city, who had diagnosed paralysis of the chord and told her she would never get well. This had preyed on her mind and she confessed it was the chief cause of her incredulity to all my promises of cure. During the seven years and up to November, 1892, (when her voice suddenly left her entirely) she had simply impairment of the voice, but could always use it in ordinary conversation—it had neither gotten better nor worse.

The case was now clear—I had to do with a case of hysterical paralysis, engrafted upon a long-standing case of unilateral adductor paralysis. As soon as the hysterical element had spent its force, a restoration to the condition induced by unilateral adductor paralysis was effected. I had a view of her larynx recently and the laryngeal image is still unchanged. Her voice is fairly good for conversational purposes, but when she talks much she feels a tired sense in the muscles of the left side, due to strain on the adductors in carrying the left chord beyond the median line.

It may be interesting to cite the opinion of several prominent authors as to the etiology of unilateral adductor paralysis before closing the notes on the case.

Sajous, p. 366, says: "That adductor paralysis, bilateral or unilateral, can be due to pressure on the recurrent laryngeal nerve, without involving the other muscles of the larynx supplied by that nerve, seems to be very doubtful." While Ingals, p. 503, says: "Unilateral adductor paralysis is caused in most cases by pressure upon the recurrent laryngeal nerve, by aneurysm, tumor of the neck, cancer of the esophagus, etc., and not infrequently by hysteria."

Bosworth, p. 665, says: "I have never seen a case in which I felt warranted in making a diagnosis of this form of paralysis." He thinks it extremely difficult to differentiate the affection from unilateral recurrent paralysis.

Lennox Browne, quoting Mackenzie, says of unilateral adductor paralysis: "This rare condition may be due to chronic toxemia, lead, arsenic, diphtheria, etc.; may result from cerebral disease or may be caused by cold, or muscular strain; and is met with after smallpox, in constitutional syphilis and in phthisis."

McBride's edition of 1892, says: "Pareses confined to the muscles which close the glottis are usually, if not always, due to functional changes in the nervous system, of which we may consider hysteria as the type." In support of this opinion he cites Semon and Horsley's experiments, where unilateral irritation of the corticular area in the brain, of adductor movements, produced bilateral adduction; but unilateral extirpation of the area produced no effect. "Having had access," he says, "through the kindness of Dr. Semon, to the manuscript of the work (then in preparation) I feel inclined to doubt whether any incontestable evidence can be brought forward as to the existence of laryngeal paralysis, due to organic changes affecting the adductors alone." He further says: "From the experiments of Semon and Horsley, it is extremely doubtful whether there is any organic lesion which can produce unilateral paralysis of adduction."

It seems to me that my case, if it proves anything, proves that there was an organic lesion acting for seven years, when a functional disturbance was engrafted and that the cure of the latter had no appreciable effect upon the former. This tells against

Semon and Horsley's experiments, as interpreted by McBride, and rather supports the older etiology.

A singular and interesting fact in connection with the recovery of the voice in this case, I learned recently, and I mention it because I have never seen any reference to the like in literature.

When she regained her voice it surprised her as much as it did her auditors. As she expected to speak in a whisper as had been her wont for eight months, she was greatly frightened at the sound of her own voice, sent for her husband and in the midst of tears told him that she knew she was going to die—that this was a token. Her husband laughed her fears away, telling her the doctor had told her she would again be able to talk. Now comes the interesting phenomenon: after having conversed in a whisper for eight months, on recovery of her voice, it was impossible for her to whisper. She tried repeatedly, but each effort to whisper resulted in distinct phonation and clearly articulate speech.

The conclusions which, I think, clearly follow from the notes on the above cases are:

1. That we may have a paralysis of the arytenoid-muscle, due to the most usual cause, viz., acute cold, recover suddenly—just as hysterical cases recover—hysteria being a probable factor delaying recovery:

2. That we may have hysterical aphonia supervene upon an old case of unilateral adductor paralysis, where only weakness of the voice was present, leaving the voice only slightly impaired from the old lesion, the latter being still in force and unaltered as shown by the laryngeal image.

3. That authors differ widely as to the etiology and even existence of unilateral adductor paralysis, and that this field is a legitimate one for investigation, if for no other reason for the sake of rational and in consequence more successful therapeutics.

4. That as long as diametrically opposite views are held by such authors as I have quoted, concerning its etiology, students will be confused rather than taught by the multitude of contradictory statements.

5. That the greatest care should be taken before making a positive diagnosis in all cases of neuroses of the larynx, as the chances of error are numerous, and downright mistakes harmful in many ways.

543 North Eutaw Street.

HISTORY OF A CASE OF RECURRENT NASAL FIBROMA.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

BY PRICE BROWN, M.D.

TORONTO.

I must request your forbearance with me, for taking up your valuable time with the report of a single case. We all know how little weight can be attached to individual histories, and that it is only by accumulated evidence that we can be guided to a proper estimate of the value of clinical research. If this is true in reference to surgical practice, it is equally true of a wide range of subjects pertaining to our own special field. Still, there are lesions in which the individual histories are so few and the few so widely spread over time as well as territory that it would seem to behoove every observer to chronicle each instance as it occurs with the hope of adding a

fraction, however minute, to the information already possessed. This I am inclined to think is true of nasal fibroma, and as the case I have to report presents several interesting features I trust you will bear with me while I briefly detail its history:

On Nov. 30, 1894, Mr. A. V. P., aged 22 years, stenographer, consulted me about a growth located in the posterior half of the right nasal passage. He was a hemophilia; had had no specific disease. Family history good. Parents both living and healthy. No relatives, so far as he could remember, had been afflicted with malignancy or tuberculosis. Five years ago he discovered a somewhat hard dark-colored growth in the right nasal passage just within the choana. His voice at the time was nasal and it was almost impossible to breathe through the right naris. He consulted a specialist, who snared off a piece. This produced profuse hemorrhage, which, however, soon ceased. At different sittings during the next few weeks the snaring operation was repeated six or seven times; each time the bleeding was severe.

As the tumor seemed to grow almost as rapidly as it was snared away, a microscopic examination was made and the disease was pronounced to be sarcoma. On further consultation with general surgeons, it was advised that a portion of the right maxilla be removed and a silver plate inserted, the case being considered one of malignant disease. This, however, his people declined to consent to, and he was sent to Boston and placed under the care of Drs. Packard and McDonald, of the Homeopathic Hospital. He remained there two months and during that time had several operations performed under ether. The nature of these he could not tell, except that they were intra-nasal, attended by exhausting hemorrhages, and that the nostril after each operation was tightly plugged. At the expiration of the period mentioned he was well enough to return home. The doctors told him that they had removed the whole of the tumor, with the exception of a little piece at the back end of the passage, upon which they did not think it advisable to operate at the time. During the following summer he had for months slight daily hemorrhages, but he spent the season in the country and they eventually ceased. For the next three years he had so little nasal trouble that he did not think professional advice necessary. About a year ago, however, occlusion of the posterior end of the right nasal passage began to return; crusts would form which he found it difficult to void, and slight hemorrhages would also sometimes occur. In November the physician he consulted referred him to me.

The entrance to the right nasal passage was somewhat narrow, but immediately behind it was a wide, open cavity for about one-half the normal depth of the passage. There seemed to be complete absence of the inferior turbinated bone; probably removed by surgical operation in Boston, as already related. About an inch and a quarter from the anterior naris the passage was completely filled by a bright reddish growth springing from the septum, the vault above and the middle turbinated. The attachment on the septal side extended down to the bottom of the inferior meatus. The uvula was very long. Posteriorly, the tumor filled the whole of the nasal cavity. It extended behind the septum, which it seemed to have pressed to the left. On the right it was attached all the way down to the floor of the naris and lay immediately anterior to and continuous with the Eustachian tube. This tube occupied a plane considerably posterior to the left Eustachian, no doubt owing to the pressure of the tumor.

In other respects the health of the patient was of an ordinary character with the exception already mentioned, that he was a hemophilia. He told me that the extraction of a tooth would be followed by bleeding for hours, as also would the slightest cut or scratch.

The question of the best method of operating in this case was difficult to decide. With so extensively sessile a growth, with base concave from side to side, snaring would be impossible, except in small fragments and by following out Ingals' method of galvano-cantery notches, prior to adjusting the snare. His hemorrhagic tendency also seemed to contra-indicate treatment by this plan. Curetting, cutting away by knife or scissors also seemed out of the question on the same ground, as well as owing to the

obscurity of the situation. Post-nasally, but a small portion of the growth could have been reached.

Direct surgical operation by excision of the superior maxillary and palatal bones did not seem to be required, as I did not believe these bones of themselves to be seriously involved. There was no external deformity and the only displacement in the pharynx was a pressure downward of the right side of the soft palate. Electrolysis I thought of, but having had no personal experience of its effects in deep nasal work, I finally decided to endeavor to dissect it out, little by little, with the galvano-cautery knife.

On December 1, I did uvulotomy to facilitate post-nasal observation. Two days later, after applying 20 per cent. solution of cocain, I made the first galvano-cautery incision through the anterior naris into the lower part of the tumor at its union with the septum, continuing the burning until the hemorrhage became quite severe. An astringent spray soon controlled the bleeding. Several days later I repeated the operation in the same way, but at the outer margin of the growth at the site of the junction of the former inferior turbinated with the maxillary bone. The hemorrhage this time was very severe and I found it necessary to plug with kite-tailed tampons of absorbent cotton packed solidly within the nasal cavity. This stopped the flow and twenty-four hours later upon removing them, there was no recurrence. After an interval of a week I made the third attempt at galvano-cautery work, incising the central portion between the other two cuts. The electrode was of a bright red heat, and it had only been applied a few seconds when arterial blood began to jet out forcibly. The flow was so rapid that with difficulty I caught a glimpse of a large pulsating artery laid bare and opened by the cautery. It seemed to run across from the septum to the external wall. Having had such a satisfactory result from the previous packing, I again resorted to it. The patient lay down in my office and for a few moments the bleeding was checked. Then it began again, escaping by the posterior naris and soon became alarming. Dr. Reeve kindly came to my assistance and after removing the plug, I packed the cavity from behind by the use of Belocq's canula, having first soaked the sponges with a combination of tannic and sulphuric acids. This effectually stopped the bleeding, but the patient was almost pulseless by the time it was accomplished, and two hours later, when being assisted to the carriage, he fainted away. This loss of blood confined him to bed for a week, and two more elapsed before he was well enough to proceed with operations again.

On looking up the literature of fibrous tumors of the air passages, I found that Kaarsberg of Copenhagen, in 1894 recommended electrolytic treatment of fibrous tumors of the naso-pharynx, giving the history of four cases, the treatment being supplemented by the use of the galvano-cautery and scissors, and I decided to try it in this case of fibroma of the nose.

After applying a 20 per cent. solution of cocain, as in the cautery work, I used long needles, isolated by rubber tubing, and inserted through the anterior naris into the growth at a distance of about half an inch from each other. These were attached to a 12 cell Le Clanché battery. The sances were about five minutes each, and given upon alternate days.

Notwithstanding the anesthetic effect of the cocain, the shock was very painful, even more so than that of the galvano-cautery. The effect upon the tumor was of a deadening nature, making the surface paler and producing exudation. The shrinkage, however, was scarcely perceptible. After using it through the anterior naris three times, I changed the direction of the electric current, by passing a single straight needle into the tumor from the front, and a long curved needle through the mouth and naso-pharynx and into the growth from behind. This seemed to produce a more satisfactory effect. The central portion, both anteriorly and posteriorly lost much of its vivid hue, though the shrinkage produced by four sances was almost nil.

Hoping by this time that the electrolysis would have the effect of limiting the severity of future hemorrhages, I again returned to the use of the galvano-cautery.

From January 18 to March 15 I operated with it at sixteen different sittings, each time applying the cautery as extensively as I thought I could do with safety. Sometimes there was no hemorrhage; at others it was only slight, never severe enough to require plugging. Little by little I got the growth away. The first half of the operations were performed entirely through the anterior naris, the vision of the parts being obtained through the anterior rhinal speculum. The latter half, also, were done through the anterior naris, while the operations were guided by the posterior rhinal mirror.

To complete the work, as the pharyngeal tonsil was somewhat protuberant, I removed it with Gottstein's curettes as a precautionary measure. The bleeding from the cuts was severe, but was checked without plugging.

In the cautery work, the part I found most difficult to accomplish, and requiring the greatest care in manipulation was the destruction of the part of the fibroid attached to the anterior margin of the Eustachian tube.

The supplementary treatment consisted of daily cleansing with alkalin spray, followed immediately by removal of crusts, sloughs, etc., with the aid of cotton holders and finishing with spray of albolene.

I had sections of the tumor examined by a competent microscopist; he pronounced it a dense close grained fibroma.

With regard to the physical condition of the patient, the course of treatment was very satisfactory. With the exception of the time lost as the result of the excessive hemorrhage, he never lost a day from his professional duties. The operations were always done in the evening. Sometimes he would be restless and suffer pain during the following night, but he could always take a light breakfast and go down to his office the morning afterward. During the latter half of the treatment, notwithstanding the amount of cocain used he improved in weight, as well as in color and spirits, and I am glad to say without acquiring the slightest craving for the drug so frequently used.

One notable feature in the history of the treatment was the extent to which the palate resumed its natural functions. At first being pressed out of position it had no control over sprays thrown into the nose, and would allow them to trickle over and to drop into the larynx with paroxysmal coughing as a result. Latterly this accident would never occur, and the nose might be filled with fluid without any escaping into the lower pharynx. In fact, the control over the velum acquired by the patient aided very materially in the treatment of the case, and during this period I exhibited him to the Toronto Medical Society, so that the members could examine the tumor while still in the process of removal.

I have called this a case of recurrent nasal fibroma, believing that the original attack from which the present one must have developed was really fibroma instead of sarcoma. That the former may degenerate into the latter is, I believe, a recognized pathologic fact, but that a malignant growth could be the parent of a benign one, is certainly open to question.

What the future of the case may be it is impossible to say. At present there is no indication of any tendency to return. A new mucous membrane has re-formed. The throat is moist and the voice normally resonant. Still, that it has been completely and finally eradicated seems almost beyond hope. The case, though interesting, is too recent to base a correct conclusion upon, and I shall watch the future history with more than ordinary solicitude.

DISCUSSION.

DR. WARD, of Pittsburg, mentioned a case he had under treatment of a young man about 16 or 17 years of age. About seventeen months ago he suffered from the effect of a large growth in the naris and the incidental symptoms,

obstruction, retained secretions, etc., were quite marked. The growth protruded from the naris and extended backward into the pharynx. He was in a pitiable condition when he entered the hospital. Dr. Ward attacked the growth with the snare and removed it *in toto*. The size of the tumor was fully as great as a hen's egg. Microscopic examination proved it to be a fibro-sarcoma. The hemorrhage during the operation was very profuse, but as soon as the growth was removed it ceased of itself. A few months ago the growth began to develop again and he was sent back to the hospital. What the result will be, it is impossible to say.

Dr. E. FLETCHER INGALS, of Chicago, said that he had never had any experience with fibrous tumors in the nasal cavities, but recalled a number of such growths in the nasopharynx which extended slightly forward into the nasal chambers. He had removed some with the galvano-cautery ecraseur. On others, he had used electrolysis with good results, especially in sessile growths where there was difficulty in getting the loop of wire around their base, and he found that they disappeared under electrolysis. At present he has a little fellow under observation in whom a fibroid tumor began to grow in the naso-pharynx and he had removed it with the galvano-cautery. It subsequently returned, and in six sittings he was able to destroy almost the whole of that which appeared in the naso-pharynx, but it had since extended downward to the malar bone and the nasal chambers. This, he supposed, might be called a recurring fibroid of the nose. It is difficult to decide how to treat these cases, but as he had obtained good results already from electrolysis, he purposed continuing it after returning home.

Dr. LOGAN, of St. Louis, said that his experience had been in accord with the previous speaker with regard to the prevention of hemorrhage by the use of electricity in removal of naso-fibroma. He employs both the electro-cautery snare and the electro-cautery knife and found them useful both in removing the growth and in checking hemorrhage.

Dr. CLINE, of Indianapolis, referred to the case of a boy 16 years of age who had been under his observation during the past year. He had a pretty large growth occluding the nose and extending into the pharynx, perhaps the size of a small orange. The side of the nose was pushed out and the eye was dislocated to some extent. With the galvano-cautery snare he had cut off about one-third of the tumor, which on examination was pronounced a fibro-sarcoma.

Dr. E. L. VANSANT, of Philadelphia, said that in regard to the diagnosis of these cases of tumors occurring in the naso-pharynx, as Dr. Brown had raised the point in the discussion, he would make the following observation. He had made a number of histologic examinations in these cases and had come to the conclusion that the diagnosis depends very much on what part of the tumor the section comes from. If it is taken from the outer layer of the growth, you will probably get a very fair specimen of sarcoma, because of the proximity of the mucous membrane and the proliferation of cells near the surface. From a deeper layer you will probably get a very fair specimen of fibro-sarcoma or fibroma. In these cases there are large venous channels which are likely to cause troublesome hemorrhage. In some parts of the growth there may be spots of softening, and sections through them may give the appearance of myxema, myxofibroma. These are due to a process of degeneration, the tumor being at first a fibroma, which undergoes sarcomatous change, subsequently myxomatous degeneration takes place, forming cysts in the growth. The fact that these large vessels are formed, explains the hemorrhage, unless the galvano-cautery is used. He declined to say whether the paper had the proper title or not.

Dr. PRICE BROWN in closing, said he was glad that his paper had brought out the history of so many cases. In one respect his case differs from other cases reported; it was a sessile growth over the whole cavity of the nose, springing from the upper part of the septum, the vault above and the middle turbinated body on the other side. He was glad to have his experience with electrolysis confirmed both by Dr. Ingals and Dr. Logan, and especially in regard to its value in reducing hemorrhage. He had some doubts about the correctness of the title of his paper. The growth had been at first pronounced a fibroma by doctors who had seen the patient, and it was regarded as sarcoma when it was removed in Boston. Three years later it came to me and I considered it fibroma. It would be of interest to know if it can be properly called a fibroma if the preceding growth was a sarcoma.

THE CHAIRMAN—Was the growth after both operations examined by the same men?

Dr. BROWN—No, it was not.

STATE MEDICINE vs. FADS.

BY GRANVILLE P. CONN, A.M., M.D.

CONCORD, N. H.

It is often interesting, as well as instructive, to take a retrospective glance over conditions that apparently have taken the lead in shaping popular opinion. In professional work this is quite as fascinating as it is to follow the ordinary topics of the day. In the present, matters that are non-sensational are relegated to the background, giving place to topics that can be made to excite the imagination, and help to create a sensation. Out of this has been developed the fad of being interviewed by a representative of the public press; in which, many times, the person being interviewed is shrewdly made to say what the publishers of the paper or journal believe will be graciously received by its patrons. This seems to have extended to all classes of society until it has become a profession. The ward politician discourses eloquently on the financial problems of the day; the would-be statesman is represented to have decided views upon questions involving international law; ministers and lawyers do not hesitate to boldly proclaim to the world the necessary reforms to save the country, (yet it is rare that any two agree upon the plan of its salvation); the physician and surgeon allow professional work of the most sacred character to be heralded through the columns of the daily press as a consequence of reporters being present at operations, or of bulletins being issued daily, describing the physical symptoms of some prominent patient. In either case, by using the clinical phraseology of the surgeon or physician in charge, the language may be made so effusive as to leave the reader in doubt whether it is intended for the purposes of stock exchange, or for complimentary allusions of a mutual admiration society.

These professional fads have been developed from time to time, and it has always been the province of rational medicine (which is only another name for State Medicine), to assist in showing up what is fallacious and promoting the growth of what is good. State or preventive medicine is doing the same to-day, and to meet these questions successfully must adhere strictly to the truth, or to what can be satisfactorily demonstrated, without recourse to what may be justly denominated imagination and theory.

These conditions have been developing rapidly during the past decade. Conservatism seems to have been lost in the desire to bring before the public matters that would allow a greater range of the sensational, and solid facts have been made to give place to results that have been illusionary in their character.

In our professional work, preventive medicine may not seem so brilliant as surgery, nor so seductive to the general practitioner as the administration of drugs, yet the fact that a life may be saved without the intervention of either the knife or a drug, is a most gratifying result to the average human being. The advanced position that surgery has taken since the close of the late war, has been almost entirely along the lines of hygiene. The Army surgeon was oftentimes brought in contact with much that was suggestive, and with the broad and brilliant mental capacity which he must necessarily have in order to succeed, saw much appear that he would wish to improve. The unfortunate surroundings, the

unhygienic condition of the person, the immense amount of practical surgery that must be done in a short period, and that under the most depressing conditions and without adequate supplies, all tended to awaken in the mind of the thoughtful physician and surgeon the idea that something was needed to complete a good work, and make success the rule rather than the exception. In this long struggle from 1861 to 1865, it did not take but little time to educate the surgeon to the fact that cleanliness was the foundation stone on which rested the art of surgery. As a result, Listerism, Pasteurism, and various other "isms" began to assume vast proportions soon after the war closed. Like a great many other things, it was considered so commonplace to be clean that it was overlooked, and, therefore, when brought into prominence, the pendulum swung to the other extreme and a variety of terms were used to express the hygienic conditions imposed.

I well remember, about 1871 or 1872, of attending a convention of the Connecticut River Valley Medical Association, at Bellows Falls, Vt., and meeting Dr. H. D. Holton, of Brattleboro, who had arrived home within a week from a long visit in England, where he had passed considerable time in the hospitals. He came back imbued with the idea that Listerism was the all-important adjunct to surgery. In somewhat lengthy and interesting remarks before that Association, he went into details of the work as performed by Mr. Lister, and dwelt particularly upon the fact that all the operations were performed under spray. He was particularly emphatic in that especial factor as having such wonderfully good results whenever an operation was being performed, and especially in abdominal surgery.

I remember very well that at the close of his remarks, the late Professor Phelps of Dartmouth College, who was sitting very near, and who gave him undivided attention during his whole discourse, rose up and taking him by the hand said: "Brother Holton, you have got it bad, but thank God, it isn't a fatal disease. Listerism is having its day; but we shall all live to see that it is simply a matter of keeping the patient clean." Professor Phelps has passed away. Dr. Holton is still doing good work, and is not obliged to use the spray in order to keep his patient clean.

It is unnecessary to remark that surgery has made most wonderful strides within a few years, and we naturally ask the reason for this great advance. We are told that it is due to the practical use of asepsis. Now the term "aseptic" does not mean near so much to me as does the good old Anglo-Saxon phrase of "being clean."

The terms sepsis, antisepsis, disinfectant, disinfection and a host of other such phrases have been sprung upon the profession by the chemist and the pharmacist who have had something to sell, and consequently were always ready to assist the most conservative members of the profession by loading them down with various compounds, labeled with unpronounceable names. These chemic compounds may have their use, and at certain times may have some influence in overcoming what would otherwise be septic, but to my mind true cleanliness which can be brought about with soap and water and a scrubbing brush, is necessary before we place our faith in any of these compounds.

In the hygienic conditions involving a surgical

operation or a surgical dressing, we should always demand true innocence instead of repentance, for repentance of the evils done in this world does not benefit the victim of a polluted water supply, contamination of food, nor of the consequence of preventable septic poison. Good may come to others from such teachings, but to the friends of the victim a life is sacrificed to ignorance or stupidity, for it might have been different had there been proper care exercised.

A few weeks since, under the head of "Up-to-Date in Surgery," the *British Medical Journal* said in a rather sarcastic way: "Modern surgery is heroic enough to please the grim prophet of hero worship. It seems to have taken Danton's motto, which in English would be rendered, 'audacity, audacity, and still again audacity.'" This calls to mind the language of that most estimable wife of our distinguished compeer, Dr. John G. Blake, of Boston, who, when traveling through the mountain passes and canons of Colorado and New Mexico, and asked her impressions of the scenery, replied: "I don't know which to admire the most—the royal grandeur of nature, or the audacity of man as exhibited in the extraordinary feats of engineering skill." So, with the surgical work of to-day, we are sometimes at a loss to describe our feelings as to which we admire the most; the physical beauty of God's creation, or the audacity of man in his defense of the physical body against disease.

Continuing the quotation from the *British Medical Journal*, the writer says: "Almost every week one hears of some surgical Alexander cutting his way to fresh conquests. Is it not unnatural, therefore, that nearly every ambitious surgeon should see in the knife his '*In hoc signo vinces*?' In the hands of a skillful operator the knife doubtless can work greater wonders than the fabled wand of the magician, but it should be reserved for difficulties worthy of so noble a weapon. As Falstaff says of the English nation, it may be said that it was always the trick of our profession, if they have a good thing, to make it too common. We can not help thinking that the knife is made a trifle too common"

Again he says: "This is quite in the spirit of 'advanced surgery,' which, in the words of one of its chief professors, thinks no more of opening a patient's abdomen than a man does of putting his hand into his pocket. Is the day coming when a cold in the nose will be dealt with by Rouge's operation, and bronchitis treated on 'surgical principles' after preliminary opening of the windpipe?"

This is strong language, and yet to some extent it is worthy of our consideration, as at the present time there is a great predisposition for some people to become wedded to fads, and just now surgery, especially that of the cranial and abdominal cavities, seems to take the lead in the profession. With the improvement and advancement made in the hygiene of such work, the opening of these cavities has become nearly or quite without any expectation of harmful results. It is a matter of congratulation that every member of the profession should be allowed to have the ambition to go forward and perform all manner of operations; yet, on second thought, we must admit that only a comparatively few, in a sparsely-settled country, can become experts. Continued and daily practice becomes a necessity for good work, especially where delicacy of

touch and manipulation are required. The same is true in regard to the hygiene of an operation, in order to prevent contamination or sepsis. It appears to me sometimes, that we are prone to give our attention almost entirely to the opening of cavities, especially so far as the prevention of sepsis. Our books and our journals are full of instructions, especially in the opening of the cranial and abdominal cavities, and while they give you some general instructions regarding the minor operations, yet they are comparatively silent on such matters as are of daily occurrence to the profession at large.

It is only recently that I have observed in text-books or in journals any allusion whatever to the preparation of a patient for so simple an operation as vaccination, as it is generally understood that everybody must know how to vaccinate. In fact, it has become so common that the laity themselves think they can do it just as well as physicians, and all of us have had experience with that class of people. I believe the time is coming when by the use of preventive measures the operation for vaccination will be made one of importance, in which the arm, clothing and the surroundings will be made as nearly perfectly clean as it is possible. I have remarked to medical men and others that if we would approach a child who was to be vaccinated, and prepare the arm and the clothing and all the surroundings with the same care that we would if we were going to open the abdominal cavity, we should have far less trouble; there would be far less complaint of sore arms, and the possibility of other troubles, aside from the vaccine virus taking hold of the system of the patient. It is not my purpose to speak particularly of medicine or those auxiliaries of surgery beyond that of preventive means relative to surgical operations. I have great respect for the pharmacist who has been of value to the profession in bringing certain things to our notice, but I object to his assuming that we can not get along without him. The truth is, this work of advancement began and was made possible by our professional knowledge of hygiene. For some years before 1861 there had been but little advancement in surgery, which at that period was almost entirely confined to the extremities. Suppuration was the rule, and although the text-books taught that we might get union by first intention, yet they signally failed to teach us how it could be achieved. A good story is told of a surgeon and house officer of the period of 1870, and the same again in 1894, which runs as follows:

In the year of our Lord, A. D. 1870. Scene: surgical ward.

SURGEON: How is Jones doing?

HOUSE SURGEON: Extremely well, sir; the wound is suppurating nicely.

SURGEON: That's all right.

Time: In the year of our Lord, A. D. 1894. Scene: same surgical ward.

SURGEON: How is that amputation of the breast?

HOUSE SURGEON: I'm sorry to say, sir, the wound is suppurating.

SURGEON: What! Suppurating! Do you say suppurating? Well I'll be ———.

It is true that McDowell and some others had opened the abdominal cavity, but in doing this wonderful operation they had brought down upon their heads the scorn and the abuse of the majority of the profession, for they had utterly failed to give any

reason why such operations could be safely performed. While hygiene was known to be as old as the world itself, its simplicity was so universal that it had fallen from its high estate and had become one of the lost arts. It is to be remembered that in Holy Writ, we find in the law of Moses, much that pertains to hygiene and sanitation, and I sometimes wonder if it is because we find those matters in the Bible that so few seem to know that they ever existed. But whenever we look this matter over and come down to the vital principle, we are always confronted with the same thing, viz., that cleanliness is the foundation of all good surgical work. No matter how much we may have of carbolic acid and various other drugs and chemicals which are put upon the market and advertised largely, without cleanliness, without soap and water and the scrubbing brush, we shall utterly fail of doing good work. These are the hygienic measures on which surgery depends, and without which surgery would soon fall back to the low estate which it had prior to 1860. The most of the compounds which are placed upon the market are empirical in their character, and cost out of all proportion to the good work which they may be expected to perform. I am always suspicious of any man or physician who indulges in rhapsodies over some new medicine or compound. We should look out for him. He will bear watching carefully, for he may be but an advance agent, and is talking for the money in it, the same as the advance agent of a circus, or any other advertising agent. Many drugs and surgical supplies are advertised in our medical journals in which we have no confidence, and while there may be members in the profession who use them, yet it is generally expected that the public will purchase, rather than the profession. The advertising which some of these compounds get is simply ridiculous, and should not be tolerated by any member of the profession, or even any person of common sense.

The following item regarding a wonderful medicine is taken from the *New Idea*, and is presented you as an illustration of an extravagance in language that none but a mountebank or charlatan would assume, and yet it is only in a line with the exalted conditions the commercial traveler, representing manufacturing firms, would have us believe, and should we venture to express doubts regarding the infallibility of their compounds being as efficacious as their expression of confidence would lead one to expect, they seemed pained at our ignorance; and sometimes actually intimate or insinuate that you are but a back number. The item was as follows: "Chetterback's Balsam of Balsams. Nature's Palladium. Should you chance to have your brains knocked out, or your head chopped off, two drops of this seasonably applied will recall the fleeting spirit; reënthrone the deposed arch; cement the discontinuity of the parts, and in six minutes' time restore the lifeless trunk to all its pristine functions, vital, rational and animal."

To which the editor comments as follows:

"A full bottle of this will also make a sausage wag its tail and bark, and a jar of extract of beef, bellow or give milk."

Barnum once made the remark that the public loved to be humbugged and the suggestion has been acted upon by the maker and vender of patent medicine for many years.

Fortunes have been made, human beings have been

drugged, and the constitution of future generations has been impaired, until the philanthropist and the reformer should at least class this evil with that of intemperance.

It is not strange that the manufacturer of pharmaceutical preparations and surgical supplies, in the sharp competition of business, should fall into the same line, and shrewdly making use of the profession to bring out his products, be able to build up large business plants, and from his profits rival the dealer in patent medicines, in the elegance of his mansions. The physician and surgeon should always think for himself. The profession should direct public opinion on all matters of professional interest, instead of having it brought round in the grip of a commercial traveler. The surgeon should never confidently allow the use of some compound when he is not thoroughly informed of its chemic constituents. We know that absolute cleanliness, with abundance of dressing made absolutely aseptic by the great cleansing power of heat, will prevent infection from without, and give our patient every chance from the possibility of auto-infection from within.

One other matter I would like to bring to your notice. It is true it has not thus far been intruded upon the surgeon to the extent that it has been upon the physician, but I anticipate that ere long some bold disciple of the commercial travelers' union will come round to our office with a gripsack full of samples, for the relief and cure of such a variety of surgical diseases, "that," using his own language, "no reputable surgeon would ever be without a large stock ready for immediate use." The following from the pen of one of our profession, ever ready to meet imposition in every form, with ridicule and pungent wit, will serve to invite serious thought and investigation into a class of remedies that is being heralded to the world with all the brazen effrontery of empiricism. I give it to you as only a partial list of extracts:

"An extract of muscle for rheumatic pains,
A gray-matter extract to nourish our brains,
An extract of teeth for a man that can't chew,
A maxillary extract to cure lock jaw,
An extract of ocean to cure mal-de-mér,
A hirsute extract for those without hair,
A duodenal extract to serve a good turn,
In healing the ulcers that follow a burn,
An extract made out of a whole population,
To rescue some housewife from sterilization."

Medical journals wielding considerable influence in the profession, unblushingly open their advertising pages and with sensational head lines intimate that any one who reads can be raised from the depths of despondency, if they will only send for these specifics. To the reflecting mind it seems as if any educated person would at once distrust such dogmatic assertions, yet in the present, it is becoming a fad to follow the bacteriologist and the biologist through the devious pathways of the laboratory, and accept the diagnosis of the culture tube without question.

True scientific investigation and its deductions should be the admiration of every member of the profession, but do not be in such hot haste to accept conclusions as to overthrow and trample upon such common sense opinions as have been set forth by State Medicine, as well as the axioms and aphorisms of the science and art of medicine and surgery that have been in the past and must be in the future, beacon lights to guide professional opinion, thereby

avoiding the dangerous shoals of dogmatic assertion and empirical insinuation.

The bacteriologist and biologist are doing good work, but many of those performing the most labor in this department are not practical physicians and surgeons, and therefore do not test the results of their own study. Should such students become enthusiastic and fascinated over the secret processes revealed through the culture tube and the microscope, will it be always safe to follow in their lead without something more than theoretical assurance? I have great respect for newspapers and medical journals, as well as for the enterprising men who serve as the medium of communication between the people of different sections of the world, yet they oftentimes defeat a good object by prematurely bringing before the public the work of the scientist. Less haste and more conservatism would develop less fads, but more real science. The sensational might be far less prominent, but real worth would be a solace to the profession.

A summary of this paper may be concisely stated in a few words:

Always investigate for yourself. Do not allow "isms" nor fads to become a part of your daily prescriptions. Hold fast to that which is good, and promptly discard all that will not bear a searching scientific investigation, under a light as strong as the noonday sun.

And lastly with a thorough knowledge of hygiene, therefor fully realizing the powerful influence of State Medicine in counteracting the deleterious effects of fads and theories that are but a figment of the imagination (fostered by minds already dazed by an all-absorbing desire for pecuniary gain), we should not forget that in surgery we have in absolute cleanliness the true foundation of practical success.

THE NATURE OF A DELUSION.

BY J. SANDERSON CHRISTISON, M.D.

CHICAGO.

My article entitled, "The Essential of Insanity," which appeared in the *JOURNAL* of October 19 contained an argument supporting the proposition that "where there is no delusion there is no insanity, for the mind that is competent to comprehend facts and their bearings within the scope of its education and the limits of ordinary surroundings is a mind capable of correction on any error; and conversely, a mind that is not thus competent must of necessity beget delusion of one form or another which it is as incompetent to discharge, no matter what the evidence combating."

Since the presentation of that article for publication (last spring) I find in the present autumn number of *Brain*, p. 328, the following words of Prof. C. Mercier, of London, in his discussion of a paper by Dr. Batty Tuke. Dr. Mercier expresses his gratification at Dr. Tuke's complete acceptance of the doctrine, which, says he: "I have long held and preached but which has never before, as far as I know, had any adherent; that insanity and disorder of mind are not convertible terms and that disorder of mind—grave and prominent disorder of mind may exist in a sane person and without the question of insanity being even raised."

When two such authorities so enunciate, I think I am very nearly cleared of heresy in my proposition and believe the day is dawning when doctors on the

stand will be less confused and confusing on the subject of insanity.

In the same article, I also asserted that a delusion had three components or elements of aberration, viz., 1, error of fact; 2, error of inference; and 3, illogical tenacity.

1. The basis data or premises of a delusion are not all true and they are not necessarily all false, but must contain some error or illusional feature or hallucination in any case. This is evident from the law of association which requires at least one quality or idea for a leader to bring others into a particular relationship, fitting or false, otherwise an inference or delusion could have no attachment and therefore no existence. The error may be supplied by the senses or the imagination or may exist subconsciously, as when the delusion takes the form of a feeling or emotion or impulse.

If the law of the association of ideas were inoperative chaos would result, and if only partially operative as in the delusional state, the same result would take place, viz., error of fact, as we would have jumbled facts—or facts in malposition giving erroneous perceptions. A part truth is an untruth. But the law of association more or less prevails except in recollection which is a voluntary act and is necessarily affected owing to reduction of will power. Memory, which is technically the term for the conservative faculty, but is also used to mean the involuntary return of ideas to consciousness through natural or habitual association (as in the lower animals), continues comparatively unaffected as it is operative in all passive states of mind, not preoccupied.

Again, as the mind is a unit (its faculties being but interdependent modes of activity) and as it is the same faulty mind which perceives the basis data that conceives their relationship, it is evident that to suppose it correct in the one case and not in the other is to assume that an insane mind can be sound and unsound almost simultaneously.

Everyday things and things that are common; habits that are automatic or almost so from repetition, and arguments or reasonings that have become habitual or familiar, are less likely to be affected than those requiring consideration or of recent acquisition and thus much of an insane person's behavior and talk may be quite normal or even smart. Accordingly much of the basis data of a delusion may be true with one or more of the less familiar facts distorted through imperfect attention, or an entirely false one may be obtruded by hallucination.

2. That a delusion also contains an error of inference—an illogical deduction from the data as they appear to the subject, is evident from the last reason given for error of data. If the mind is accurate in perception there can be no basis for a delusion and therefore no delusion; and conversely, if it is accurate in inference, it is capable of being accurate in perception and the delusion would dissolve as is the case in restoration from insanities.

3. By illogical tenacity I mean the irrational persistence of the delusion in the face of positive and contradictory evidence sufficient to refute, so that the delusion is maintained, not because of ignorance—which is chiefly the case in common or simple delusions—but because of volitional inability to direct the mental operations beyond the ideas as they appear to the subject. In other words, the attentive power of the mind has become subjective to elemen-

tary details rather than the associating principles and, as a consequence, the last conception is retained simply from the lack of the cerebral energy requisite for a progressive mentation which would give the correction. A patient may argue rationally along lines of previously established habit on common knowledge even with reference to a delusion, the birth of which may only be accounted for in the same way that we account for an intuition—a subconscious action of previously acquired ideas true or false.

CONFUSION, EMOTION, IMPULSE, FEELING.

Psychologically, I do not distinguish any essential difference between what are called insanity of conduct (a form of hysteria); insanity of feeling (impulse); moral insanity and such a distinctive form as homicidal mania. The subjects all, to a certain extent, know what they do at the moment of committing a crime. But when not shamming they are impelled to their acts by the domination of a delusion which they can not overcome. Whatever is not purely automatic is more or less a conscious act (even including somnambulism and hypnotism to a limited extent with forgetfulness following) and as such, must be the product of an idea, right or wrong, distinct or confused. If all intellection ceases, what is to direct or move the hand and foot? The will can not act without an idea, no matter how perverted the mind may be. The nervous individual who ascends to a giddy height and experiences an impulse to jump from it, should he jump is impelled by the delusion that he must do so, which is insanity, as the facts facing him confute the necessity for the act.

That a correct minded person should become possessed (as many allege) with such a feeling, notion or impulse, whichever you choose to call it, and be actuated by it, is simply inconceivable. In cases of such extraordinary morbid feeling there must be an existing cerebral perversion—a delusional basis which breaks from its last thread of reason by the strain of the situation which may focus the ideational confusion into a delusional impulse, but which may have had a previous conscious existence. I have never heard of any one jumping under such circumstances except suicides. But we occasionally meet with persons who have experienced such alarming neurasthenic feelings but managed to control them as the normal will still ruled.

Confusion, feeling, emotion and impulse are simply degrees of ideational activity without a corresponding degree of self-control, and thus the delusion existing may be indistinct.

The moral crook (kleptomaniac, pyromaniac, etc.) who keenly appreciates his unenviable predicaments, is another neurotic who may have a dominating delusion, although in some cases acquired as a habit and only at times or periodically in action. Like the hysteric or epileptic, his conduct has a motive idea or cause that is often obscure and perhaps immediately forgotten after the act, but none the less insanely delusional for the time being.

A Sure Testimonial.—From the *New York World*: Patent Medicine Agent: "Madam, did your husband use the bottle of Professor De Fakir's Animal Extract I left him?"

Wife: "Yes. It took immediate effect."

Agent: "Good! Then you can conscientiously say that he will use no other?"

Widow: "I'm quite sure I can. He is dead."

NEW INSTRUMENTS.

AN AURAL MASSEUR.

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MINNEAPOLIS, MINN.

The question of the benefits derivable from aural massage in middle ear affections is still unsettled, but many advocate its employment. Improvement doubtless occurs in some cases under its influence, and the necessity for a good, efficient, cheap and handy instrument is apparent. These merits can all be obtained in the appliance here described, the principle of which was suggested to me by my friend Dr. W. N. Porteous, of this city.



The instrument consists of a piece of thick rubber tubing one yard in length, of dark color, to prevent soiling. The tubing is severed in the middle, and some glass tubing inserted to connect the two ends. In this glass tubing is loosely placed some cotton. The object in thus inserting the glass tube and cotton is to insure cleanliness to both surgeon and patient, as it prevents anything passing from the patient's ear to the surgeon's mouth, or *vice versa*. As the cotton is apt to pass out of the glass tube during the massage treatment, it would be better for the surgeon to fasten it in the tube by a drop of mucilage. On one extremity of the tube is impressed the word "Mouth," showing that this end is for the surgeon's mouth. This extremity is also fitted with a hard rubber mouth-piece. The other end is impressed with the word "Ear," showing it is for the patient's ear. The rubber is here left free and soft, as it can thus be best fitted into the meatus and its insertion is unaccompanied by pain.

When it is desired to use the instrument, one end is securely placed in the patient's meatus and held there by the surgeon. The other end is put in the surgeon's mouth, and suction applied as weak or strong as is desired. By sucking in and out, as it were, a vibratory movement of the drum-head and ossicles may be obtained, which can be continued as long as is thought proper—but a minute or so will probably be sufficient.

Care must be taken not to proceed with this application too vigorously, as great force may be obtained and unfortunate results produced, such as a rupture of the drum-head, blood blisters in the meatus, etc.

SELECTIONS.

Report of 1,000 Goitre Operations.—(Kocher, at the twenty-fourth Congress of the German Society for Surgery, April, 1895.) When Kocher presented to the Congress the report of his first 100 operations twelve years ago, he pictured clearly the strumous cachexia. In the last 900, never has the strumous cachexia been presented, except in one case. After deducting the malignant cases, which demanded complicated operations, out of 870 cases only 11 died, and this number includes such cases as were in *extremis* on admission

to the hospital. Five deaths were not directly chargeable to the operation, three were cases of Basedow's disease, the latter showing the justice of Mikulicz's decision that the operation is more dangerous in Basedow's disease than in simple struma. Therefore in such cases Kocher disregards complete excision and is satisfied with a ligature, and ties only three arteries. In one case in which four arteries were tied, tetany set in immediately. Of the simple, uncomplicated cases only three died. In the last 900, there was no death from chloroform; in the first 100, one. One case of bronchitis from ether with fatal outcome is noted. In general the anesthesia was started with chloroform and continued with small doses of ether. With severe dyspnea it is better to operate under cocain, which is well borne. Only two deaths were due to infection, and both were secondary operations. There was one series of 272 operations without a death. Although these favorable results fill us with pride, yet the patients would be more thankful and it would be a triumph of science, if the prevention and cure of goitre could become merely a question of rational nourishment. The researches of Kocher's assistants, Lang and v. Trachevsky, have now shown that long-continued thyroid feeding will diminish the size of a goitre and even bring on a condition of atrophy, so that the danger lies in abolishing the function of the thyroid. Though these experiments were carried out on animals, yet they are important. Kocher has, in connection with v. Trachevsky, extirpated the thyroid in pregnant animals with the view of ascertaining whether fetal cretinism can be produced. And in fact rachitic young have been born. Further, v. Trachevsky has demonstrated that atrophy of the thyroid can be induced by administration of phosphates. And already Kocher has shown that a rapid improvement in Basedow's disease follows treatment with sodium phosphate. v. Trachevsky draws the conclusion from this that the condition of the thyroid stands in close relation to the amount of phosphate in the human body. And the assumption is not far removed that the growth of a goitre can be influenced definitely by suitable feeding. In proof of this Kocher has shown two photographs of a man (before and after treatment with thyroid juice) in whom a colossal struma completely disappeared in one and one-half years under purely dietetic treatment.—*Centralblatt für Chirurgie*, July 6, 1895.

Thyroid Feeding for Syphilis.—From the military hospital at Warsaw comes the account of the internal use of fresh thyroid gland from an ox in a severe case of secondary syphilis which had not improved under mercury and iodid of potash. The thyroid was cut into small pieces reduced to a pulp and fed to the patient with bread, butter and salt. Improvement began on the third day. The deep ulceration of the nose and ear soon healed. Temperature fell, appetite improved, and weight increased. There had been great emaciation. The patient complained at first of nausea, palpitation, and trembling of extremities, and the pulse rose to 120, but these symptoms disappeared. The dose at first was 2 grams, with a daily increase of 2 gm. until 14 was given, and the treatment was omitted every third day.—*Wiener klinische Rundschau*, Sept. 15, 1895.

Autoscopy of Larynx and Trachea (examination without mirror).—Kirstein applies this title to a method of direct inspection of larynx and trachea by the eye alone, and he insists that it is possible in many cases even as far as the bifurcation. After application of cocain to pharynx and epiglottis, the patient is placed in the horizontal position with head hanging over the edge of the table. The autoscope is a short, thick semi-cylindrical instrument, joined at a right angle with a Casper's electroscope. This is introduced into the mouth, moved along the posterior wall of pharynx to the level of cartilages of Santorini, then pushed forward by a quick upward movement, by which the tongue is pressed forward and the epiglottis raised. Now under favorable electric lighting the larynx and trachea can be directly inspected, and the autoscopic picture is far superior to that with mirror.—*Wiener klinische Rundschau*, July 21, 1895.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, NOVEMBER 16, 1895.

THE PASSING OF HYPNOTISM.

Hypnotism as a therapeutic agent is now having its day in regular medicine, but it is a day that is probably well past its meridian. The belief that it has its dangers and that these overbalance its possible benefits has grown within the past few years, and the number of regular physicians who use it in their practice is probably very markedly on the decrease. It is legitimate to utilize pathologic conditions and even to produce them in therapeutics, but it must be demonstrated as of utility on reasonable *a priori* grounds, or, at least, have the best of clinical and experimental evidence in its favor to make it expedient or justifiable. When, with a better knowledge or theory of the condition the *a priori* deductions tend to its disfavor as a healing agency, only the most decided clinical proofs of its value, applying not only to immediate but also to remote results, should be required before its use in the treatment of disease is countenanced to any extent.

The revival within the past sixteen years of interest in hypnotism, the claims of the Nancy school and the published accounts of the experiences and practice of numerous physicians and scientific men of repute such as FOREL, VOISIN, BENSWANGER, BRAMWELL, and others, have given it a certain status in legitimate therapeutics, considerably beyond what it possessed in its former period of cultivation some fifty years ago.

It is probably not known to the general medical public of to-day, or if known is forgotten, that at that time it had its popular pseudo-scientific standing and was investigated by men of science, who came to very much the same conclusions as those of the present day. This fact has been well shown by Dr. J. G.

KIERNAN in a paper published in the *American Journal of Insanity* at the beginning of the present year; he shows that the earlier alienists of this country recognized the dangers of hypnotism, its psychologic basis, and the element of morbidity that is required to predispose to susceptibility. The outcome of the whole at that time was to relegate it back among the pathologic curiosities of little practical value, and it slumbered, in a medical point of view for over thirty years.

It seems probable that we are to see history repeat itself, and that before many years the medical profession will drop hypnotism as a therapeutic agent, at least, that will be the general if not the universal rule, and that its use will be mostly confined, as it was during the years between 1848 and 1880, to the irregulars outside of the recognized schools of medicine. That is its tendency at the present time, and while some unquestionably able men are still experimenting with it, a too great credulity as to its value and powers has seriously injured some high scientific reputations, that of LUYS of Paris, for example, among others. We need not particularize here on what may be rightly called the thoroughly disreputable therapeutics of hypnotism, as applied by certain prominent German physicians—they have before been editorially alluded to in the JOURNAL.

The dangers of hypnotism are already indicated, when we consider its close relationship to hysteria and to hysterical conditions which has been shown by CHARCOT, GILLES DE LA TOURETTE and others in France, Germany, and elsewhere. Of all pathologic conditions hysteria would seem to be one of the least likely to be therapeutically useful, and the utilizing of hysteroid anesthetics and other disturbances of consciousness, going so far, even, as to the production of what may perhaps be properly called epileptoid conditions of double consciousness and amnesia, without regard to the after effects of such disordered cortical functioning, is not a procedure that ought, it would seem, to be countenanced as a legitimate method of treatment of any condition; a condition, moreover, in which the will is in abeyance is not a normal one and its tendency must be to weaken the inhibitory power of the brain and change its functions, possibly even to the extent, in some cases, of producing serious mental disorder. As HACK TUKE mentioned, some thirty years ago, hypnotic conditions have in a fashion something of the character of an induced temporary insanity, and their too frequent repetition may make the derangement a permanent one. Such has undoubtedly been the case in not a few instances, to say nothing of the aggravations of hysteria and even the production of epilepsy in some cases. The dangers of hypnotism are real, and the fact that the majority of the victims escape the worst of them, does not in any way excuse the reckless ex-

perimentation that is sometimes carried on for ostensible therapeutic ends. If the major hypnotism, or that which commonly goes under the name and is attended with marked disturbances of consciousness, has even any utility in treatment, it must be a very limited one and the chances of its doing mischief greatly outweigh its advantages.

It may be asserted the interest in the subject has been to the advantage of the profession, by calling attention to the therapeutic value of suggestion, and, to a certain extent, this claim may be allowed. It has not, however, increased our practical knowledge in this direction; it has only led to a possibly wider recognition of the advantages of suggestion by the regular profession. The legitimate use of suggestion is, however, quite as different from hypnotism as the latter is generally understood and practiced, as it is from its illegitimate use which leads directly to quackery.

TEMPERANCE INSTRUCTION IN PUBLIC SCHOOLS.

For many years there has been an increasing conviction that physiologic instruction of the danger and injuries from alcohol and other narcotics, in schools was the most practical way of lessening the evils of drinking. In accordance with this, laws have been passed in Congress and forty-one different States making it obligatory to teach physiology and hygiene, using such works as have special reference to the effects of alcohol and other narcotics on the human body. Books have been prepared to meet this demand, which have passed the severest criticism, in both Government and other schools.

Evolution and elimination has weeded out all but a few series which have been edited by several eminent medical men. Sweden, Norway, Spain and recently France have taken up this work, and some of these books have been boldly translated and adopted in the private schools of these countries.

The French Department of Instruction has urged similar compulsory laws by the Government. A law of this character which was passed in New York ten years ago, was amended last winter and made compulsory, requiring all schools to give four lessons a week for ten weeks in physiology and hygiene. This law was passed without a single opposing vote and signed by the Governor and is identical with the laws in other States.

Now comes a phase of history which is repeated along the same lines in every advance of science. The superintendent of public instruction in New York discovers that this law is dangerous and impractical, and that the text-books are full of errors and misleading. A bishop and theological professor make the same discovery, and a battle opens with much sound and fury. The superintendent asserts that no children can be taught concerning the evils of alcohol, opium, tobacco and other narcotics, unless they have

some knowledge of chemistry. Even then, if this teaching is not in accord with the theories and practice of parents, it is useless and dangerous. He is very confident that alcohol is a food, and useful stimulant, and indispensable when used in moderation; also that all contrary views are unreasonable, fanatical and opposed by all science and good judgment. He finally urges that the law be violated and every means be used to have it repealed.

Opposed to this, it is asserted that the law has been found practical in the government schools at West Point, Annapolis, and other places, and in all the forty States where it is in operation, it has been warmly supported by leading instructors, from the Government Commissioner of Education down.

The disputed questions of alcohol are said to be so far settled, that certain facts can be taught with great confidence and accuracy. Particularly hygienic and practical truths along the line of daily experience. It is also asserted that the evils from spirits and other drugs can be made clear to all school children, in the same way as other truths of physiology. Such teachings, along with other physiologic facts are of inestimable value in the future history of the child.

The authors and publishers of these text-books invite the closest criticism concerning statements alleged to be untrue, and promise to make corrections in every instance. Among these authors, are Drs. MARTIN, PALMER, TRACY, STOWELL, and others who are or were, not only practicing physicians but teachers in medical colleges and who have given special care to both the facts and manner of presentation. Into this curious controversy some medical men have been drawn, and a decided "Donnybrook Fair" appearance, is presented.

The political methods of the superintendent of schools to have this law repealed, are on a par with those of Tammany Hall. Appeals to public sentiment to prove the truth or error of questions concerning alcohol only result in confusion, particularly when the facts at issue can only be settled by appeals to science and medical men. The questions in controversy are these: are the statements concerning alcohol and other narcotics in these school text-books, true? and, if so, can they be practically taught in public schools?

If these books contain errors, it would seem to be an easy matter to point them out in the State of New York, with its great centers of medical science and learning. Another rather interesting query is suggested: have all the Legislatures of forty-one States, together with Congress, the President, and various Governors who have passed and signed these bills all blundered? Are they all temperance fanatics and wild enthusiasts? Some of the authors of these books were never recognized as extremist or temper-

ance cranks. Have they all blundered and committed themselves to gross errors? We shall watch this battle with some interest.

SOME NEW LIGHT ON THE CAUSATION OF IDIOPATHIC TETANUS.

To those who are brought into contact with clinical and experimental tetanus in the bacteriologic laboratory, the older theories which attempted to account for the disease appear ridiculous enough. One has only to read the chapter on traumatic tetanus in a text-book on practice of medicine, issued even as late as ten years ago, to see some theoretical curiosities in the efforts made to explain the etiology of the disease from the purely clinical side. The discovery and isolation of the tetanus bacillus by NICOLAÏER and KITASATO, and the separation of the tetanus toxin, have given experimental pathologists a rational foundation for their work upon traumatic tetanus, and enough clinical and experimental study has now been made to set aside all doubts as to the part played by the specific parasite in this disease. Upon the demonstration that the tetanus bacilli gained entrance at the seat of traumatism and here produced their deadly toxins, the etiology of ordinary wound tetanus was set at rest. On the same principle, tetanus of the new-born and tetanus of the puerperium can be explained by looking upon the umbilical cord and the open uterine sinuses respectively, as the gateways of infection.

Those forms of tetanus, however, in which no demonstrable wounds could be discovered, that is, the type of this disease known as idiopathic or rheumatic tetanus, have still eluded the efforts of the pathologists who have attempted to discover their etiology; and a great deal of discussion has arisen as to the relations of the idiopathic and traumatic tetanus. Experimental evidence of a positive nature in relation to idiopathic tetanus has been slow in coming, and it is therefore a matter of considerable importance that we are now able to point to a very pretty and successfully executed investigation bearing on this point.

The work referred to has just recently been published by CARBONE and PERRERO, (*Ueber die Aetiologie des rheumatischen Tetanus. Centralblatt für Bacteriologie und Parasitenkunde*, XVIII Bd., No. 7, Aug. 31, 1895, pp. 193-201) and these investigators had the rare fortune to discover, in a case of rheumatic tetanus with no demonstrable traumatism, the *tetanus bacilli* in the inflamed bronchi.

The patient presented himself at the hospital with a negative previous history. No record of recent injury, but with the statement that he had shortly before his illness been exposed to a severe rain-storm. He exhibited pronounced symptoms of tetanus, together with those of bronchitis, upon his entrance to

the hospital, and the tetanus gradually increased, until death occurred in three days after his admission. At the autopsy, no visible wound could be found on the body after careful search, save a little scratch on one ear, and the crust from this wound, implanted into white mice, showed no tetanus bacilli. The important gross lesion was a rather intense bronchitis, and from the exudate contained in the larger bronchi on the right side, a series of white mice were inoculated with the production of typical experimental tetanus, and with the recovery of a tetanus-producing pus from the seat of inoculation in these animals. Culture experiments made with the bronchial exudate were also successful, though some trouble was experienced in isolating the tetanus bacilli from the diplococcus of pneumonia with which they were intimately associated. A pure culture of the tetanus bacilli could only be obtained on plates of acid gelatin, and the organisms thus isolated were no longer virulent. The whole study was carefully executed, and no doubt can remain after reading the authors' account that in their case of rheumatic tetanus, the bacillus of NICOLAÏER found its focus for infection in the bronchi which were already the seat of an acute inflammation due to the pneumococcus. As a consequence this work must be looked upon as the first complete experimental demonstration of the etiologic identity of traumatic and idiopathic tetanus.

A very interesting and significant fact brought out by this research relates to the curious variation which the tetanus bacilli underwent because of their association with the pneumococcus. It is well known that the tetanus bacillus has generally been looked upon as a *strict anaërobe*; that is, as an organism which would develop only in the absence of oxygen. CARBONE and PERRERO, however, had great difficulty in obtaining typical cultures of this bacillus by anaerobic methods, and they finally found that a luxuriant and rapid growth of the bacilli could be obtained when the cultures were exposed to the atmospheric air in the usual way. It was further found that this aerobic growth of the presumably anaerobic microbes was distinctly related to their association with the pneumococci.

This reversion to the aerobic vegetation-form in the tetanus bacilli in the case reported becomes a matter of great importance, as pointed out by the authors, since it explains the apparently anomalous phenomenon presented by the tetanus bacilli selecting as the primary seat of their pathogenic activities, the well-oxygenated larger bronchial tubes. However, if the tetanus organisms could produce a luxuriant and highly virulent aerobic culture on artificial media because of the mixture with the other species of bacteria, there is no reason why this might not happen, as suggested, in the bronchial tubes of a living animal.

The discovery of the aerobic modification of *Bacillus tetani* in mixed cultures is not original with CARBONE and PERRERO, since the fact has been noted by other bacteriologists, as BELFANTI, SANCHEZ TOLEDO, and VILLON; and the same variation has been observed with the bacillus of malignant edema by PENZO. More recently still, this very interesting symbiotic relationship of the aerobic and obligate anaerobic bacteria has been experimentally studied by KEDROWSKI (*Ueber die Bedingungen, unter welchen anaëroben Bakterien auch bei Gegenwart von Sauerstoff existieren können. Zeitschrift für Hygiene, Bd. xx, Heft. 3, 1895*), who has shown that the tetanus bacillus and an anaerobic species obtained from butyric fermentations grow readily in the atmospheric air when associated with a number of species, both of strict aerobes and of facultative anaerobes.

ADENOMAS OF THE LIVER.

Among the new growths occurring in the liver, the adenomas should have a peculiar interest for the pathologist and clinician, both on account of their relative frequency in this viscus, as well as their interesting structure. This latter has given rise to considerable discussion, and at present the consensus of opinion seems to be that these tumors are so intimately allied with the carcinomas on one hand, and the cystomas on the other, that no sharp line of distinction can be drawn.

Like most questions connected with pathology and pathologic histology, it is only in the present century that adenomas have been recognized as a distinct pathologic entity. The recognition of the finer details is a question of the last few decades. First noticed in the mammary gland, they have been successively described from other glandular structures, until they are known to occur in the breast, kidneys, liver, salivary, sweat and lacrymal glands, the glands of the stomach and intestine, etc.

In 1829 the famous surgeon SIR ASTLEY COOPER, described a "chronic mammary tumor" occurring principally in females from 17 to 30 years of age, and differentiated it from regular hypertrophy of the breast. Ten years later VELPEAU mentioned the occurrence of "fibrinous tumors" which he thought were caused "by the organization of a greater or less quantity of blood or other matter extravasated into the breast, following a blow, contusion, etc." In 1850 LEBERT¹ described four tumors of the breast markedly differing externally but agreeing in presenting glandular cavities internally, lined with epithelium. He considered them to be the same as the chronic tumor of COOPER and the fibrinous variety of VELPEAU. From this time on, our knowledge of the growths was rapidly extended by various investigators.

If we were inspecting a liver containing adenomata, we should find the organ enlarged as a rule, the surface generally nodulated, though sometimes the growths are hard to find, and the organ must be nearly "hashed," as one author expresses it, to discover them. The tumors are of various sizes, from a grain of wheat up to a small orange. They are multiple, and as a general rule the smaller they are, the more numerous. The color is sometimes grayish yellow, if infiltrated with blood reddish, but mostly of a decided golden yellow, contrasting strongly with the rest of the organ.

Microscopic examination shows the growths to be made up of little *culs-de-sac* of epithelial cells turned in various directions and bearing a more or less close resemblance to a gland, seeming as if some one had started to make a gland and then abandoned the effort, leaving the material strewn about. As a rule, two general patterns may be noticed—the tubular and the alveolar. These epithelial deposits are surrounded and supported by a stroma of connective tissue which may be thick and abundant or thin and sparse.

As already stated, our adenomas are closely related to carcinoma, hence there is the usual diversity of opinion as to their true nature. MM. KELSH² and KIENER³ claim an adenoma is merely a form of special irritative hepatitis, a special epithelial cirrhosis. SABOURIN⁴ sees in adenomata a true epithelioma, but of specific nature, a reaction of the liver cell from the influence of some unknown cause of irritation. QUINQUAND⁵ looks upon these growths as nothing but cylindrical epitheliomas. BRISSAUD⁶ claims an adenoma is an epithelial tumor which may be transformed into a cancer at any moment. Finally, MM. HANOT and GILBERT⁷ in their classic treatise look upon adenoma as only a name given by the earlier writers to a variety of primitive cancer of the liver.

This diversity of opinion is found also when the origin of the connective tissue stroma is explained. SABOURIN remarks: "While the walls of the capillaries are not modified by cirrhosis, the adenomatous cylinders are destitute of proper walls like the hepatic trabeculae which they replace." Thus adenoma seems to be only a complication or an accident in the cirrhosis. According to LANCEREAUX⁷ the cirrhosis is secondary and is a result of the neoplasms developing in the liver. KELSH and KIENER as well as HANOT and GILBERT think the cirrhosis and the adenomas develop simultaneously under the influence of the same irritating agent.

The pathogeny is still obscure. As regards age they are an appanage of early life, those of the recumbent are especially frequent in children. BROCA⁸

² Arch. de Physiologie, 1876.

³ These de Paris, 1881.

⁴ Tribune Medicale, 1875.

⁵ Arch. Gen. de Med., 1885.

⁶ Traité des Mal. du Foie, 1886.

⁷ Union Med., 1886. ⁸ Traité des Tumeurs I, p. 446.

gives a table of ninety cases in various glands; in forty-two, the ages were less than 30, in twenty-eight, from 31 to 40, and in only twenty was the age over 40. As LANCEREAUX remarks:⁹ "This shows the genesis of these tumors to be related to the period of formation or development of glands."

The symptomatology recalls both that of cirrhosis and that of cancer. The onset is often made and ushered in by divers digestive troubles, disgust for food and especially meat. Dull pains occupying all the abdomen, especially the right hypochondrium and increased by profuse meteorism, ascites and wasting follows rapidly. The volume of the liver varies; if cirrhosis predominates it is small and retracted behind the ribs; most often it is increased in size, the surface hard and nodular; the subcutaneous veins of the abdomen are dilated.¹⁰

The spleen is of but little importance from a diagnostic standpoint, for according to HANOT and GILBERT, it is as often small as hypertrophied. Icterus is present nearly constantly; while vomiting, intense from the onset as a general thing begins slowly and progresses steadily until the end. Contrary to what we see in other forms of cirrhosis, hematemesis, melena and albuminuria are exceptional. LANCEREAUX has observed an anemic cardiac murmur in some cases.

As regards duration of the disease, after it has existed a few weeks or months the phenomena are aggravated, vomiting is frequent, dyspnea is continuous and the patient dies comatose or after syncopic attacks. In most cases this fatal termination occurs in two to four months, and the extreme limits assigned by HANOT and GILBERT are five weeks and sixteen months.

Unhappily, as THÉRESE¹¹ remarks, "when the diagnosis is established there is but one prognosis, and treatment so far has been palliative only."

CORRESPONDENCE.

Medical Examiners' Fees.

CHICAGO, ILL., Nov. 12, 1895.

To the Editor:—I perused with much gratification the instructive paper entitled, "Practical Life Insurance Examinations," by Dr. John L. Davis (JOURNAL, September 28), and more recently enjoyed the discussion upon this topic by Dr. W. W. Vinnedge, of Lafayette, Ind., (JOURNAL October 12 and 26) and, lastly, the views set forth in your editorial on this subject.

One of the most important questions perhaps that arises, in my mind is this, What are Dr. Vinnedge, and all his confrères throughout the country going to do about it? Suppose the life insurance companies named (and others are likely to adopt the same course) have reduced the fee for medical examinations, shall they—these companies who have accumulated and own millions of dollars worth of assets, and in hundreds and thousands of instances have re-

lieved the distressed and unfortunate, be boycotted? Shall able and more experienced physicians stand aside to make room for the younger members of our profession, that they may receive appointments as local medical examiners, medical directors, *et al?* Or shall we accept what is offered us by these wealthy life insurance companies—the reduced fee of \$3, and be content?

The editorial in the JOURNAL of October 26 certainly has voiced the sentiment of the great majority of the profession, especially the members of the AMERICAN MEDICAL ASSOCIATION, on this important subject, and, so far as it goes, without having entered into minute details is sound. But there is something else to be considered beside money making, in a careful physical examination of an applicant for life insurance, which I shall refer to before closing this letter.

Regarding the reduced fee, as I understand it, this reduction was substantially agreed upon, at the meeting of medical directors of various life insurance companies held last May in New York after adjournment of the Baltimore meeting. It was decided then to reduce the fees of the local medical examiners of some of the oldest and best known companies in the United States. At the aforesaid meeting, however, nothing was said as to these rich and powerful corporations reducing the amount of premiums for the policies they sell; nothing was said about pruning salaries or devising ways and means to reduce salaries of higher-priced officers; neither was there anything stated or done as to the said companies reducing their rate of interest when they loan money upon desirable "gilt-edged" security. Nor was there any discussion upon the matter of lessening rents to tenants of buildings owned by these magnificent corporations, for it was not the business of these gentlemen to discuss any of those material topics; nor is it known that retrenchment and economy in other departments were considered or advocated. Solely the reduction of fees of their medical examiners was decided upon, etc.

Apropos to this question, perhaps your correspondent, Dr. Vinnedge, and a few thousand other able practitioners have felt this indignity. Physicians who for years perhaps, or during their time of appointment as medical examiners have extolled the advantages of "their" life insurance company over all competitors, for which they received no emolument, are now obliged to accept reduced pay or resign. In all sincerity, may I ask, is this fair treatment on the part of these immensely rich corporations?

But suppose the reduction does not stop at \$3? I understand from the most reliable source that a certain life insurance company which is rated to be one of the largest and strongest companies financially, doing business in our country, has gone farther and proposes hereafter to pay something like \$3½ cents to their medical examiners for each examination made. In Chicago the company mentioned has agreed to pay each of its medical examiners a salary of \$1,000 per annum—and the company guarantees to give to each of its examiners 1,200 examinations during the year. Or, rather, the examiner is obligated by contract to do this amount of work if needs be for his company. If the foregoing statement can be disproved, I should like to have some one knowing it to be otherwise, prove the contrary.

Several life insurance companies doing business in Chicago have appointed as their medical director or chief medical referee, a specialist. Again I may be pardoned for venturing to inquire, is this fair and honest to the men who do general practice, particularly when our "specialist" friends—most of them, at least, announce and invite our attention to the fact that their practice is limited to the treatment of a special line of disease? Therefore to my mind, it does not seem quite consistent for an oculist, aurist, gynecologist, dermatologist, alienist, neurologist or an expert in mental or nervous diseases, or one whose practice is limited to diseases of the nose and throat or other special branches in medicine, to accept a position as medical director, medical referee or medical examiner of a life insurance company. On the other hand, it might appear also that the sagacity of a company would induce it to select some other than a specialist for its chief medical adviser.

⁹ Traité d'Anat. Path. I, p. 410.

¹⁰ Thérèse Union Méd. 1895 No. 34.

¹¹ Loc cit.

As to agents for life insurance companies, to whom reference has been made, these are varied in quality and kind. My experience and acquaintance with them, is that as a rule, they are a pleasant, agreeable and courteous class of gentlemen, and sociable to the highest degree—gentlemen who command the respect of the community in which they reside.

I take it for granted that all companies, as a rule, try to secure medical gentlemen of professional skill and ability, men of sound judgment, and who are thoroughly versed in technique, and are "broad gauge" in the theory and general practice of medicine.

I would say in conclusion, in replying to the first proposition of Dr. Davis, "that physicians do not give 'quid pro quo' for the professional service they render life insurance companies," in my opinion, a conscientious physician always endeavors to give "value received" for his services, as he certainly should be a careful and skilled diagnostician. It is probable, too, in numerous instances that the examiner may have to call twice or even thrice upon the applicant at his residence or place of business, only to find him absent or otherwise engaged. Then he has to return to his office to complete the report of his examination, all of which requires valuable time and patience. In such instances the examiner has well earned a \$3 fee, and frequently the general average of cases are not unlike the above hypothetical one.

Very respectfully yours,

LISTON H. MONTGOMERY, M.D.

70 State Street.

The Protonucleins.

GOSHEN, IND., NOV. 8, 1895.

To the Editor:—I saw Dr. Summer's able and interesting paper, printed in the JOURNAL last June, on the subject of the nucleins. And being interested in the study, I concluded to make the inclosed imperfect notes of a case treated with the protonuclein:

Oct. 1, 1895, I was called to see a child aged 2 years, son of Mr. W. living in the country. The child had been sick one week under the care of other physicians. On examination, I found the following symptoms of cerebro-spinal meningitis, viz., high fever, irregular pulse, uneasy, with apparent pain, muscles of neck rigid, head drawn back, could not be raised without lifting the body, eyes staring, complete paralysis of both legs. Knowing full well the failures of all the old-time treatments in so grave a case, I determined on a new departure. I ordered 2 grains of the powdered protonuclein to be given every three hours. This course was continued for one week, night and day. The medicine was given at longer intervals for two weeks longer. No other medicine was given during this time, except a small dose of calomel on the second day.

The protonuclein had not been taken one day before the child began to show marked improvement in every bad symptom—except the paralysis. It began to move the right leg five days after the beginning of treatment—the left leg a few days later. It was brought to my office ten days ago, apparently in perfect health. I consider this case and recovery more noteworthy, from the fact there were other cases of cerebro-spinal meningitis in various parts of the county about the same time—all fatal so far as I have learned. Not far distant, there were two or three fatal cases in one family.

About six months ago, I was fortunate in getting a supply of protonuclein. At first I was slow to rely upon it alone, to the exclusion of other medicines, but my confidence has increased with my experience, and I now prescribe it in all proper cases, with the full assurance that I lose no valuable time in doing so. I could report many cases of tonsillitis, diphtheria and la grippe in which the protonuclein treatment, both as curative and prophylactic, has acted like a charm.

Respectfully,

A. C. JACKSON, M.D.

The Ohio Cases not Leprosy.

NEW YORK, NOV. 7, 1895.

To the Editor:—You published in the JOURNAL, November 2, an article in which Dr. McDougal asks, after describing two cases, "is this leprosy?" In my opinion they are not lepers. I inclose you a letter I wrote to Dr. McDougal.

Dear Dr. McDougal:—Thanks for your information about

the supposed leper cases, and for your article which you were kind enough to send me. I have written my opinion to Dr. Morrow, who had sent me the photograph of the cases. I do not consider them lepers. Colles law, I think, proves them to be syphilitic. Certainly if they were lepers, the mother would have been infected too.

Yours truly,

ALBERT S. ASHMEAD, M.D.

Cases of Optic Nerve Atrophy of Obscure Origin.

ATLANTA, GA., NOV. 2, 1895.

To the Editor:—In two issues of the JOURNAL, Dr. Würdemann gave an account of the Ophthalmic Section at the last meeting of the AMERICAN MEDICAL ASSOCIATION. In that account in giving the (above) committees as appointed, he gave my address as 56½ Whitehall Street. The mistake has caused several of my letters to be missent. Please make the correction and put my name,

C. DUNBAR ROY,

Grand Opera House, Atlanta.

Department of Public Health.

EAST LAS VEGAS, N. M., NOV. 5, 1895.

To the Editor:—Will you please inform me where I can get a copy of the bill drawn up by a committee of the AMERICAN MEDICAL ASSOCIATION for the establishment of a department of public health?

Yours very truly,

W. M. SMITH, Sec'y N. M. Med. Soc.

ANSWER:—Write the Chairman of the Committee, Dr. Jerome Cochran, State Health Officer, Montgomery, Ala.

BOOK NOTICES.

Twentieth Century Practice. AN INTERNATIONAL ENCYCLOPEDIA OF MODERN MEDICAL SCIENCE. By Leading Authorities of Europe and America. Edited by THOMAS L. SPEDMAN, M.D., New York city. In Twenty Volumes. Volume IV. Diseases of the Vascular System and Thyroid Gland. New York: William Wood & Company. 1895.

The contributors to this volume are Drs. Bertrand Dawson, of London; Murray, of Newcastle-on-Tyne; Sansom, of London, and Whittaker, of Cincinnati.

The volume opens with a scholarly article by Dr. Whittaker, on Diseases of the Heart and Pericardium, which occupies half of the book. It is a complete work on the subject. Diseases of the Blood Vessels, by Arthur Ernest Sansom, of London, is next taken up and occupies eighty-three pages; Dr. Bertrand Dawson contributes an instructive article on Diseases of the Lymphatic Vessels, and the book is concluded by Dr. George R. Murray, with an exhaustive article on Diseases of the Thyroid Gland, including myxedema, cretinism, exophthalmic goitre, and goitre. On these subjects no authority stands higher than Murray.

The book is fully up to the high standard of its predecessors, and with one-fifth of the work already accomplished, it is entirely safe to say that the "Twentieth Century Practice" will be a faithful exponent of the existing state of the practice of medicine at the beginning of the new century.

Manual of Gynecology. By HENRY T. BYFORD, M.D. Containing 234 illustrations, many of which are original. 8vo, cl. pp. 488, price \$2.50. Philadelphia: P. Blakiston, Son & Co. Chicago: The W. T. Keener Co. 1895.

This book is intended as a reference book for students at college, and as well for the general practitioner.

Not quite thirty years have elapsed since the "Clinical Notes on Uterine Surgery" by Marion Sims ushered into the world a distinct surgical specialty, and what a flood of gynecologic literature has since been produced! The mere enumeration of authors' names would unduly crowd this page.

Trained by his father, the late Prof. Wm. H. Byford, one of the pioneers in gynecologic surgery, and with educational advantages the elder Byford did not possess, we might reasonably expect a carefully prepared manual, giving clearly and definitely the present tenets and practice. In this we are not disappointed, and we can cheerfully commend the book.

A Practical Treatise on Materia Medica and Therapeutics; with Especial Reference to the Clinical Application of Drugs. By JOHN V. SHOEMAKER, M.D., LL.D. Third Edition, thoroughly revised. Shp. Svo., pp. 1108. Philadelphia: The F. A. Davis Company. London: The F. J. Rebman Co. 1895.

In this edition, the author has revised the text to conform to the nomenclature of the U. S. Pharmacopœia of 1890 and has added much new material. Among the newer articles we notice mention of tolusal, tolpyrin, salocoll, salacetol, chlorphenol, bromphenol, ethylenediamine silver phosphate, tropacocaine, formaldehyde and formalin, dulcin and tannigen. The antitoxins and serumtherapy, and the use of animal extracts have received appropriate mention.

The author has made a careful revision, and has compressed a vast amount of information in the book, but he seems rather frequently to have kept his own opinion in the background, when giving at length the opinions of the multitudinous authorities cited. We regret extremely that the revision has not extended to the dosage. The obsolete British system, which has not only disappeared from the U. S. Pharmacopœia, but which will not again appear in the British Pharmacopœia itself, still disfigures the pages of this otherwise excellent work on materia medica. Notwithstanding this serious defect, the work will be found one of the most useful for reference, and altogether creditable to the author. The observations on the more recent additions to the materia medica are conservative and judicious.

As regards pharmacologic remedies the author by no means restricts himself to those which are official. Numerous substances, both of vegetable and mineral origin, not yet recognized by the pharmacopœia are discussed. Some of these will no doubt be made official hereafter, and it must be a pleasant reflection to the author that so many drugs, of which he was the first to recognize the value have already become official after demonstration of their usefulness.

NECROLOGY.

ROBERT BATTEY, M.D., of Rome, Ga., November 8. He was born Nov. 26, 1828, in Richmond Co., Ga., and was a son of Cephas Battey, a native of Peru, N. Y. His ancestors who were English, settled at Providence, R. I. He was educated at Augusta, Ga., and at Phillips' Academy, Andover, Mass., and studied medicine at Booth's laboratory, Philadelphia, the Philadelphia College of Pharmacy, the University of Pennsylvania and Jefferson Medical College, graduating from the Philadelphia College of Pharmacy, March 17, 1856, and from Jefferson Medical College, March 7, 1857. He resided in Rome from December, 1847, to the present time, excepting the interval from November, 1872, to October, 1875, during which he was temporarily at Atlanta, Ga., as professor of obstetrics in the Atlanta Medical College, and editor of the *Atlanta Medical and Surgical Journal*. He originated and successfully performed, in August, 1872, an operation for the removal of the ovaries, with a view to effect the change of life in women, and thereby effectually remedy certain otherwise incurable maladies, an operation which has been many times repeated by himself and others. He devised, and used successfully in 1859, an improved apparatus for vesico-vaginal fistula; and in 1872 he discovered that water introduced by the rectum, may be readily passed in the living body, the patient being etherized, throughout the colon, the small intestines and stomach, coming out at the mouth, and

he has repeatedly so passed it, as others after him have done, the entire practicability of doing it having been demonstrated upon the cadaver, at the Atlanta Medical College in December, 1873, in the presence of the professor of anatomy and his class. On June 3, 1869, he performed successfully the operation of perineal section (suggested by Prof. Willard Parker, of New York), for chronic cystitis in a man of 62. In April, 1874, he successfully performed the new operation of vaginal ovariectomy, being the third instance of the operation. In November, 1876, he removed from a man of 43 a fibro-cystic tumor of the carotid region, weighing four and a half pounds, the patient making a good recovery in fourteen days. He devised, in 1858, and has often practiced a new method of treating club-foot, by the use of carved wooden splints and roller bandage. He was a member of the Georgia Medical Association, of which he was elected president in April, 1876, and of whose board of censors he had been chairman since April, 1873; the Atlanta Academy of Medicine; the American Gynecological Society; and AMERICAN MEDICAL ASSOCIATION, in which he was chosen a member of the Judicial Council in May, 1875, and secretary of the Obstetric Section at the same time, as also in June, 1876. He contributed numerous essays and reports of cases to the various medical journals of the country. In July, 1861, he was commissioned surgeon in the Confederate Army, serving as surgeon of the 19th Georgia Volunteers; as senior surgeon of Hampton's Brigade; as senior surgeon of Archer's Brigade; as surgeon-in-charge of the Fair Grounds Hospital, number 2 at Atlanta, Ga.; as surgeon-in-charge of Polk Hospital at Rome, Atlanta, and Vineville, Ga., and at Lauderdale, Miss., and subsequently at Macon, Ga., until the close of the war.

JOSEPH C. GILBERT, M.D., a prominent physician of large practice in Philadelphia, died October 26, of apoplexy. He was a native of this city and was born in 1832. He graduated from the old Pennsylvania Medical College in 1853. He served for three months as assistant surgeon in the 24th Regiment Pennsylvania Volunteers, and at his death was a member of Ellis Post No. 6, G. A. R. He was greatly interested in the development of his portion of the city and for six years represented the Twenty-second ward in Councils.

JOSEPH DAFFRON SCHOALES, M.D., died in Philadelphia, October 24, of uremia. He was born in Ireland Nov. 27, 1837, and when 5 years of age the family immigrated to this country and settled in this city. His father was the late Dr. Marcus A. Schoales. Dr. Joseph D. Schoales was graduated by the Medical Department of the University of Pennsylvania in 1857. He served as surgeon to the Twelfth Pennsylvania Cavalry, until it was mustered out in 1865, except for a short period when he was detached for special service. He was surgeon-in-chief at Harper's Ferry, under Colonel McReynolds and also under General Sigel when the latter made his raid through the Valley of the Shenandoah. He was captured at Winchester, but after being prisoner of war for a month, made his escape and returned to his regiment. He was mustered out with the rank of Major and at once resumed practice in Philadelphia. About thirteen years ago he was accidentally infected and afterward suffered with paralysis but continued in practice in spite of failing health until three years ago. He was a member of the Philadelphia County Medical Society.

BASIL NORRIS, M.D., U. S. Army, retired, at San Francisco, Cal., November 11, aged 67. Dr. Norris who was retired with the rank of Colonel, was born in Montgomery Co., Maryland, March 9, 1828. He was graduated at the University of Maryland with the class of 1849 and entered the army as assistant surgeon in 1852. He served with the troops in Texas until 1857, in Utah until 1860 and in New Mexico until 1862. He was promoted surgeon in April, 1862, was appointed inspector of hospitals in October, 1862, and Medical Director of the left grand division of the Army of the Potomac in February, 1863, and, subsequently, attending surgeon at Washington. He was brevetted Lieutenant-Colonel for faithful and meritorious service during the war and subsequently promoted to the rank of Lieutenant-Colonel and Colonel. When retired he was Medical Director of the Military Division of the Pacific. His writings were numerous and scholarly. He was a genial companion, an accomplished officer and a faithful friend. Few men connected with the public service had a wider circle of friends and acquaintances.

PUBLIC HEALTH.

The State Board of Health of Michigan has published an abstract of a commendatory notice of their course in regard to popularizing hygienic knowledge, and inculcating sanitary precepts with a view to the extinction of zymotic diseases, by means of pamphlets, etc., which appeared in the *Journal d'Hygiène*, Paris, France, October 10.

Michigan State Board of Health.—The circular of the Michigan State Board of Health on the prevention of typhoid fever has been issued. The pamphlet contains the following: mortality, source of infection, mode of communication, the protection of the water supply, period of incubation, the duties of householders and physicians, duties of local board of health and health officer, precautions, disinfection of the bowel discharges of the sick, disinfection of urine, clothing, towels, etc., bodies of the dead, disinfection of rooms, privies, etc.

Diphtheria at Newark, N. J.—By reason of the great prevalence of this disease at Newark, the common council has, after much contention granted to the Board of Health the sum of \$2,500. The City Hospital also receives an additional grant of \$4,000, to tide that institution over the present crisis. A protracted and bitter dispute has taken place between the mayor of the city and the health authorities over the expenditures of the latter. Some physicians assert that the disease can be traced to the promiscuous use of drinking cups in public schools, and contend that the school board should coöperate with the health board to abolish this practice. There were reported in Newark in October 183 cases of diphtheria, 84 more than in September.

Contagious Disease Hospitals Compared to the Fire Departments of Cities.—Dr. William Smith, President of the recent Sanitary Congress at Hull, England, in his address took occasion to congratulate that city upon the establishment there of an admirable infectious disease hospital, the provision for smallpox patients, and the ship for the isolation of cases of cholera. It might occur to some of the ratepayers of Hull that if these hospitals were not used, there was something of a reason for abolishing the cholera and smallpox hospitals, or at least making some other arrangement by which the expenses attendant on their maintenance were to be somewhat abated. He hoped that if any such idea existed in the minds of any, that they would once for all get rid of it. They really must look upon them as a provision made, as it were, in times of peace for war and for the trouble which might come upon them at any moment. The provision of those hospitals was as necessary as fire stations. It would be almost as reasonable to expect to organize a fire department anew, in the face of each new conflagration in our cities, as to be in the attitude of some communities that put off the organization of their hospital for infectious diseases "until the actual demand" for them.

Etiology of Epidemic Cerebro-Spinal Meningitis.—In 1887 Weichselbaum described a parasitic microorganism which he claimed was pathogenic for cerebro-spinal meningitis and which from its habitat he called *diplococcus meningitidis intracellularis*. His observations which were confirmed by Goldschmidt, Marchiafava, Celli and other bacteriologists, have been energetically discussed since, both in France and Italy. A number of authors, and among them Bordoni-Uffreduzzi, claim the microorganism described by Weichselbaum is nothing but a variety of the pneumococcus. In order to settle this question Jaeger,¹ during a small epidemic of this disease in Stuttgart, made some anatomic and bacteriologic researches. He separates the Weichselbaum diplococcus

from the Fränkel coccus, through morphologic characters. The former does not have the elongated lanceolate form of the pneumococcus; it is more rounded, and when joined to another, looks something like the sole of a shoe. The capsule surrounding it is much less developed, and very often is difficult to recognize. In pure cultures the diplococcus of Weichselbaum, like the pneumococcus, often takes the form of small chains, but very often also it is grouped in tetrads which are never seen in Fränkel's coccus; it is more of a tetracoccus than a diplococcus. These differences extend to their biologic characteristics also; the intracellular coccus is much more resistant. It is never pathogenic in subcutaneous injections; it must be introduced into the serous cavities as the pleura or peritoneum in order to cause morbid phenomena. Jaeger looks upon the intracellular coccus as the true pathogenic agent of epidemic cerebro-spinal meningitis. The pneumococcus plays a much less marked rôle; to be sure it is found in some cases but we find streptococci and other microbic agents in them also. These cases are nearly always isolated sporadic ones. It is fair to suppose that in the cases of epidemic meningitis where the pneumococcus is found, we have to do with examples of mixed infection. The mode of transmission of this epidemic form of meningitis is still but little known.² However, the presence of the intracellular coccus in the nasal secretions, and its persistent virulence in the dried mucus throw some light on the propagation of the disease. The pathogenic microbe is disseminated by the nasal secretions soiling the linen and clothes of the patient, or by the sputum, and thus produces the almost murderous epidemics.

A Berlin Oekonomierath's Dairy.—The *Public Health* (London) reports the persistent agitation of the pure milk question that is going on in official and private circles in London. From a recent report of the Royal Commission appointed to inquire into the effect of food derived from tuberculous animals on the health of human beings, many lessons are to be learned regarding the nicety and scientific precautions that obtain in some of the German and Danish dairies. In one or more of the German dairies the milk is filtered through three layers of fine gravel, and it is impossible for the inexperienced person to realize how much dirt is collected by this process. A condensed statement taken from the Report of the Royal Commission, concerning one of the leading Berlin establishments is as follows:

The *Milch Kur-anstalt* of Herr Oekonomierath Grub, situated at the Victoria Park, in the southwest of Berlin, is designed solely to provide milk of the first quality for children and invalids. No cream, butter, or cheese is made. Stalls for 250 cows are provided; they are lofty and well-ventilated; the floor is made of cement, and the walls, to a height of eight feet, are covered with white glazed porcelain tiles. Dried peat serves to absorb the excreta, and prevents any unpleasant smell. Only such animals as come from the healthiest breeds (chiefly the Swiss) are bought, and, as a rule, they are not kept for more than one year. No animal is accepted without the district veterinary surgeon's certificate as to its healthy condition; and before its milk is utilized, it is placed in an observation stall for some days, under the control of the company's own veterinary surgeon, who regularly examines all animals in the institution. As food stuffs, only hay from the Jura Alps and wheat meal are allowed. Brewers' grain, various oil-cakes, and even grass are excluded. Before milking, the udder is carefully washed, and the milk is received into pails made out of one piece of metal with no sharp angles. Great stress is laid on the importance of removing as quickly as possible from the cowshed the milk that is drawn, and therefore, as soon as five or six pails are full they are removed, and the milk is cooled down by a Laurence cooler. The liter bottles, previously having been cleaned by washing in a soda solution and brushing (the latter operation being materially assisted by introducing a little sand), are then filled, stoppered by a patent porcelain cap, stamped with a leaden stamp, and dispatched to the city twice daily. A large business is also done in the preparation of sterilized milk, for which the arrangements are exceedingly good. The sterilizer is capable of holding 600 bottles at a time, and these, when filled, are placed with the porcelain cap, with its india-rubber col-

¹ Zeits. f. Hyg. u. Infect., XIX, 2.

² La Sem. Médicale, 1895. No. 18.

lar loosely fixed, in the apparatus. The temperature in the interior is maintained for an hour to an hour and a half at between 90 and 100 degrees Cent. This *Milch Kuranstalt* no doubt owes much of the success it has attained to the way in which it is supported by the medical profession, some of the best known members of which have allowed their names to appear as references."

Sanitation in India.—The following rules for combating epidemics of cholera in municipalities of the Madras Presidency were recently framed by a committee consisting of the Honorable C. S. Crole, Surgeon Major-General C. Sibthorpe and Surgeon Lieutenant-Colonel W. G. King, appointed by the Government of Madras. These rules are not intended for introduction into Madras city, and will for the present apply only to the twenty-four mufassal municipal towns. It is the object of these rules to insure: 1, that the earliest possible information of every attack of cholera should be conveyed to the authorities, so that the cholera microbes may be at once prevented from being conveyed into situations in which they might spread the infection; 2, that the microbes should be at once completely destroyed; and 3, that medical assistance may be provided for those who, in spite of precautions, are attacked by the disease. They accordingly follow these three divisions. Municipal councils shall be responsible for the general carrying out of this scheme and district medical and sanitary officers for the detailed working of the rules. The latter shall make their own arrangements both in their headquarters and elsewhere in the district, except in municipalities where there are civil surgeons. In these, civil surgeons shall be responsible. For the purpose of these rules, every municipality to which they apply shall be divided into "circles" comprising from 2,000 to 3,000 houses containing from 7,500 to 10,000 inhabitants. These circles should, as far as possible, follow ward divisions or other local limits so that they may be readily comprehended. Three circles shall form a "division." Chairmen will at once map out their towns into "circles" and "divisions," and after approval by the collector, record the maps in their offices, and send a copy to the senior medical officer of the municipality. For each division of 22,500 to 30,000 inhabitants, the chairman shall at once procure and retain in the municipal stores the following apparatus and disinfectants:

	Rs.	a.	p.
12 portable tin canisters for disinfectants at Rs. 1-8	18	0	0
9 lb. perchlorid of mercury at 3 annas an oz.	27	0	0
9 lb. commercial hydrochloric acid at 2 annas per oz.	18	0	0
60 lb. carbolic acid at 4 annas per lb.	15	0	0
600 lb. of sawdust and 600 lb. of unslaked lime at 1¼ pies per lb.	8	5	4
Total	86	5	4

He will be responsible that these stores are always maintained and in good condition. Should it appear to the collector of the district that cholera imminently threatens to attack any municipality to which these rules apply, he shall warn the chairman of the council and the district medical and sanitary officer and the senior medical officer of the town accordingly. Upon receipt of such warning the chairman shall immediately appoint in each circle of the town an observation staff consisting of:

	Rs.
One inspector on	15
One peon on	8
One toty on a maximum of	7
	per mensem.

and in each division a divisional inspector on Rs. 35+15 jutka or horse allowance with an orderly on Rs. 8. The orderly should be allowed a jutka or pony to enable him to carry without delay such orders to circle inspectors as may be given. The chairman shall without delay report to the collector the date on which these appointments were made. This staff should be drawn from the existing sanitary establishment of the municipality, as their local knowledge will be valuable, and the vacancies so caused should be filled by temporary hands who should be paid at the rates sanctioned for that establishment. It will be the duty of the members of the observation staff to constantly and systematically patrol the whole of their circle in order to gain intelligence of the first case of cholera or severe diarrhea in it, so that immediate action may be taken. At such times cases of severe diarrhea should be regarded as equally dangerous with cholera. The members of the observation staff should

also be employed in removing with the aid of the ordinary conservancy establishment, all defects in sanitation which would favor the multiplication of the cholera microbe, such as decaying rubbish or stagnant sewage, and should report their action to the chairman. They should further warn the inhabitants of the circle to adopt the precautions against cholera prescribed in the extract from Surgeon Lieutenant-Colonel King's "Simple Sanitary Rules" which is printed as an appendix to these rules, and should distribute copies of this, which the chairman will keep ready printed in the vernacular, gratis, and as widely as possible. The chairman and councillors and municipal servants of all ranks should assist the observation staff in every way possible, and the police in every way compatible with their other duties, both in getting information of the first attack and in removing sanitary defects in the circle.

On receipt of information under the above system of the first attack of cholera, the chairman shall at once employ in the circle in which it has occurred (but not in other circles) the following additional staff: three peons on Rs. 8 each; three toties on a maximum of Rs. 7 each, and shall report to the collector and the district medical and sanitary officer the date on which he did so. This staff, like the observation staff, shall be selected from the ordinary existing municipal establishment, the vacancies so caused being filled by temporary men on the sanctioned rates, and it shall be combined with the observation staff of the circle so that the whole may thenceforth form "a preventive staff" to carry out the duties set forth below. The preventive staff shall visit every house in which cholera has occurred and shall use the greatest care in seeing that all choleraic vomit and excreta are at once collected in separate vessels, mixed with carbolic sawdust,¹ paddy husk or other combustible matter, and where necessary with kerosene oil, and thoroughly, completely and immediately burnt on or near the premises. The burning shall invariably be carried out in the sanitary inspector's presence, and he shall be responsible that it is thoroughly done. The chairman shall delegate to the senior medical officer of the town his powers under section 231 (i) of Act IV of 1884 of entering and inspecting houses. Rags, clothes and bedding stained with vomit or excreta should similarly be burnt upon the spot under the same precautions, the danger of keeping such articles being fully explained to the owners and full compensation in money or kind being offered in the case of the very poor. Floors and furniture stained with the vomit or excreta should be disinfected by being thoroughly sprinkled with a solution of perchlorid of mercury made up as shown in the note.² The burning of tar and sulphur in houses and streets should be discontinued as it is inefficient as a disinfectant, but street drains outside the houses attacked should be flushed with the given solution.³ The greatest courtesy and consideration should be used by the preventive staff to all classes in carrying out these instructions, as the exercise of extreme tact is essential to the success of the scheme. After a patient has recovered, the house, and especially the room which he occupied during the attack, should be thoroughly disinfected. The floors should be dug up wherever stained with choleraic matter and the earth burnt. The floor and the house drains and the furniture should also be liberally sprinkled with the solution above described.⁴ The chairman shall provide the medical officers responsible for working the rules with a permanent advance of Rs. 50 per division, which shall be recouped from time to time by bills supported by vouchers where possible. The preventive staff shall continue to be maintained in an affected circle for ten days after the last attack of cholera in it, and the observation staff in all circles for twenty-one days after the last attack in the town. During this time they should be employed in remedying sanitary defects. There shall be a headquarters in each division at which a medical subordinate shall reside who shall be supplied with medicines, and medical comforts from the municipal hospital for the treatment of those attacked and who shall be available for attendance gratis on the sick in their own houses. This

¹ One part of carbolic acid to ten parts of sawdust.

² ½ oz. perchlorid of mercury.

³ 1 oz. hydrochloric acid.

⁴ Three gallons (one small chatty full) of water with a pinch of red ink powder to color it to prevent accidents.

⁵ Wooden buckets or earthen pots should alone be used for carrying about this solution, as it destroys metal vessels, and the packets of the solid perchlorid should be labeled "Poison" in English and the vernacular and only intrusted to the inspectors themselves.

⁶ It is most desirable that the excreta of a patient for at least ten days after he has recovered from an attack should be carefully collected and carried away. These still contain cholera microbes. For this purpose a Dindigul bullock lorry costing Rs. 50, and air-tight iron excreta drums costing Rs. 2-8-0 each, may be provided. The purchase of these will, however, be left to the option of councils.

shall also be the headquarters of the division inspector and of the preventive staff on night duty. In one place at least in each town there shall be isolation huts with separate accommodation for males and females for the treatment of those who desire it or who are brought there. These shall be in charge of a medical subordinate with the necessary staff and supplied with equipment, medicines and medical comforts. This subordinate shall be deputed to no other duty. He shall reside with his staff on the spot and shall be adequately housed. Charges for medical treatment under these rules shall be met from the allotment in the budget under Grant III, Hospitals and Dispensaries. The headquarters of the divisions and the sites for the isolation hospitals shall be at once selected and shall be marked on the maps referred to above. In order to make provision for meeting the charges under the portions of this scheme relating to observation and prevention, the council of every municipality to which the scheme applies shall be required to allot in every budget under "cholera charges" a sum which shall be in the proportion of Rs. 1,000 to every 25,000 inhabitants in the municipality. This shall be called the "cholera reserve" and shall not be spent upon any object but the carrying of this scheme into execution. The provision of this reserve should not be allowed to disturb the existing percentages to the total municipal income of the expenditure upon communications, education, sanitation, etc., or to swell the total of the allotment made for sanitary purposes under Grants I, II and IV taken together, but should be set aside from funds which are at present annually expended upon permanent (as distinguished from recurring) sanitary needs. Municipal councils are hereby authorized to employ establishments on the scales above laid down as the necessity for them arises, and to defray the charges from the cholera reserve in anticipation of the sanction of Government, but this sanction should be obtained without delay. On the final withdrawal of the special staff, the medical officer responsible for working these rules shall within seven days forward a report on the epidemic and the operation of the rules through the chairman of the municipality to the collector for the orders of Government. In cases where the medical officer in question is subordinate to the district medical and sanitary officer or the civil surgeon, such report shall be forwarded through those officers. In every case such communications shall be submitted to Government through the sanitary commissioner.—*The Indian Medico-Chirurgical Review*, September, 1895.

The Chicago Drainage Canal.—Final Report of Sanitary Inspector.—At the meeting of the Board of Trustees of the Sanitary District of Chicago, the clerk presented a report from Dr. William Martin, Sanitary Inspector, with reference to sanitary conditions along the main channel, and tendering his resignation of his office; and the report was read and referred to the Committee on Public Health and Order. The following is the communication:

CHICAGO, Oct. 29, 1895.

To the Honorable, the Board of Trustees of the Sanitary District of Chicago:

Gentlemen:—In making this, which I intend shall be my last report, I shall take occasion to review the work done in this department, and state the conditions existing at the time of assuming charge, which necessitated the appointment of a Sanitary Inspector.

Soon after the inauguration of the work in the fall and winter of 1892, it was discovered that a great deal of sickness was prevalent in the various quarters along the channel where the men were housed and fed. This arose entirely from the wretched sanitary conditions surrounding these places, and was of such a threatening character as to call for prompt action on the part of the Trustees in order to guard against epidemics which were liable to occur at any moment unless a radical improvement was secured in this respect. Numbers of these places were located in low swampy spots, abounding in malaria, with no facilities whatever for proper drainage. The bunk-houses were poorly constructed and very much overcrowded. The water was very impure and no adequate provision was made for the proper disposition of camp sewage. As a natural sequence sickness was quite prevalent, and as there was no organized system for the medical care of the laborers, they were in a most wretched condition, were they so unfortunate as to fall ill. After my first thorough inspection of the entire line and the submission of my report, the recommendations therein made were promptly acted upon and a number of sanitary regulations adopted, designed to

correct the evils to which I had called attention. Cards on which these rules were printed were ordered to be posted in all of the quarters, and instructions sent to each contractor that these regulations must be rigidly enforced. Having discovered that there was no law in Illinois bearing on the subject of overcrowding in lodging houses, this Board was instrumental in having the State Board of Health pass a resolution in which was clearly defined the minimum air space that each lodger is entitled to, this being the first time in the history of the State that any such regulation was enacted. No provision having been made for the care of the sick and injured among the employes on the work, a plan had to be devised that would meet this requirement. This was done by an assessment of 2 cents a day on each man for hospital fees, for which sum a number of physicians living along the line contracted to take care of them in hospitals owned by themselves or in the hospitals of Chicago and Joliet, with the authorities of which they had arranged for such treatment. Suitable means of conveyance being employed to transport patients to these various hospitals, this plan has seemed to work well, and has secured good medical and surgical attention at a very trifling cost to the laborers. By strictly enforcing the regulations in regard to the supply of wholesome water, a proper disposition of camp sewage, overcrowding of bunk-houses, and an abundant supply of substantial, well-cooked food, we have been successful in keeping the camps free from epidemics of disease, which is always a danger to be apprehended where large bodies of men are being cared for on great works of this character. As proof of our success, I would cite the fact that during the prevalence of smallpox, which prevailed in Chicago during the year 1893 and 1894, there occurred on the drainage channel a total of sixteen cases only. This, when we consider the fact that the majority of the laborers who came from the city were accustomed to live in the cheap lodging houses, which were regular hotbeds of contagion, was a very flattering result, and was only achieved by the most thorough systematic vaccination of all the workmen on the line, compelling them to submit to it or seek employment elsewhere. Numerous analyses have been made of the drinking water furnished the men, in order to insure the purity of what is usually one of the most prolific causes of disease. Where such impurities have been detected, prompt measures have been adopted to correct such evils which have resulted in warding off danger from this source. The work of inspection has been materially aided by the police force of the Sanitary District, who are under orders to report any negligence on the part of the contractors pertaining to sanitary matters. That they do the work well is attested by numerous reports made to me, which are on file in my office. A great deal of misapprehension seems to exist in the community at large in regard to the powers of the Board of Trustees, as it relates to the control of all matters pertaining to health and public order as applied to the laborers on the canal. It is generally believed that their power is absolute, when the facts are that it is very limited. The law gives them the power of controlling the various camps in regard to keeping them in a proper sanitary condition, but they have no control whatever as regards the care of the sick and injured men, which is a matter resting entirely with the contractor who employs them. Some undeserved criticism has been made of this Board, as well as myself, in connection with this subject, probably through misapprehension on the part of the critics, and not with any design of placing this Board in a false position, for I think it can be truthfully said that in all matters pertaining to the health, physical and moral well-being of the laborers employed on the channel, the Trustees have ever been thoroughly impressed with their duties and active in the discharge of them. In a work so extensive as this, ideal conditions can not be maintained in all things, but taken collectively, there is a higher average of conditions favorable to the laborer than was ever known on any public work of corresponding magnitude. I had occasion during year of the World's Fair to meet travelers from various parts of the world who had seen the other great canals during their period of construction, and they all united in the opinion that our men were better fed, better housed, and in every respect better cared for than anything they had witnessed on the Suez, the Panama, German and Manchester Canals, or on any of our own great railroads.

(Signed) WILLIAM MARTIN, M.D.,
Sanitary Inspector.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arkansas: Mississippi Co., November 6, 43 cases, 2 deaths.
Louisiana: New Orleans, October 5 to November 2, 7 deaths.

Michigan: Smallpox reported present at Detroit, Hamtramck Twp., Rochester.

SMALLPOX—FOREIGN.

Antwerp: October 15 to 22, 2 deaths.

Cairo: October 8 to 14, 1 death.

Dublin: October 19 to 26, 4 cases, 1 death.

London: October 19 to 26, 1 death.

Moscow: October 5 to 12, 1 case, 1 death.

Nogales: November 2, 1 case.

Odessa: October 12 to 19, 3 cases, 1 death.

St. Petersburg: October 1 to 19, 13 cases, 5 deaths.

Prague: October 5 to 19, 5 cases.

Rio de Janeiro: October 5 to 12, 3 deaths.

Rotterdam: October 19 to 26, 1 death.

Santos: October 5 to 12, 1 death.

Southampton: October 19 to 26, 1 case.

Teneriffe: September 21 to October 5, 2 cases, 1 death.

Trieste: October 18 to 25, 1 case.

Tuxpan: October 19 to 26, 3 cases,

Zurich: October 12 to 19, 1 case.

YELLOW FEVER.

San Juan de Puerto Rico: October 5 to 12, 10 cases, 1 death.

Rio de Janeiro: October 5 to 12, 3 deaths.

San Salvador; November 1, yellow fever reported.

CHOLERA.

Bombay: October 1 to 8, 2 deaths.

Osaka and Hiogo: October 5 to 12, 7 cases, 7 deaths.

Japan: total cholera statistics from date of outbreak to Oct. 10, 1895: cases 52,218; deaths, 36,075. During the week October 3 to 10, 1,279.

Cases of cholera occurred on Japanese army transports occupied in the movement of troops from and in Formosa.

MISCELLANY.

Association of Assistant Physicians of Hospitals for the Insane.

—The second meeting of the Association of Assistant Physicians of Hospitals for the Insane was held at the Michigan Asylum for the Insane, Kalamazoo, Mich., Oct. 24, 1895. The membership, originally composed of medical officers of the staffs of asylums of Michigan, Illinois and Iowa, was extended to include the assistant superintendents and assistant physicians of all asylums. The next meeting will be held at the asylum at Independence, Iowa, during May, 1896.

Mr. Edison's Definition of Electricity.—A New Jersey paper quotes "the wizard" Edison as offering the following definition: "Electricity is a mysterious fluid about which nothing is known." Certainly, if any one could tell what electricity is, Mr. Edison would seem to be the man. He frankly acknowledges entire ignorance of it. He knows undoubtedly a multitude of ways in which it manifests itself, and he has been marvelously successful in utilizing those manifestations. But of the force itself he knows nothing.

Horseless Vehicles for the Country Physician.—The *Popular Science News* has the following note regarding a new form of horseless carriage:

"Self-propelling carriages are being introduced from France, where they make a speed of eight to fifteen miles an hour on the level. The motive power is a gasoline engine, which occupies little space, and carries sufficient petroleum spirit to last for a run of fifty miles; other kinds use electricity, etc. There are hundreds of these carriages in France. Country doctors find them useful, and as the engines are noiseless, horses are not frightened by them."

But France has well drained, macadamized roads. Deep mud, such as we encounter in our country roads, is too much of a hindrance to the operation of the vehicle.

Massage an Occupation for the Blind.—From *Popular Science News*: "It is stated that in Japan, massage is practiced al-

most exclusively by blind persons. The idea is that the sense of touch is so much more delicate and developed in those who have lost their vision, that the employment of them as masseurs and masseuses is quite in accord with the natural fitness of things. Blind persons are largely used for this purpose in St. Petersburg, and at a massage school there the professor is also blind. Doubtless, were our massage establishments officered by blind male and female persons the suspicion raised against them that they were used for improper purposes would soon be removed."

Tubercular Disease of the Portio Vaginalis.—In the *British Medical Journal*, Dr. J. D. Williams has reported two cases of the above named affection. In the first of these cases, the patient was 63 years of age and the subject of phthisis, from which she died a few weeks after being brought to the hospital. The genital organs, removed at the autopsy, showed a tuberculous affection of the cervix involving a portion of the adjacent vagina. There was no tubercular disease of the body of the uterus nor of the appendages. The second case was that of a patient 36 years of age. She showed some disease of both apices. On the cervix an irregular ulcer was to be seen, which, on microscopic examination, proved to be of a tuberculous nature. The cases are of interest from the location of the lesion. The cases bear out the observation made by others, that in cervical tuberculosis the body of the uterus and the appendages usually remain free of disease.

Practice of Veterinary Science made Amenable to Law in North Dakota.—An act has been passed in North Dakota regulating the practice of veterinary medicine, surgery or dentistry in that State. It provides for the appointment of a board of examiners, the issuance of certificates, and makes it a misdemeanor punishable by a fine of not less than fifty dollars nor more than one hundred dollars, to practice in violation of this law. But an exception is made where gratuitous services are rendered in cases of emergency, dehorning of cattle, and castration of animals. All persons beginning the practice of veterinary medicine, surgery or dentistry in the State, after the passage and approval of this act, must be graduates of a legally authorized veterinary school, college or university, and they shall subject themselves to such examination as the board may require. Any person complying with the provisions of this act shall be entitled to expert fees as a witness in all cases relating to the veterinary profession in any court of law or equity.

A Case of Umbilico-Vesical Hernia.—According to *La Semaine Medicale*, August 21, Dr. Lannelongue reported to the Congress of Gynecology, Obstetrics and Pediatrics recently held at Bordeaux, the following interesting case: some years ago a woman brought to him a male infant, aged three months, which passed water, both through an umbilical appendix resembling a penis, and by the natural organ, which was in its proper place. The jet which came from the umbilical canal described a curve more than 30 centimeters in diameter. On examination, it was found that the apparent abnormal pelvis was an umbilical hernia caused by the persistence of the urachus. A urinary fistula had been produced on the separation of the umbilical cord. The child subsequently died, and the author had an opportunity to make a necropsy. The bladder was injected, and it was then seen that the viscus was prolonged by a channel as large as the forefinger, namely the urachus, up to the umbilicus. The channel extended into the external appendix, where it opened by an oblique orifice resembling the meatus urinarius. The contractions of the bladder in micturition caused a stream in both directions, umbilical and urethral, hence the double jet of urine seen from time to time; this, however, was exceptional, as the musculo-elastic ring of the umbilicus fulfilled the function of a sphincter and prevented the escape of urine through that orifice. The author suggests that this case once more shows the necessity of tying the umbilical cord only after having satisfied one's self that there is no hernia at the proximal end.

Burns Treated by Strong Carbolic Acid.—Dr. Benjamin H. Brodnax, of Broadnax, Louisiana, writes to the *Popular Science News* as to above bold line of treatment of burns and scalds: "Take pure undiluted carbolic acid; with a feather or fine brush, paint the burned or scalded surface, extending a little over the edge, where the wounded surface is not bare. Pain instantly ceases, and if care is taken no further dressing is required, but a light tissue of lint cotton and one roll of bandage will insure from contusions, etc." Dr. O. H. Allis, who read the original article, sent him by myself, before the Philadelphia County Medical Society, March 10, 1894, remarked: "To my mind it is one of the boldest ventures in all surgery. To think of applying to a raw and agonizing burn that which would scald a healthy cutaneous surface would seem to the unreflective mind a reckless and cruel act. But when we consider that a raw burned surface is painful from its exposed nerve filaments, and that the strong acid combining with the albumin of the tissues forms a coating that excludes the air, while at the same time it benumbs—paralyzes—each terminal exposed filament, the remedy seems to be the result of a happy inspiration."

Fifteen Thousand Pastenrian Treatments—The Record of Nine Years.—The last annual report of the Pasteur Institute embraces the ninth year of its operations, and shows in that time the grand total of 15,217 persons treated. The mortality, excepting those cases that were considered to be in a hopeless state at the time of reception, was eighty-one deaths, or a mortality rate of a little over one-half of 1 per cent. The lowest the rate of mortality has touched in any one year was a little more than 2 per 1000, and the rate has shown a marked decline in recent years, compared with the years immediately following the establishment of the Institute. Whatever may be our hesitancy—natural or acquired—regarding institutional statistics, the following may be taken as conclusive testimony of one of the greatest conquests over disease that has yet been made: in 1886, number of persons treated, 2,671; deaths 25; rate of mortality per cent., 0.94. In 1887, number of persons treated, 4,170; deaths, 14; rate of mortality per cent. 0.79. In 1888, number of persons treated, 1,622; deaths, 9; rate of mortality per cent., 0.55. In 1889, number of persons treated, 1,830; deaths, 7; rate of mortality per cent., 0.38. In 1890, number of persons treated, 1,540; deaths, 5; rate of mortality per cent. 0.32. In 1891, number of persons treated, 1,559; deaths, 4; rate of mortality per cent., 0.25. In 1892, number of persons treated, 1,790; deaths, 4; rate of mortality per cent., 0.22. In 1893, number of persons treated, 1,648; deaths, 6; rate of mortality per cent., 0.36. In 1894, number of persons treated, 1,387; deaths, 7; rate of mortality per cent., 0.50.

Statistical and Sanitary Notes from the Military Department of the Platte.—Colonel Dallas Bache, assistant surgeon-general U. S. Army, states in a recent circular that it is his intention, as medical director of the Department, to issue for each month a statistical and sanitary note "for the purpose of distributing a class of information which is of equal interest to himself and the medical officers of posts. It is not intended to institute close comparisons between local statistics, into which different factors must enter, but to associate all the medical officers in the Department in matters of general concern, and to supply them at short intervals with intelligence which is now a subject of annual report." The form used by Colonel Bache gives the name of each post, its mean strength, the admissions for disease and for injury, the number inefficient daily, the deaths and discharges, and the admissions and constant sickness as percentages of the strength. Under date Oct. 30, 1895, Nos. 1, 2 and 3 of these "Notes," for July, August and September respectively, have been published. Fort Omaha, Nebraska, has the highest admission rate for each of the months; 17.83 per cent. of its strength in July, 13.89 in August and 16.24 in September. Fort Meade, South Dakota, has, on the whole, the best record, its admission rate for disease in July having been only 4.59 per cent. of its strength, in August 4.74 and in September 3.75. Nothing of separate sanitary interest was reported during the first two months; but on the September report it is noted that up to the end of the month no case of typhoid fever had been reported in the Department. A large part of the command was in the field on practice marches and at target

ranges. During their field service the health of the troops was excellent.

The Army Medical School.—The second session of this school will begin Monday, Nov. 18, 1895, Colonel C. H. Alden, president of the faculty, delivering the opening address. The regular course will consist as heretofore of lectures on the duties of Army medical officers in peace and war, on military surgery, military medicine, and military hygiene with practical laboratory work in bacteriology and sanitary chemistry, hospital corps drill and first aid, horsemanship and the details of military inspections, parades and other ceremonies. Some changes have been made in the faculty recently on account of the retirement from active duty, at his own request after thirty years of service, of Lieut.-Colonel John S. Billings, who held the professorship of military hygiene, and of the assignment to other duty of Captain J. M. Cabell, who was assistant to the professor of military surgery and instructor in hospital corps drill and company administration. Colonel C. H. Alden, assistant surgeon-general, will continue to instruct the young officers in the duties of Army medical officers. Lieut.-Colonel W. H. Forwood, deputy surgeon-general, professor of military surgery, is understood to have made arrangements for practical work on the cadaver, a feature which was not embodied in the program of the first session of the Army Medical School. As the Examining Board had every facility for ascertaining the qualifications of the candidates accepted by it, the addition of this to the curriculum evidently means that it was not satisfied with the surgical skill displayed by the last graduates who came before it. Lieut.-Colonel D. L. Huntington, deputy surgeon-general, has been appointed professor of military medicine, relieving Major Charles Smart, surgeon, who succeeds Lieut.-Colonel Billings in the chair of military hygiene and continues to hold position as director of the chemie laboratory. Major Walter Reed, surgeon, has been announced as professor of clinical and sanitary microscopy and director of the pathologic laboratory, and Captain F. R. Keefer, in command of the hospital corps company at Washington Barracks, D. C., has been appointed assistant to the professor of surgery and instructor in hospital corps drill. The day's work of the student begins, except on Saturdays, with medico-military drill; the forenoon, according to the program, is to be spent over pathologic and bacteriologic microscopy; the afternoon in the work of the sanitary chemist with a lecture from 3 to 4 p.m. Arrangements have been made for special lecture courses: by Major Geo. B. Davis, judge advocate, U. S. A., on military law; by Dr. Godding, superintendent of the St. Elizabeth Hospital, D. C., on insanity; by Professor C. W. Stiles, Department of Agriculture, on the parasites of the human system, and by Dr. Robert Fletcher on the present condition of the Army Medical Museum and Library and the methods of literary research. The program requires the class to report on Saturdays to the Commanding Officer of the cavalry post of Fort Myer, Virginia, who will place its members under the care of a competent instructor in the riding hall. The lecture hour on alternate Fridays will be given up to the meetings of the Journal Club, which was organized in 1893 with a view to giving the young men opportunities of speaking in public and familiarizing them with the methods of medical societies. The following is a copy of the by-laws of the Club, adopted during the first session of the Army Medical School:

1. The name of this Association shall be the Army Medical Journal Club.
2. It shall be composed of the Medical Officers of the Army on duty in Washington or its vicinity, and of such other physicians as may be invited by the Surgeon-General of the Army, or by the President of the Club, to take part in its proceedings.
3. The objects of the Club are the mutual benefit and instruction of its members, by the reading of brief abstracts of important articles in medical journals; the examination of new books, apparatus, specimens, etc., acquired for the Army Medical Library, Museum and School, and such other methods as may, from time to time, be determined on.
4. The officers of this Club shall be a President and a Secretary, to be elected at the first meeting in November of each year.
5. The meetings of this Club shall be held in the lecture room of the Army Medical School, on alternate Fridays, from October 1 to May 1, beginning at 4 p.m.
6. The members of the Club shall be called upon in alpha-

betical order of their names, for summaries of journal articles, it being understood that no one shall occupy more than fifteen minutes and that the total length of the meeting shall not exceed one hour and a half. It is supposed that from six to eight persons will be called on for journal abstracts at each meeting.

The first meeting of the Army Medical Journal Club for the season of 1895-96, will be held at the lecture room of the Army Medical School, cor. 7th and B. Streets, s.w., on Friday, November 22, at 3 P.M.

Hospital Notes.

THE contract for the erection of the new Moline, Ill., public hospital has been awarded. The total cost of this institution will be \$20,000.—By the will of Captain Lang, who with his wife was murdered in Gardenville, Md., November 4, his estate, valued at \$200,000, is left to the St. Joseph Hospital at Baltimore.—The Chicago Hospital was formally opened November 9.—The regular annual meeting of the Waukegan, Ill., Hospital Association was held October 21.—The annual report of the Maine General Hospital at Portland, shows that 1,061 patients were treated during the year.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended November 2 is as follows: the number of deaths reported at the health department during last week was 116. In the previous week they numbered 118. The relative conditions in regard to general health were quite similar during the two weeks, the exceptions being diseases of the brain and typhoid fever. The mortality from brain maladies rose from 10 to 19, and that from typhoid 10 to 17. One death each from diphtheria and smallpox occurred. Otherwise no deaths from any of the contagious diseases were reported. The infant mortality declined from 39 to 22, while the total death rate declined from 22.27 to 21.90. There were 93 births and 58 marriages reported; 25 deaths occurred in hospitals and 13 were reported by the coroner.

ELECTION OF OFFICERS IN THE POST-GRADUATE SCHOOL OF MEDICINE.—The board of incorporators of the Post-Graduate School of Medicine of the District of Columbia held a meeting at the office of Dr. Samuel Busey on the 5th inst. and elected officers for the ensuing year as follows: President, Dr. Samuel C. Busey; First Vice-President, Dr. J. Ford Thompson; Second Vice-President, Dr. W. W. Johnston; Secretary, Dr. G. Wythe Cook, and Treasurer, H. L. E. Johnson. The following committees were appointed: Curriculum, Drs. James Kerr, S. S. Adams, Edward L. Tompkins, W. H. Wilmer and E. M. Parker; Executive, Drs. H. L. E. Johnson, G. N. Acker and Thomas E. McArdle. The constitution and by-laws, as drafted by a committee consisting of Drs. H. L. E. Johnson, W. H. Witmer and E. L. Tompkins were adopted.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the society held on the 6th inst., Dr. T. O. Belt read an essay on "Consanguineous Marriage as a Factor in the Causation of Disease." This valuable contribution to science brought out a discussion which occupied the entire evening and was participated in by Drs. Butler, Shoat, Ritcher, Loring, Berman, Kleindschmidt, Chappell, W. W. Johnston, H. L. E. Johnson, S. S. Adam and Ward.

Detroit Notes.

THE BOARD OF HEALTH has given notice to the profession that the following cases are to be reported and placarded for quarantine: smallpox, varioloid, typhus fever, Asiatic cholera, diphtheria, scarlet fever, measles, glanders or farcy in man and wherever known in horse, and membranous croup. That typhoid fever, chickenpox and whooping cough are to be reported, not quarantined or placarded. The Health Officer on account of the spread of diphtheria has asked the Board to appoint physicians to examine the throats of all children attending the public schools; and when one is found suffering with sore throat, it is to be noted and the case followed to its home, so as to prevent as much as possible, the spread of diphtheria.

THE HEALTH OFFICE REPORT for week ending Nov. 9, 1895, shows: deaths, total 140; under 5 years, 37. Births, male 55, female, 45, total 100. The contagious diseases for same period:

diphtheria, last report 41, new cases 37, recovered 24, died 11, now sick 43. Scarlet fever, last report 9, new cases 5, recovered 2, died 1, now sick 11. Smallpox, last report 1, new cases 1, recovered 1, died none; now sick one. The death list has been swelled by the awful disaster that befell the *Detroit Evening Journal* Building, in which several minor manufacturing concerns were established. This building was entirely destroyed by the boilers exploding, and resulted in the death of thirty-seven people, men, women, boys and girls, and a considerable number of injured and burnt. Some idea of the nature of the ruins can be arrived at when it is known that the last body to be removed from the debris had lain where found for fifty-nine hours, and was buried under tons of brick, stone and iron, and nearly all this time, night and day, the city had many of its laborers with horses removing the rubbish. This disaster has shown the public the advisability of having a physician for coroner. The jury that will hold the inquest upon the unfortunates, is composed of representative business men.

THE WAYNE COUNTY MEDICAL SOCIETY held its regular meeting on Thursday, November 7 at Dr. J. E. Clark's office. Dr. Wm. A. Hackett read a paper entitled, "Points of Diagnosis in Skin Disease."

THE DETROIT MEDICAL LIBRARY ASSOCIATION had a paper by Dr. E. S. Sherrill, entitled, "The Tests and Chemie Significance of Albuminuria."

THE MEDICAL COLLEGES have opened with an increased number of students; the Detroit College of Medicine having 275 in its medical department, 69 in the dental, and 34 in the pharmacy, and the veterinary coming last in number with 10. The Michigan College of Medicine and Surgery has enrolled in its senior class forty-one, junior twenty-five and freshman twenty. The pharmaceutical department to this school has been abolished this year.

St. Louis Notes.

THE MORTUARY REPORTS for the week ending November 9 give: deaths, 167; preceding week, 218; corresponding week of 1894, 153; death rate, 15.5 per 1,000. Deaths under 1 year, 24; under 5 years, 41; over 60 years, 36. Births reported 167.

CONTAGIOUS DISEASES reported during the week ending November 9: diphtheria, cases 136; deaths, 15; croup, cases 12, deaths 4; scarlatina, cases 9; typhoid, cases 5, deaths 1; measles, cases 12; cerebro-spinal fever, 1 case, 1 death; whooping cough 1 case, 1 death.

THE ST. LOUIS MEDICAL SOCIETY.—At the meeting of November 9, the scientific program was made up of an exposition of the methods of producing diphtheria antitoxin by Dr. Ravold, bacteriologist of the City Board of Health, and a general discussion of the effects of antitoxin in the treatment of diphtheria. Dr. Ravold explained the method used by the Departments, emphasizing the care taken in every step of the process, and especially the necessity for a painstaking selection of horses and proper care of them during their treatment with the toxin. He stated that the Board was now in a position to furnish a considerable amount of antitoxin of a definite strength. The dose of this product advised was 20 cc. Upon application the Board furnishes the antitoxin free for use in cases that have been properly diagnosticated, requiring only that a careful history of the case and the result of treatment be reported on blanks furnished for that purpose. The cases thus far treated had been too few to warrant any report, but the results had been entirely favorable. The Board of Health was anxious to meet every requirement in this service and invited criticism that the service might be made as highly efficient as possible. The speaker was most cordially congratulated on the work done, and the favorable reception given his paper showed how generally the new treatment has won its way into the favor of the profession. The general discussion was of special interest from the fact that it brought out no unfavorable experiences. All those who had used the antitoxin spoke of its effects in the most enthusiastic praise. Dr. Langan, who is using it daily, has not yet had a death from diphtheria since he began to administer it, and no unfavorable complications attributable to the antitoxin. He uses

the remedy to the exclusion of all others, so that his results are to be attributed to the effect of antitoxin alone.

The question of erythema and dermatitis with desquamation as occasional effects of the serum was raised by Dr. Grindon. In the experience of those who had used the antitoxin such phenomena had been but seldom developed, and in no case had they been of serious import. The complication was, in the opinion of Dr. Ravold, attributable to peculiarities of the serum other than that upon which its antitoxic power depended; for the serum of some horses produced erythema, etc., while that of others was without such effects. The preservatives used, carbolic acid and trikresol, were not without objection on this score, as well as on the score of their reduction of the immunizing value of the serum, and he had abandoned these stronger preservatives for camphor, which was sufficiently antiseptic for the short period elapsing between the production and application of the serum supplied by the Board of Health. He emphasized the necessity of waiting for two or three weeks after the last immunizing dose of the toxin had been administered to the horse, before drawing the blood for the separation of the serum, and pointed out how this precaution was apt to be neglected where commercial features attended the production of the antitoxin.

THE AESCULAPIAN SOCIETY.—Under the auspices of this society, Dr. Arthur E. Mink, of the St. Louis College of Physicians and Surgeons, gave a lecture at the college November 9, on "The Psychology and Philosophy of Shakespeare."

THE WARASH SURGEONS.—The annual meeting took place in the Southern Hotel, Nov. 12, 1895. The scientific program included the following papers: Delayed and Non-union of Fractures, by Dr. J. A. Wentz, Montpelier, Ohio; Responsibility for Railroad Accidents, by Dr. George R. Highsmith, Carrollton, Mo.; Hemorrhagic Diathesis, its Relation to Injuries, by Dr. M. Prichett, Glasgow, Mo.; How to Treat Wounds of the Face, by Dr. W. F. Taylor, Martinsburg, Mo.; Two Cases of Open Wounds of the Ankle Joints, by Dr. J. W. Young, Bloomfield, Iowa; Fracture of the Vertebrae, Dr. Burres, Sidney, Ill.; Fracture of the Femur, by Dr. Beardsley, Lafayette, Ind.; Traumatic Insanity, by Dr. James A. Duncan, Toledo, Ohio; Injury of Cranium and Contents, by Dr. Jared Spooner, Peru, Ind.; Diseases and Injuries of the Eye peculiar to Railroad Employees, by Dr. A. E. Pence, Springfield, Ill.; The Treatment of Typhoid Fever, by Dr. Ben. S. Lincoln, Missouri City, Mo.; Intestinal Obstruction Necessitating Laparotomy, by Dr. Joseph Payne, Edwardsville, Ill.; Color Blindness; Methods of Detecting It, by Dr. F. L. Henderson, St. Louis; Trephining the Spine in Cases of Fracture of the Vertebrae, by Dr. C. B. Stemen, Fort Wayne; Cranial and Intracranial Injuries, by Dr. W. H. Meyers, Fort Wayne.

A NEW CITY HOSPITAL.—The old City Hospital is notoriously unfitted for its purpose, beside inadequate in accommodations, and the Board of Health is discussing a project for the erection of a new building that shall meet all modern requirements.

A NEW MEDICAL JOURNAL.—*The Specialist* is the name of a new medical journal that is to make its first appearance this month. The publication office is at 2942 Washington Avenue. The journal will be devoted to diseases of the eye, ear, nose and throat, and is intended to occupy a middle ground between the journal of general medicine and the purely special journal. The name does not fairly convey this notion of its proposed function.

THE PRACTICE OF MEDICINE WITHOUT A LICENSE.—A certain Mrs. Billenkamp attended and treated a child afflicted with diphtheria, claiming to have a remedy that would cure the disease. The child died and the coroner's inquest resulted in holding Mrs. Billenkamp responsible for the child's death. She was prosecuted on a charge of practicing medicine without a license. The judge discharged the prisoner on the ground that she had not appended the letters M.D. to her name and therefore did not represent herself to be a physician. This decision has been given here in similar cases and it points out the loophole for the escape of all unlawful practitioners. The quack has only to advertise his ability to cure disease, being careful to avoid the use of M.D. It would be interesting to know whether the use of the abbreviation Dr. would be considered as of general or special significance in such a case; whether its general sense might not be used as a defense for its use by any one for a special purpose. The law should be framed to cover the spirit as well as the "letter" of the unqualified practitioner.

Louisville Notes.

DAMAGE SUITS.—The profession of this city is much gratified at the result of two suits for damages brought against two surgeons for alleged malpractice. In the Common Pleas division one Jno. M. Reager, sued Dr. W. O. Roberts for \$20,000, the plaintiff maintaining that unskillful treatment was received at the hands of Dr. Roberts who treated him for a fracture sustained while at work for the railroad. Judge Field declared it a non-suit, and the case was thrown out of court. Clara E. Beadle brought suit against Dr. L. S. McMurtry, for \$5,000, alleging that he had placed her under the care of an incompetent nurse, who allowed her leg to be burned by a hot water bottle. The jury awarded Dr. McMurtry, a counter-claim of \$500 for services rendered the patient. There was quite a little tilt between one of the witnesses for the defense, a prominent surgeon, and the lawyer for the plaintiff. When asked why, the answer was made that a fee for such an operation could range from \$500 to \$5,000; the witness replied that he thought \$5,000 not an exorbitant charge to one who could afford to pay,—and in the custom of large fees, the lawyers set the pace, and the surgeons followed suit. The witness was dismissed and the sum asked for, awarded by the jury.

PRACTITIONERS CLUB.—At a meeting of this society, held November 13, Dr. Gavin Fulton read a paper upon "Leucorrhoea."

THE PUBLIC SERVICES.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 9, 1895.

- P. A. Surgeon L. W. Curtis, ordered to duty at the Indian Head Proving Ground.
- P. A. Surgeon James Stoughton, detached from the Puget Sound Naval Station, and ordered to duty at the naval hospital, Yokohama, Japan.
- P. A. Surgeon C. F. Stokes, detached from the naval hospital at Yokohama, ordered home and granted two months' leave.
- Asst. Surgeon H. D. Wilson, detached from duty at the Indian Head Proving Ground, and ordered to duty at the naval hospital, Chelsea, Mass.
- Asst. Surgeon C. D. Brownell, ordered to duty at Puget Sound Naval Station, on completion of his examination for promotion.

LETTERS RECEIVED.

- Alta Pharmacal Co., St. Louis, Mo.; Ayer, N. W. & Son, Philadelphia, Pa.; Atkinson, Wm. B., Philadelphia, Pa.; Adams Express Co., Philadelphia, Pa.; Allister, A. M., Philadelphia, Pa.
- Butterworth, Alice, Chicago, Ill.; Boyer, J. S., Chicago, Ill.; Beakley, J. R., Alma Center, Wis.; Breedlove, J. W., Fort Smith, Ark.; Bigelow, J. F., Chicago, Ill.; (2); Boyee, J. Wesley, Washington, D. C.; (2); Boehringer, C. F. & Stehne, New York, N. Y.; Brumder, Geo., Milwaukee, Wis.; Bovine Co., New York, N. Y.; Bates, C. A., New York, N. Y.; Bellwood, W. S., Alliance, Neb.
- Clarke, The Robt. Co., Cincinnati, Ohio; (2); Chaille, S. E., New Orleans, La.; Chambers, J. D. & Co., St. Louis, Mo.; (3).
- Doyle, G. P., Chicago, Ill.; (2); Dewey, F. J., Chicago, Ill.
- Eastman, Jos., Indianapolis, Ind.; Ellis, H. Bert, Los Angeles, Cal.
- Fenn, C. M., San Diego, Cal.; Fest, F. T. B., Plank Road, Mich.
- Gibson, A. L., New York, N. Y.; Gaensler, F. J., Madison, Wis.; Graham, D. W., Chicago, Ill.; Grinstead, J. F., Chicago, Ill.; (2); Grothan, O., St. Paul, Neb.; Griffith, J. P. Crozer, Philadelphia, Pa.; Gates, L. M., Scranton, Pa.
- Haddock, Wm. J., Iowa City, Iowa; Hayd, H. E., Buffalo, N. Y.; Hawkes, R. H., New York, N. Y.; Horwitz, Orville, Philadelphia, Pa.; Herbert, J. Frederick, Philadelphia, Pa.; Harriman, W. E., Ames, Iowa.
- Instant Cut Off Co., Port Huron, Mich.; Irving, P. A., Richmond, Va.; Irwin, Fairfax, Washington, D. C.
- Jenkins, J. F., Tecumseh, Mich.; Jones, Joseph, New Orleans, La.; (2); Judson, A. B., New York, N. Y.; Johnson, H. L. E., Washington, D. C.
- Kemper, G. W. H., Muncie, Ind.; Keirulff, B. F., Marshalltown, Iowa; Keener, The W. T. Co., Chicago, Ill.
- Lord & Thomas, Chicago, Ill.; (2); Lange, L., Chicago, Ill.; Lea Bros. & Co., Philadelphia, Pa.; Lentz, Chas. & Sons, Philadelphia, Pa.; (2); Lyon, S. B., Chicago, Ill.
- Mellier Drug Co., The, St. Louis, Mo.; (2); Maltine Mfg. Co., The, New York, N. Y.; (2); Miller, D. P., Huntingdon, Pa.; McEnroe, John F., Schenectady, N. Y.; Mansfield Book Binding Co., Mansfield, Ohio; Mattison, J. B., Brooklyn, N. Y.; Manley, Thos. H., New York, N. Y.; McDougal, J. G., New Lexington, Ohio; Mann, E. C., New York, N. Y.; Moore, J. W., Atlantic Mine, Mich.
- Neff, Irwin H., Pontiac, Mich.
- Ochs, Anthony, Hesperia, Ontario.
- Payne, Geo. F., Atlanta, Ga.; Pring, Ernest, San Francisco, Cal.; Parker, W. T., Groveland, Mass.; Perckhan, J. S., Chicago, Ill.; Paquin Laboratories Paul The, St. Louis, Mo.
- Richman, S. T., Chicago, Ill.; Richardson, W. L., Montrose, Pa.; Reeves, Jas. E., Chattanooga, Tenn.; Rinehard, C., Milwaukee, Wis.
- Sekowsky, H., Milwaukee, Wis.; Schimmel, M. S., Baltimore, Md.; Salisbury, J. H., Chicago, Ill.; Scott & Anderson, Brownwood, Texas; Shlenky, I., Washington, D. C.; Sachleben, E. A., Chicago, Ill.; Smart, Chas., Washington, D. C.; Stearns, Frederick & Co., Detroit, Mich.; Sander, The Euno M. W. Co., St. Louis, Mo.
- Turnbull, Laurence, Philadelphia, Pa.
- Vaughan, O. M., Covert, Mich.; Vovinkel, F. W., San Francisco, Cal.; Warren-Scharf Asphalt Paving Co., New York, N. Y.; Woolsey, E. H., Oakland, Cal.; Wilson, J. A. W., Chicago, Ill.; Wyeth, Jno. & Brother, Philadelphia, Pa.; Webster, E. H., Evinston, Ill.; Wyman, Hal C., Detroit, Mich.; Ward, Marshall R., Pittsburg, Pa.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, NOVEMBER 23, 1895.

No. 21.

ADDRESSES.

CHAIRMAN'S ADDRESS.

Delivered before the Section on Neurology and Medical Jurisprudence,
at the Forty-sixth Annual Meeting of the American Medical
Association, at Baltimore, Md., May 7-10, 1895.

BY DANIEL R. BROWER, M.D.

CHICAGO.

Gentlemen:—Through the indefatigable exertions of our distinguished Secretary, we have before us the best program ever presented to the Section.

An effort has been made to arrange the work along three important neurologic lines, and you will have presented to you papers on these several topics from some of the most eminent physicians of the country, and I trust that we will be equally favored in the learned discussions that will follow.

As you observe, the first symposium is on hypnosis, a subject now very prominently before both the profession and the laity, and they earnestly desire that some such representative body as this, will make positive declarations as to its value in the cure of disease and as to its place in criminal jurisprudence. The papers that will be read and the discussion that I trust will follow, will at least bring us nearer to a settlement of these important questions.

The symposium on electricity is timely. This force so prominently before everybody, and because of its varied and almost universal use, demands our careful consideration in order that we may assist, at least, in determining its true place in medicine. The work of this Section will, I trust, not only aid in this important solution, but will develop new mechanical appliances to facilitate the use of the energy and new methods of application that may yield better results in treatment.

The last symposium has for its subject epilepsy. As you are well aware, this disease known from the very earliest times, accurately described by the most ancient writers, is still the *bête noir* of the profession. Only about 7 per cent. of the cases are cured, and about one in every five hundred of the population is so afflicted. May we not hope that the papers and discussions that will emanate from this great array of talent may improve this record of curability and diminish this percentage of prevalence?

It is hardly necessary for me to take your time to review the work that has been done in the field covered by this Section during the past year. Every person here present is as familiar with this as I am, but there are certain things in the line of progress with which you may not be so familiar. In the State of Illinois we are about to try the experiment of an industrial epileptic colony, modeled somewhat after the Craig colony of New York and the famous Biel-feld colony in Germany. It is proposed to begin this colony with the epileptics, about eight hundred in all, now in the county almshouses and other public

institutions. This colony may in part aid in the more successful treatment, as well as diminish the large proportion of these unfortunates now existing.

In Illinois we are also trying to improve the quality of medical expert testimony. Some recent trials in which much of the medical expert testimony was very discreditable, have aroused the profession to such a degree that the six prominent medical societies of Chicago met by their joint committee and drafted a bill that has been indorsed by all of these several societies, by the State medical society and several of the county and district societies, that may elevate the tone of this most important service. It is as follows:

A draft of a Bill for an Act authorizing the judges of criminal jurisdiction in the State of Illinois to appoint persons to act as expert witnesses:

Be it enacted, By the People of the State of Illinois in the General Assembly represented, That the judges of the circuit and superior courts of the State of Illinois, be and the same are hereby authorized to appoint in the month of January of each year, persons who shall act as expert witnesses in the medical and other sciences in giving opinion upon the evidence, as presented in a hypothetical form, of criminal causes that may be on hearing in the courts presided over by the said judges. Such expert witnesses shall hold their said appointments for one year or until their successors are appointed and qualified. They shall be entered as expert witnesses upon a list of such witnesses kept by the circuit clerk, and the said clerk shall issue a certificate of appointment as such expert witness to the person appointed as above.

Such expert witnesses shall be citizens of the State of Illinois and shall be known in the communities where they reside for their professional competency and personal probity, and if physicians they shall have been at least five years in lawful and active practice. When expert opinion is desired in any cause pending in a criminal court, the trial judge presiding in such cause may, at his discretion, summon for duty under this Act, such expert witnesses to the number of three. Such expert witnesses shall be paid for their services by the county in which the trial for which they are summoned is held, in such sums as may be named by the judge.

It shall be the duty of such expert witnesses to give an opinion on the evidence as presented in hypothetical form in the case in which they are called. Such experts shall be subject to cross examination by both prosecution and defense; but such cross examinations shall be limited entirely to the subjects embraced in their opinion.

In criminal cases previous to trial, if the State's Attorney deems it advisable to have expert opinion, he shall so state to the court having jurisdiction of the cause, and the judge receiving such statement may summon expert witnesses to serve under this Act.

This Act has been amended as follows:

A BILL.

[HOUSE BILL NO. 767.]

For an Act to regulate the taking of expert testimony in civil and criminal proceedings:

SECTION 1.—*Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That in any case on trial in a court of record in this State where expert testimony is to be introduced by both the prosecution and the defense, and also in any other case in the discretion of the court, the presiding judge shall, either of his own motion, or at the request of either party to the suit, subpoena one or more persons who shall be known as court witnesses.

SEC. 2.—Such court witnesses shall be citizens of the State

of known personal probity, and only such as are recognized in the communities where they reside as having special knowledge and experience pertaining to the subjects upon which they are to testify; and if physicians, they shall have been not less than five years in lawful and active practice.

Sec. 3.—The presiding court shall fix the fees of such court witness or witnesses, but in no case shall the fees allowed such court witness exceed fifty (\$50) dollars per day. Such witnesses shall be paid in the manner provided by law for other witnesses, except that in criminal cases the fees of such witnesses shall be paid by the county.

In this amended form, the bill will probably become a law.

In closing, I can not refrain from making mention of the important studies that have been made on the influence of infectious processes on the nervous system. Drs. Mills, Putnam, Dercum and others have shed a flood of light upon this important subject, and suggest methods of relief that may lead to valuable results.

I must also mention the studies on the use of the thyroid gland in the treatment of sporadic cretinism by Drs. Telford Smith, Byran Bramwell and others that seem to offer some relief to these imbeciles, and teach us relations of the thyroid gland to general nutrition never before known.

RESPONSE TO THE TOAST, "EPHRAIM McDOWELL."

Delivered at Annual Banquet of the Chicago Gynecological Society,¹ Oct. 18, 1895.

BY JOSEPH EASTMAN, M.D.

INDIANAPOLIS.

In a hallowed spot, a typical American home, in Rockbridge Co., Va., Nov. 11, 1771, a male child was born. It has been said that "great men, like great mountains, stand alone, with the valley of ancestry on the one side and the gulf of posterity on the other." This towering character, however, did not stand alone, for the foot-hills of his ancestry were of decided magnitude, prophetic of a genius destined to become one of the greatest benefactors of the human race. His ancestry for three generations commingled the best Scotch and Irish blood, coursing the arteries of men and women of strong bodies and strong characters—characters emphasized, energized and vitalized on historic battle-fields with red-skins, red-coats, wild beasts and hardships of the primitive Virginia forests.

Figuratively speaking, this child was number nine in a family of eleven children. When 13 years of age his parents moved to Danville, Ky., a long, tedious and even perilous journey; a journey in itself well calculated to develop and toughen the fibers in our valiant hero.

At Danville he grew up to full physical manhood, tall, well proportioned, beautiful. What a wonderful advantage it is to grow up in the country, to commune with nature, to enjoy the beauties of green fields instead of paved streets; to gaze on great oaks and elms instead of steeples and chimneys; to see the radiant tints of the morning dawn and the beauties of the setting sun; where the mind can grow commensurate with a healthy body; where one can develop and cultivate the greatest of faculties—that of thinking, without having the continuity of thought interrupted by the rattling of electric cars, the rumbling of omnibuses or the shrieking whistle of steam engines; where one can see in reality what art gal-

leries only imitate, and while enraptured with the works of nature and the created, become filled with the realization of the existence of a Creator. And then, too, to be reared under the influence of such parents as our hero had. The lasting impressions of our lives are received beneath the cloudless sky of childhood, while our guiding star is the approving twinkle of the paternal eye, the chief luminary of our pathway the vitalizing sunshine of a mother's countenance, and every footstep guided by the subduing influence of a mother's love.

After obtaining his literary education at Georgetown, Ky., he went as a student of medicine to Dr. Humphries, in Stanton, Va. History tells us little of this Dr. Humphries except that he was educated at the University of Edinburgh, but surely he, too, was a man of great intellectual endowment. Dr. Samuel Brown, of Kentucky, and Dr. Hosack, of New York, were also his pupils and arrived at a great distinction as practitioners and teachers of medicine and surgery. In 1793-94 our hero attended lectures at the University of Edinburgh. Pause for a moment, and think of a young American so ambitious that the entire faculty of this great university could not satiate his thirst for knowledge, for going outside he employed Dr. John Bell, a great character, so enraptured in teaching anatomy and surgery that he filled his pupils to overflowing with professional zeal. In 1795 our hero returned to America and began the practice of medicine at Danville, Ky., where he soon had a large clientage, often riding 50 and 100 miles on horseback. He faced dangers from storm and flood, in clouds and darkness at night, at times becoming lost in the dense forest. He was actuated by the higher principles of his profession; he feared neither man nor devil; he knew no fear except the fear of doing wrong. The degree of his happiness was determined by the magnitude of his undertaking.

On Dec. 13, 1809, he was called to see a Mrs. Crawford whose attending physician had thought her pregnant, although he knew she had gone beyond the usual time. Dr. Eastman being a thorough master of all that was known of that highest department of our art, namely, diagnosis, declared that she had an ovarian tumor and at once suggested its removal. Had he deceived her by an untruth, or kept back from her the whole truth, she would have known it, would have read it in his countenance, and would not have replied: "Doctor, I am willing and ready." But he stated to her that so far as he knew the operation had never been done—that it would be an experiment, therefore he could make no promise as to the outcome. He thus unlocked the bosom of confidence with the key of personal magnetism. By his manly presence and honest words, he planted a new hope in the heart of despair. This woman made the journey sixty miles on horseback on a bleak December day in compliance with the wisdom of this great and good man, that she might be near him so that in a critical moment he could with his own hand ward off the approaching danger. When it became known what he was about to undertake, he found a mob was gathering about his house. He learned that if the patient recovered it would be well with him, but if she died from the operation he was to be at the mercy of a merciless mob. He offered up a prayer and proceeded with his task. This prayer in fervency and literary merit has rarely been equaled. Permit me to remark, greater heroism was never displayed by

¹ Delivered without manuscript.

man or woman. Martyrs burned at the stake could not escape the death if they would. This personification and crystallization of heroism could not abandon his principles, and escape the danger if he would. More than that, genuine heroism must be delicate, must be premeditated, must be actuated by a pure a high, a holy and beneficent motive. It was not a maddening pseudo heroism stirred up by the rattle of drum and shriek of life on battle-fields, where man seeks to slay his fellow-man.

I insist that the heroism of Napoleon or Grant can never be compared to that of this cool, calculating, thinking man. I repeat, the heroism that seeks to destroy human lives is incomparable with that which seeks to save a human life and establish principles which shall not only save one life, but which shall continue to save human lives throughout all coming ages. The operation was completed, and during nearly a century has not been improved upon; his technique was almost identical with what we have to-day. The substitution of a gauze for the drainage tube still more nearly approaches the ligatures which he allowed to hang out the lower angle of the wound—the best of capillary drainage. Mrs. Crawford lived thirty years. Our hero made the operation thirteen times with eight recoveries, and at 60 years of age returned from visiting a patient, laid down his instruments for the last time and secured that rest which he never could enjoy while a call to the bedside of a suffering patient was pending. Surely such a life of unselfish devotion to the cause of humanity would make him a fit companion for the gods.

"To such a life there is no death;

What seems so, is transition.

His life, his mortal breath,

Was but a suburb of the life elysian
Whose portals we call death."

He was an honest man, honest to his patients, honest to his God, and therefore honest to himself. He was a great man with a large head, a large capacity for thinking, and a large, a true and a loving heart—essential qualifications for a great surgeon.

He was a wise man. With inborn wisdom he accumulated and applied knowledge. He was a brave man. No truer heroism has or ever will be recorded on the immortal pages of never-ending history. He was a humane man. He owned slaves, occasionally bought one to unite families—but never sold one. He did not approve of traffic in human blood.

He was a handsome man.

"Beautiful eyes are those that show,
Like crystal panes where heart-fires glow,
Beautiful thoughts that dwell below.
Beautiful lips are those whose words
Spring from the heart like songs of birds—
And yet whose utterance prudence girds.
Beautiful hands are those that do
Work that is noble and brave and true,
Moment by moment the long day through."

His was a beautiful life.

"Beautiful lives are those that bless,
Some silent river of happiness,
Whose secret fountains few can guess."

Virginia is justly proud of her statesmen, of her orators and her soldiers, "but shall not the achievements of her statesmen succumb, at last, to the pitiless logic of events? Shall not the voice of her orators grow fainter with coming ages? Shall not the victories of her soldiers be found at last only in the libraries of students of military campaigns, while the fame of this village surgeon, like the ever-widening

waves of the inviolate sea, shall be wafted to the utmost shores of time, hailed alike by all nations in all ages for having lessened the burden and prolonged the span of human life." A thousand years hence, if a student of medicine shall ask who first did ovariectomy the answer will be prompt and unequivocal. As a result of this self-sacrificing life and marvelous achievements there goes forth a benediction to every home in the civilized world; from every hearthstone in Christendom there returns a blessing to the memory and the resting-place of Ephraim McDowell. All honor to this honest, great, wise, heroic, good, kind, gracious, loving and lovable man!

ORIGINAL ARTICLES.

A CASE OF CONGENITAL MUCOUS POLYPUS OF THE NOSE—WITH REMARKS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY DUNBAR ROY, M.D.

PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY IN SOUTHERN MEDICAL COLLEGE, ATLANTA, GA.

It is not my intention in this short article to go into the minute discussion of that pathologic condition known as mucous polypi of the nasal cavities, nor to adduce any new and original method for their eradication which has not already been brought before the profession at large; but with a few prefatory remarks I wish to report the history of a case of congenital nasal mucous polypus which is of sufficient rarity to render its report not entirely inappropriate for this Section. The subject of nasal polypi is an old one and perhaps the first morbid condition of these cavities which was undertaken to be rectified by the surgeon and physician alike, since its presence was perhaps the easiest recognized of all diseased states of the nasal cavities. Our medical periodicals and society reports have for the last few years teemed with articles upon the etiology and best method of treating polypi until, at the present date, one wonders that any physician should slip into the error of even mentioning the subject unless he has, by original research, some new light to throw upon certain points as yet disputed. The two points which have especially vexed rhinologists and upon which there seems to be the greatest diversity of opinion, are the etiology of these mucous growths or outgrowths and the best and most satisfactory method of treatment.

As to the etiology, there is by no means a unanimity of opinion, but, in fact, as would naturally be expected, each rhinologist holds his own views upon the subject. The only point upon which they all agree is in recognizing this pathologic condition as one of adult or advanced life, and a condition of extreme rarity in the very young. To the rhinologist who has had any extended experience in the treatment of nasal polypi and has been a close observer, the views of Woakes of London, or at least a modified form of them, must certainly present the clearest and most satisfactory explanation in regard to the etiology. M. McKenzie admits that the etiology is unknown, while Sajous says that it is due to a chronic inflammation of the Schneiderian membrane. But why is it that the same character of inflammation, certainly as far as we can observe, produces polypi in one subject and not in another? I, myself, am a strong believer in hereditary predisposition, especially

as I have seen this morbid condition in different members of the same family, and every rhinologist is familiar with the characteristic nasal expression in patients afflicted with nasal polypi, which is by no means always a *propter hoc*.

Nor are all writers agreed as to what is the usual condition of the mucous membrane lining the affected side, since some hold that it is always hypertrophied while yet others that atrophy exists.

Woakes' theory of explanation as I understand it, is this: that long standing chronic catarrh of the hypertrophic variety causes the middle turbinate to return to its embryonic condition, that is, it becomes cleft in two portions running antero-posteriorly. Between this cleft, the blood supply not being sufficient, true mucous membrane is not formed, but in its stead a myxomatous structure accumulates, which by gradual enlargement increases the space thus formed and which in its final development is a true mucous polypus. These views of Woakes upon "necrosing ethmoiditis," a most unfortunate term, have been severely criticised by some throughout the medical world, and especially has it been done in London by Walsham, Hill and Lennox Browne, a full discussion of which was published in the *Journal of Laryngology* of August, 1891. As every one knows, Browne has long antagonized these views and his ideas upon the subject are, according to him, in accord with the majority of rhinologists, believing that when such a condition of affairs exists as Woakes describes, it is accidental rather than universal. He contends that in such cases the evidences of this necrosing condition are absent, both histologically and clinically, viz: absence of odor, the sequestræ of necrosed bone and other pathognomonic symptoms. Woakes, on the other hand, replies that he did not mean that necrosis was present in every case, but that the pathologic condition was such as to lead to it were the parts not radically treated. Whether we agree fully with these views or not, I believe every rhinologist must admit the importance played by degenerative changes in the ethmoid, especially the middle turbinate, in the production of polypi, chronic discharges, etc.

Dr. W. E. Casselberry of Chicago, in a paper read before the American Laryngological Association in May last, has discussed the question of etiology and treatment in a most admirable manner, and has instituted a classification which accords entirely with my own clinical views. It is a paper well worthy of preservation and one that should be in the hands of every rhinologist.

While nasal polypi in the adult is a common occurrence and their pathology has been minutely studied, the same condition in children is extremely rare, and therefore by no means so clearly understood. M. McKenzie, with even his large experience, is reported to have said that he never saw but one case in a subject under 16 years of age. The rarity of these cases has been the ground for their being reported in the medical literature. S. Hopmann of Paris, has reported that he found nasal polypi in 8 children out of a total of 246 such cases operated upon. Natier, in the *Annales de la Polyclinique* of July, 1891, has published an elaborate study of mucous polypi in children up to the age of 15. He compares the general opinion as to the extreme rarity of these growths during the first years of life with that of Hopmann who considers them sufficiently frequent before the fifteenth year to represent a proportion of 7 per cent.

Natier was not able to find a single instance in 1,200 cases of nasal trouble carefully examined at his clinic, including a large number of children as patients, while, at his request, a close examination of the records of Moure's clinic recorded only 5 cases of mucous polypi in children among 10,520 cases. He therefore concludes that Hopmann must have met with a series of cases as a coincidence, or that the climate of the region in which he lives is particularly favorable to the growth of these neoplasms. The same author, in the *Paris Medicale* of February, 1892, reports a case of congenital mucous polypus, and in looking up the literature he has found of congenital polypi, in addition to his own, three cases of polypi in children under 5 years of age, ten cases in children between the ages of 5 and 10 years, and sixteen between the ages of 10 and 15. LeRoy of Paris, has reported a case of congenital polypus by finding that an infant had much difficulty in taking the breast, and on examination a polypus was found in the left nasal fossa. Cases of polypi removed from children under the age of 7, have been reported by P. Heymann and Michael of Hamburg.

From these few prefatory remarks, one may judge of the rarity of such cases of congenital polypi, and of those occurring in children under the age of 15. I believe, however, that if a thorough examination was made in cases of children suffering with a chronic discharge from, or an obstruction in, the nasal cavities there would be a greater number of such cases reported than has heretofore been the case.

The case to which I now wish to call your attention presented some striking features in the cavity from which the growth was removed, and which I shall speak of in detailing the history.

In one of my routine visits to the Home for the Friendless, the matron brought in a young girl 14 years of age, who complained of her inability to breathe through the left side of the nose. On inquiry the following history was elicited:

Her father was living, but mother dead. According to patient's statement she has never been able to breathe through the left side of her nose. At the age of 5 she was chloroformed three times when growths were removed from the left side of the nose, and in the last six years she has been operated on three times, having had large pieces removed at each sitting—with the result, however, of never affording her breathing space on that side. At present she says her nose feels about as well as it ever did. She complains of marked asthenopia and photophobia of the eyes. Is unable to read for any length of time. Suffers with headaches. Otherwise the patient is well nourished and is of a large and healthy frame.

Upon examination, I found one immense mucous polypus which filled the whole left nasal cavity, from the anterior meatus back into the post-nasal space. With a Jarvis snare, I removed what I thought a good portion of the growth, but to my surprise on again inspecting the parts, no impression seemed to have been made upon its size. As my surroundings for operating were very unsatisfactory, I instructed the matron to bring the young girl to my office. In two weeks time I operated again, removing two pieces about the size of the first, and on my third attempt succeeded in invaginating the greater portion of the polyp with the wire loop, and in this manner finally removed the growth *in toto*. Strange to say, there was no bleeding whatever, and on inspecting the cav-

ity I found the following conditions: the mucous membrane was atrophic throughout, and there appeared nothing but a large, open, glistening cavity. The inferior turbinate was scarcely discernible as such, while the middle turbinate showed but the slightest rudimentary shelf. The whole outer wall of the cavity showed one large depression in which the polypus had evidently lain. The septum at its lower portion was perfectly straight while the upper part of it was very much deflected toward the right, showing the evidences of mechanical pressure. No secretion whatever was present. High up beneath the rudimentary portion of the middle turbinate, the growth had its origin from a space not over one-quarter of an inch in length. No distinct cleaving of the turbinate was recognizable. The point of origin could be thoroughly canterized so that I fear no prospects of a return, as now evidenced after several months.

From the history of the case and the changes found in the nasal cavity after the removal of the growth, there is no doubt as to its being congenital in origin. The important features about the case were the destructive changes which it produced through pressure upon both sides of the cavity. The right side showed no marked pathologic changes save a distinct hypertrophy of the inferior turbinate, which was so much in contrast to the atrophy existing in the left nasal cavity.

Dr. Jarvis in the *Journal of Respiratory Organs*, April, 1890, in an article upon nasal polypi, insists upon the importance of the superior deflection of the septum as a cause for the growth of polypi and the necessity for its correction in order to effect a cure. He, therefore, explains the etiology of congenital and hereditary cases by attributing them as due to this hereditary septum.

Cordone of Italy, has reported a case of congenital polypus where he found the same superior deflection of the septum as referred to by Jarvis, and which thus supports the views of the latter.

In my own case this deflection was a very noticeable feature; whether it was one of the causes or only a result of the polypus I am unable to say, but my firm opinion is that it was the latter, since in the point of origin I could see no relationship between the two.

In regard to the treatment of polypi I have nothing new to offer, only that I wish to add my testimony to the success of a treatment recommended by Dr. E. H. Griffin of New York, and that is the spraying of the affected nasal cavity every night and morning for a year with either hamamelis or pure alcohol. Since the majority of polypi spring from the sulcus, up and behind the middle turbinate, I have found it best to saturate a piece of cotton with pure alcohol, pack it firmly in the sulcus and allow it to remain for half an hour at the time. Such mild and prolonged treatment may be criticised by my more radical colleagues, but in many patients who are so averse to any operative measures in their nasal cavities, I have found this mode of procedure of inestimable value.

DISCUSSION.

DR. PRICE BROWN, Toronto—Has only seen one case of congenital nasal polypus. This occurred in a child aged 2½ years. The polypus was pedunculated and presented in the naso-pharynx, being visible orally. Under chloroform I removed it digitally, scratching off the polypus from this vault by the finger nail.

DR. S. K. MERRICK, Baltimore—Touching the question of congenital polypi, I have never seen a case which I knew to

be congenital, but I have had at least two cases under 2 years of age, when a history of obstruction had existed from birth, or shortly after, and I am willing to accept as an established fact that we do have congenital polypi. As to the etiology, I believe in many cases imperfect drainage, due to deflection or spurs of the septum is a contributing cause, and as to the question of site of origin being invariably from the turbinates, I am prepared to disprove. I have a specimen removed from the nose of a man 48 years old, where a large spur, having a large mucous polyp attached, is suspended in alcohol, showing the polypus growing from that portion of the septum.

DR. CASSELBERRY—Some years ago I reported the occurrence of a nasal polypus in a girl aged 9 years, who had been previously affected for several years. It must have originated at a very early age, although I do not think it was congenital. At that time I expressed an opinion that nasal polypus in young children was not so rare as had been generally supposed. Concerning the etiology, Dr. Jonathan Wright concludes from microscopic studies that they are inflammatory growths occurring in the course of chronic rhinitis, although why the minority only of cases of chronic rhinitis should suffer from this complication and the majority escape, is not yet known. I have elsewhere pointed out that deflection or excrescence of the septum or other conditions which cause unusual narrowing or stenosis of the nostrils by impairing the natural drainage and causing the accumulation of decomposing muco-purulent material, might influence the transformation of the ordinary hypertrophic rhinitis into the myxomatous type. All degrees of this transformation are observed clinically, especially on the middle turbinal, from that which is best described as a polypoid degeneration of the hypertrophied turbinal to the typical pedunculated polypus which may occasionally be found attached to the middle turbinal itself. The more common point of attachment for polypus, however, is in the middle meatus, high up beneath the middle turbinal, growing from and projecting through the hiatus semilunaris from the immediate vicinity of the ethmoid cells, and in these cases the underlying condition or cause is an ethmoiditis, not necessarily of a "necrosing" type, but that which is better termed a myxomatous ethmoiditis.

The treatment should consist of as thorough extirpation as possible by the cold wire snare, followed by curetting of the base. The galvano-cautery experience has been shown to be objectionable, on account of the liability to the formation of adhesions when insinuated into crevices. In certain obstinate cases, in order to gain access to the seat of attachment in the middle meatus, I have resected the anterior end of the middle turbinal.

THE IMPORTANCE OF AURAL ANATOMY IN ROUTINE CLINICAL WORK.

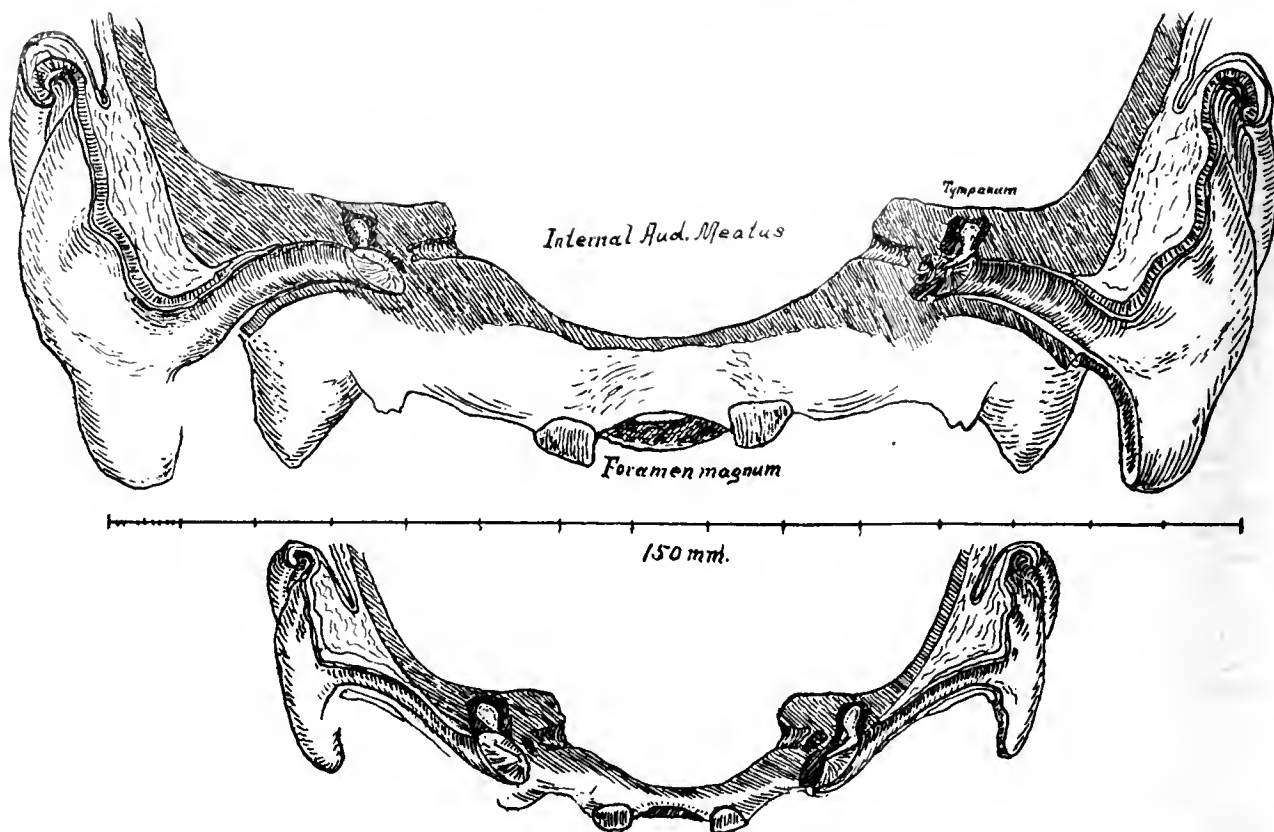
Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY B. ALEX. RANDALL, M.A., M.D.

PHILADELPHIA.

That the aural surgeon must have the topography of the ear and the surroundings clear in his mind and ready at his finger ends, when operating on the mastoid or still more within the tympanum, is evident to all. He must be thus posted, or wholly belie his status as a specialist. Yet it is no less true that the practitioner who would well treat, topically, the routine cases, still more attempt paracentesis as most of the text-books advise, must know the variations in the configuration of the external auditory canal, the size, depth and inclination of the drum-head and the structures which lie beyond it within easy reach of damage by his manipulations. Unfortunately, much experience in post-graduate teaching shows that the majority of men of some otologic experience reveal serious defects in this direction; and do some very bungling work, however posted in the theory; not so much from inexpertness, as because of erroneous anatomic impressions.

For this, many text-books of surgery, anatomy and even of otology are distinctly at fault. Misstate-



ments abound and pass current without the brief examination needed to correct them. Hard and fast statements are made as to the most variable points, alternating with vague and inadequate data on matters calling for more explicit description. Few even of the aural treatises deal adequately with the external meatus in its individual variations and its development from the infant to the adult form. I find a common misapprehension, that because the drum-head of the infant is on the plane of the skull surface, the auditory canal must be shallow. The astonishment with which physicians see a probe passed in an inch and a quarter, before touching the tympanic membrane of an infant is almost universal. The usual text-book statement that the drum-head is much more horizontal in infant life than later, is accepted, of course; and every demonstration of an identical position with that of the adult is generally looked on as an exception and anomaly. That the drum-head, ossicles and labyrinth are full-sized before birth, surpasses the credible to most medical men, who naturally support common analogy by text-book misstatements.

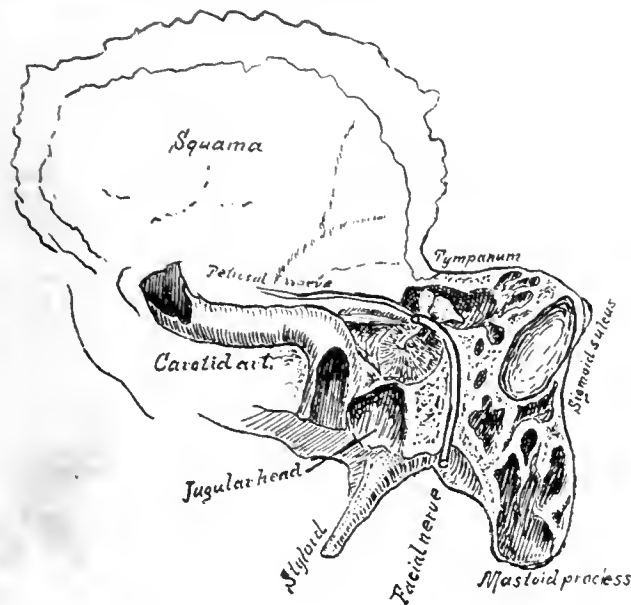
The variable direction of the auditory canal counts as much as its width and straightness in the question of what should be visible at its bottom; but I know of no statistical measurements in this regard except those brought by me before the American Otological Society last year. This is of extreme importance to the operator; but it greatly concerns every practitioner who undertakes to cleanse an ear. Supposing a bulging inflamed drum-head offers itself with exceptional clearness to the view of the practitioner and demands incision, how few are acquainted with what lies within it, all too easily damaged by anything but the most precise operation. The inclination of the drum-head to the axis of the canal is

generally fairly stated in the books; yet few practitioners adequately appreciate how much farther from the surface the anterior part of the membrane is than the upper posterior. In the narrow canal, little use can be made of parallax in estimating the distance of points, so one must generally depend on his anatomic knowledge of the position of known structures and, as to the unknown, make tentative use of the probe.

The great importance of this combined employment of sight and touch in learning practical aural anatomy, inclines me to strongly advocate the use of the cotton carrier in cleansing, since it may be as gentle as any other means, while far more instructive and, at times, more efficient. By such practice the beginner can speedily learn the relations and obtain a delicate confident touch, which will serve him equally in successful routine work and in the most intricate operative procedures. Bearing these drum-head details in mind, incision of the drum-head can doubtless be safely done by any one of fair skill; unless he undertakes it as a stab of the chosen point, because so taught or from the unsteadiness of the patient. Then he always endangers the structures beyond—the stapes, chorda and possibly the facial nerve, if operating up and back, the mucous membrane of the promontory below and the head of the jugular in the floor of the tympanum. The reported cases where the jugular has been thus opened are probably far fewer than the occurrences of the accident, for it must not be forgotten that the thinnest of bone, often dehiscant, alone intervenes. As to the facial nerve, its bony canal is not infrequently incomplete just above and behind the oval window; and aside from injury as the result of operation or even of mere probing or cleansing with cotton, this anatomic condition should not be forgotten in its rela-

tion to Bell's palsy. That authority to the contrary notwithstanding, I am sure that the large majority of cases of acute facial paralysis are due to inflammatory affection of the nerve and its sheath, not at the stylo-mastoid exit, but as it passes through the tympanum. The tympanic inflammation is generally transient and sometimes painless; but prompt study will rarely fail to note the evidences of it. The bearing of this upon prognosis and treatment is evident.

One farther instance may be cited—the anatomy of the Eustachian tube in its relations to the physiology of the ear and the therapeutic matter of inflation. Anatomists and physiologists have contended as to whether the tube is normally in a closed condition. Section shows its lumen reduced to a mere cleft by contact of the anterior and posterior walls; but Rüdinger has pointed out the open "safety tube" above, in the hollow of the hook-cartilage. Clear as this is in the middle portion of the tube, it is not present throughout its length; and we are normally depen-



dent upon the dilating action of the so-called palate muscles (of which the outer portion of the tensor palati is at times purely a dilator tubæ) to render it patulous. Of this, Politzer has furnished us a nice demonstration which is also a most useful test of the normality of the Eustachian tubes. If the sounding tuning-fork is held before the nose, it will be faintly heard until the act of swallowing calls into action the tubal muscles, when it will be momentarily much more audible. Without any needless inflation, we can thus at once test not only their physiologic condition, as could be only inferred from their ready penetration by the injected air, but can note even minor differences in the freedom on the two sides. Another demonstration of the same normal closure of the tubes will be found in the contrast with the effort to exhaust the tympanum by a suction effort, with the completeness of the success of the Toynbee or negative Valsalva procedure, of swallowing with the nose closed.

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

RECURRING OR HABITUAL EPISTAXIS, WITH A CONSIDERATION OF THIRTY- SEVEN CASES.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. L. VANSANT, M.D.

ADJUNCT PROFESSOR OF DISEASES OF THE THROAT AND NOSE, PHILADELPHIA POLYCLINIC; SURGEON TO THE THROAT, NOSE AND EAR DEPARTMENT OF THE HOWARD HOSPITAL; ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL, PHILADELPHIA.

The term recurring or habitual epistaxis designates a class of cases where nasal hemorrhage of varied degrees of severity recurs at intervals, during a greater or less period of time. The history given in some of the cases is that of a slight hemorrhage; perhaps only sufficient to lightly stain the handkerchief after blowing or picking the nose. Such slight oozing may recur several times daily or at comparatively long intervals. In other cases, the history is that of a profuse hemorrhage lasting several minutes or longer, which may occur after blowing the nose, or follow any slight mental or physical excitement. The frequency of the attacks may vary considerably.

Among the general causes of recurring epistaxis are:

1. Diseases affecting the blood vessels or associated with alteration of the constituent parts of the blood, as in scorbutus, purpura hemorrhagica, simple and pernicious anemia, plethora, hemophilia, malaria, and exceptionally in septic diseases such as pyemia, septicemia, etc.

2. Certain acute diseases, such as typhoid and relapsing fever, and occasionally in pneumonia, diphtheria, etc.

3. Diseases producing local or general vascular congestion, such as valvular disease of the heart, pulmonary affection, cirrhosis of the liver, chronic nephritis, amyloid degeneration and mediastinal tumors.

4. It may be the expression of a vicarious menstruation, or,

5. May accompany the course of a pregnancy.

Among the local causes may be assigned:

1. Tumors such as fibroma, carcinoma and sarcoma, particularly angiosarcoma, fibro and myxosarcoma.

2. Varicose enlargement of the veins, particularly on the anterior portion of the septum.

3. Perforating ulcer of the septum.

4. Trauma.

5. Local ulcerations caused by syphilis, tuberculosis and lupus, and, finally,

6. Deformity of the septum, associated with erosion or ulceration of the mucous membrane of the septum.

The most frequent predisposing cause is some slight deformity of the septum affecting its anterior portion. The abnormality may be but a small or moderate sized enchondroma or exostosis, or it may be a slight deflection of the septum, the seat of some former fracture with marked thickening of the convexity.

Accumulations of dust and mucus occur on the apex and anterior surfaces of the projecting portion, and as such accumulation is very difficult of removal by blowing the nose, the patient will endeavor to obtain relief by picking it away with the finger or the handkerchief; in so doing slight erosion of the mucous membrane occurs. This may excite a slight hemorrhage, which in turn forms a small crust, and the process of removal and bleeding is continued. In some instances the process goes no further, the patient having a slight hemorrhage only when the nose

is picked. In other cases the ulceration gradually extends deeper into the tissues and the hemorrhages are more profuse, often produced by simply blowing the nose or any mental or physical excitement.

The ulcerations are most liable to occur when the deformity of the septum is moderate, whereas in marked deformity, producing great stenosis, the draft of air is so cut off that very little dust is drawn into the obstructed nostril and fewer crusts are formed.

In thirty-seven cases of habitual epistaxis occurring in my practice recently, I found that twenty-eight were due to slight deformity of the anterior portion of the septum as just described, with ulceration of the projecting or convex side of the deformity. Three were due to deviation of the septum with ulceration on the depressed or concave side. Two were due to ulcerations associated with atrophic rhinitis. One was a vicarious menstruation. Three occurred in typhoid fever.

The severity and duration of the affection in the observed cases varied greatly. The majority of the patients were not aware of any existing nasal obstruction, nor was the deformity sufficient to produce marked stenosis. In quite a number, various abnormalities producing catarrhal conditions were present, in addition to the septum deformity.

The observation of ulceration of the septum as a cause of epistaxis is by no means a new one. Among the articles calling attention to it may be mentioned those by G. M. Lefferts,¹ B. Robinson,² Chiari³ and Baumgarten.⁴ The more recent text-books also recognize its etiologic importance. The presence of slight septal deformity has, however, not been so generally recognized; nor has the importance of correcting such deformity in order to obtain permanent relief been well developed. Again, the general profession has not fully appreciated the fact of this being so frequent a cause of bleeding. Perhaps the trivial nature of the lesion in some cases, may be the reason that more importance has not been attached to it. In a large number of the cases that came under my observation the local lesion had not been previously recognized although they had long been under medical care. These cases were supposed to have some latent cardiac or vasomotor affection, but local examination revealed the true source of the hemorrhage.

The following cases from my records will illustrate some of these observations:

Case 1.—Mrs. A. B., age 30 years, consulted me in January, 1892, with a history of repeated slight nasal hemorrhage. She stated that in the left nostril a small scab frequently formed which she could only remove by hard blowing or picking. The removal of the scab always caused a slight hemorrhage that lasted but a few minutes. This condition had continued for the past four years and was better during the summer and worse during the winter. The nose always felt free, except during the cold weather when catarrhal symptoms developed. Examination showed a slight deflection to the right of the anterior portion of the septum. Upon the apex of the deflection was a small ulcer covered with a crust; upon removing this a slight hemorrhage occurred. With the exception of a moderate hypertrophy of the lower turbinated body of the opposite side, the nostrils were fairly normal. The ulceration was readily healed by treatment, and the hemorrhage promptly ceased. Operation for removal of the slight obstruction was, however, refused. About three months later the patient returned with renewed ulceration and hemorrhages. She confessed to having re-

commenced picking the nose. A cure was again effected and operation again refused. Since then I have had the same experience with her at intervals. If this patient could refrain from picking the nose or have the septal projection removed there would be no further epistaxis.

Case 2.—Mr. C. D., age 19 years, college student, gave a history of recurring epistaxis for a number of years, in fact as far back as he could remember. The hemorrhages were usually quite severe and at times difficult to check. They usually followed blowing the nose or any unusual physical exercise such as dancing, playing tennis or ball, as well as mental or physical strain. The bleeding would sometimes occur several times daily; again intervals of weeks would be between the attacks. The patient since early childhood had been under the professional attention of a very experienced physician who looked upon the epistaxis as the local expression of some undeveloped cardiac lesion, and who informed the patient that the bleeding should be looked upon as a safety valve. The patient had therefore been subjected every six months to a careful examination of the heart and lungs. I first saw this patient in January, 1893; he was tall, thin and anemic. He declared his nose felt free and unobstructed, that he never suffered from catarrhal symptoms, in fact, if it were not for the epistaxis would feel in the best of health. On examination, a deviation to the left of the anterior portion of the septum was seen. The deviation was quite angular, projecting about a quarter of an inch into the left nostril. Over the projection the membrane was adherent, pale and scarred. At the base of the projection the blood vessels were dilated. On its anterior surface was found a round ulcer about one-quarter of an inch in diameter covered by a crust. Upon removal of this crust, bleeding occurred and the ulcer was seen to extend into the submucous tissue. With the exception of a depression of the septum on the right, corresponding to the projection to the left, the nose and throat were in excellent condition. Examination of the lungs, heart and liver, as well as the urine, showed absolutely normal conditions. Upon questioning the patient confessed to occasionally picking the nose but declared himself unable to always abstain from the habit.

Operation for the removal of the septal obstruction was advised and carried out in January, 1893. In about a week the patient was allowed to return to his home in a neighboring city. Reports received from time to time showed subsequent absolute freedom from epistaxis, although the patient now indulged in all the sports of a college student. A note from my case-book dated February, 1894, says that he has been entirely free from nasal hemorrhage since the operation. There has been great improvement in his general health with considerable body development during the year. About this date, while sparring, the patient received a violent blow upon the nose. This caused renewed hemorrhages with some return of the septal deformity which, however, was easily corrected, and a recent report states that there has been entire relief from all epistaxis.

In most of the cases observed the epistaxis was of rather a mild degree, but the following cases will illustrate how very severe the affection may become:

Case 3.—Mr. P. K., age 50 years, who consulted me in March, 1894, stated that since boyhood, he had had on an average three nasal hemorrhages daily. These always were very severe, and lasted from five to thirty minutes. He had noticed that the bleeding usually followed picking or blowing the nose. Of late years any mental or physical excitement would also cause it. This patient was very anemic, and suffered from all the symptoms of that condition. He stated that he had always been considered a "bleeder." Upon examination the septum was found to have an up and down S-shaped deflection extending quite forward, with considerable thickening at the base. On the anterior surface of the deflection were several small ulcers in each nostril. The blood vessels of the mucous membrane covering the septum were varicose. The nasal and pharyngeal mucous membrane appeared pale and sodden, with considerable secretion of mucus. The posterior portion of each lower turbinated body was hypertrophied. This patient acknowledged that he had been in the habit of picking his nose all his life. When requested, he gave a demonstration which presented a vivid picture of the finger-nail scratching the septum. Operation was recommended, but refused. There was no difficulty in healing the ulcers, and causing the epistaxis to cease. The patient was dismissed with a caution about picking the nose.

Case 4.—Mrs. E. F., age 38 years seen by me in December, 1894, gave a history of having had former nasal hemorrhages

¹ G. M. Lefferts, Medical News, 1882, vol. XL, page 100.

² B. Robinson, New York Medical Journal, Sept. 24, 1887.

³ Wiener Medizin Zeitung.

⁴ Treatment of Epistaxis, Vienna, 1886.

of a severe type and frequent occurrence, which condition had lasted fifteen years, and then about five years ago had ceased. According to her recollection the bleeding was usually from the right nostril. About three months before consulting me the epistaxis returned, this time apparently from both nostrils. The hemorrhages, however, were not so severe or frequent as formerly. Examination showed an S-shaped deviation of the septum, running antero-posteriorly. The anterior projection of the S was well forward, to the right, while the posterior projection extended into the left nostril and further back. Through the anterior curve a round perforation of about three-eighths of an inch in diameter had occurred. The presenting surface of the posterior projection to the left, was the seat of an ulcer, covered with a scab, the removal of which at once brought on a hemorrhage. There was considerable hypertrophy of the lower turbinated bodies, as well as advanced granular pharyngitis.

The patient confessed to the nose picking habit. The hemorrhages ceased upon healing the ulcers, and stopping her bad habits. In this case, I have no doubt but that the perforation was due to chronic ulceration of the septum, and that the temporary cessation of the hemorrhages came when the first ulcer had entirely perforated. The renewed hemorrhages were due to the ulceration on the left side.

Treatment for Control of Hemorrhage.—As the point of bleeding is usually at the anterior portion of the septum, firm and continued pressure of the nostrils with the fingers or a clamp may be quite sufficient to secure cessation. The head of the patient at the same time should be held erect or slightly forward, the patient sitting in a chair or partly reclining on a lounge. If such pressure is not successful, small pieces of ice thrust into the bleeding nostril, and applied to the corresponding side of the nose, or cold applied to the spine, aid in checking the hemorrhage. Again, full strength peroxid of hydrogen dropped into the nostril, or a plug of cotton saturated with the same and inserted, will usually form a clot sufficiently strong to check the bleeding. Alum, 30 grains to the ounce of cold water, and sniffed up the nose, or applied by means of an atomizer, dropper, or on pledgets of cotton can be recommended. Cocain in 4 per solution used in the same manner, and quickly followed by a 3 to 6 per cent. freshly made solution of antipyrin, at times is quite successful, although care should be taken lest the depressing effect of the drugs add to any existing prostration. If the patient seeks medical assistance, the bleeding point should be sought for, and is usually very easily found. It may then be touched with copper sulphate or silver nitrate. These may be used in solid form or in solutions. A 5 to 10 per cent. solution of silver nitrate applied on a small swab to the bleeding surface and held in position is usually quite effective. At times it may be necessary to resort to the cautery, using the galvano-cautery, or heating the end of a probe in the flame and touching the bleeding point. Such cauterization is quite successful, but renewed hemorrhage may occur upon separation of the slough. At times it may be necessary to plug the nostrils. Certain internal remedies may be used in addition to the local treatment. Of these remedies ergot is the best, and may be given in repeated small doses, by the mouth or hypodermically. Gallic and tannic acid, acetate of lead, sulphuric acid as well as the astringent preparations of iron may also aid in checking the hemorrhages.

Treatment to Prevent Recurrence.—The patient should be strongly urged to avoid picking the nose, and to use warm washes and oils to remove crusts and accumulations of dust. The surface of the ulcer

should be coated over by applying copper sulphate, or silver nitrate, or a varnish of balsam of tolu dissolved in ether. The local use of the ammoniated mercury ointment, one-half strength, or carbolic acid (2 to 5 per cent.) in albolene or cosmoline, and insufflations of acetanilid, or iodoform, with or without morphia, can be recommended.

With such treatment I have usually had but slight difficulty in healing the ulcerations and preventing epistaxis. If the patient can abstain absolutely from picking the nose, this treatment may be all that is necessary. The desire to pick the nose clear from the deposits of crusts that will form around the septal deformity from time to time is, however, almost irresistible and in my experience the recurrence of the hemorrhage is almost invariable. It is therefore my usual custom to advise operative procedure for cure of the existing septal deformity and thus remove the offending cause. Removal of the projecting portion by means of the nasal saw, shave, gouge, etc., is usually all that is necessary. If the deviation is very marked, or if the hemorrhages come from the concavity of the deflection, it is advisable to fracture the septum and restore it to a normal position. The permanent relief from epistaxis that I have invariably succeeded in obtaining from the performance of these slight operations has led me to strongly recommend such procedure, even when the hemorrhage is slight and of comparatively infrequent occurrence.

1829 Chestnut Street.

DISCUSSION.

DR. J. E. H. NICHOLS, of New York—The percentage of cases showing chronic atrophic rhinitis seems to me rather small, as in my experience I have found it very large. We almost always find the atrophic condition present with deviations of the septum, because of the patency of this non-occluded nostril. Facial movements often cause hemorrhages by reason of the patient's effort to dislodge the crust formed in the vestibule and relieve himself of the feeling of tension caused by the dryness. I have seen hemorrhages start from this cause. A case under my observation at the Manhattan Eye and Ear Hospital exhibited this; she had been under treatment for two months at the Roosevelt Hospital for systematic causes, the atrophic condition being entirely overlooked. Treatment directed to softening the membrane relieved the hemorrhages, and she has had none for four months. I use largely an ointment called the unguentum nasalis, which is of 10 per cent. ichthyol and 5 per cent. eucalyptol in vaselin. This is used twice or three times a day.

DR. WOOLEN—said nose picking was not a habit, and a bis-muth vaselin salve applied at night stimulated healthful secretions and ease of cleansing, and therefore, freedom of accumulation of irritating causes. After all, in controlling hemorrhage, the formation of clot is the matter of prime importance, and this is most admirably secured by insufflating dermatol, and inserting a filin of cotton along the inferior meatus, as foundation for clot, dermatol being both an hemostatic and antiseptic.

DR. LOEB—I desire to call attention to perforation of the septum as a cause of recurring epistaxis. A patient came under my observation who presented a large perforation of the septum, and who suffered greatly from recurring nasal hemorrhages and from headache. Treatment bearing upon a coincident cardiac condition had been used for some time by a practitioner in the hope of cure. The use of nitrate of silver and oily spray entirely relieved her. Another case presented a very sharp projection which forced its way through the mucous membrane upon exertion and after piercing the nose. Removal of the spur entirely cured the condition.

DR. HOWARD S. STRAIGHT of Cleveland—The importance of very careful examination of the cartilaginous septum in all cases of frequently recurring nasal hemorrhage, has been impressed on me during the last year. I believe a slight ulceration of the mucous membrane, the cause of the hemorrhage, is often overlooked. The connection between a slight devia-

tion of the septum and the ulceration of the triangular cartilage has not impressed me as of so great importance as expressed in the paper. The writer has done the Section a favor in calling especial attention to this condition of affairs. Just what importance to attach in a nasal disease of any form, to a slight deviation of the septum, is a question in my mind. To assume that the deviation accounts for everything is easy; but just where to draw the line, the gods only know.

DR. VAN SANT, closing discussion.—In regard to atrophic rhinitis being a frequent cause of habitual epistaxis, my experience does not agree with that of Dr. Nichol. It is true that the removal of an adherent crust in atrophic rhinitis may cause a few drops of blood, but this is so slight that I have not included such cases in my paper. Dr. Loeb considers perforation of the septum as a frequent cause. Perforations have usually been found to be preceded and caused by chronic ulceration; indeed, after the perforation occurs, the hemorrhages may cease, although ulceration around the margins of a perforation may continue the epistaxis. In such cases the best treatment is to heal the ulceration before perforation takes place. In regard to the use of salves, nitrate of silver, etc., used by Dr. Woolen, I have already said such means will usually heal the ulceration, and if the patient will absolutely abstain from picking the nose, the epistaxis may permanently cease. Unfortunately the temptation to remove crusts where there is a slight septal deformity is usually too great for the patient to resist. In replying to Dr. Straight, I think that operations for the removal of any existing deformity should be advised upon the ground of securing more permanent relief. If by operation we remove the projecting part from the septum, dust and crusts will not accumulate. The temptation to pick the nose is lessened and the septum is less liable to injury and subsequent ulceration.

REPORT OF A CASE OF CARIES OF THE SPHENOID BONE.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY EWING W. DAY, M.D.

PITTSBURG, PA.

That caries of the bones at the base of the skull is rare, is, I think, evident from the scarcity of literature on the subject. I have been able to find but scant reference to the subject from the resources at hand. For this reason I have ventured to come before you with the report of a single case of sphenoidal caries. Its course was chronic, lasting for two and a half years. Its beginning was obscure, for during the first year and a half, though seen by many of the most prominent members of our profession, no definite diagnosis was made, but the cause was assigned to malnutrition and neuralgia of malarial origin. That the bone itself was first involved seems to me certain, for when the membrane over the sphenoid broke down, the carious process was already fully established. The resulting cerebral abscess demonstrated at the post-mortem, probably dated from the time of the extreme and continuous headaches; and though the optic nerve was exposed to pressure, and pus was present in the cavity of the orbit, the eye, while frequently examined by Dr. Willetts, never gave evidence of it, on account of the drainage into the nasopharynx through the sinuses in the bones.

In the spring of 1892 I was asked by the attending physicians, Drs. Emmerling and Anderson, to examine the patient, who in addition to a marked general debility and a train of obscure and indefinite symptoms, complained of soreness and pain in the pharyngeal vault.

The patient, aged 55 years, was a prominent physician of Western Pennsylvania, with the following history: in 1884, while operating on a patient supposed to be syphilitic, for hemorrhoids, he accidentally cut his finger, which, though promptly treated,

was in the hurry incident to the operation, not cauterized. In a few days a severe case of blood poisoning resulted, but no symptoms of syphilitic infection were apparent. Later, the question arose as to whether there might not also have been a specific inoculation at this point. His recovery was slow and his physical condition was never as it had been before the attack.

Seven years after, in 1891, he showed signs of physical decline, although he continued his labors as lecturer and operator at the medical college and hospital but his efforts lacked that spontaneity so characteristic of him. He spent that spring and summer in Europe and suffered so severely from frontal headache, that often it was impossible for him to carry out his plans. At times he would weep like a child and was generally depressed and very homesick. The principal physical symptom of which he complained at this time was a feeling of extreme chilliness. After his return home he seemed to improve and went about his work with some of his old-time vigor, but that fall, symptoms of nasal rhinitis developed and he frequently sprayed his nose with a hand atomizer. During the winter he had a severe attack of influenza which left him weaker than ever, with severe frontal headache and more aggravated nasal rhinitis. After this sickness his health always varied; malnutrition progressed and the nasal affection and frontal headache continued. At times he would complain of a lame hand, the result of the blood poisoning. During the spring of 1892 his debility frequently obliged him to rest and no amount of medicine and care altered his condition. He however, attended the meeting of the American Surgical Association at Boston, and consulted several physicians both there and in New York, whose diagnosis was neuralgia and malnutrition of a probable malarial origin. Later, he went to the Cheat Mountains in hopes that the outing would restore his health. As the warm weather approached, his work became more laborious to him and frequently he would remain in bed and refuse to see patients.

At this time, when I first saw him, an examination of the nose and naso-pharynx had not been made, medication being directed toward stimulating the appetite and overcoming the indigestion and nausea which had been prominent symptoms. At times he seemed feverish, but never to a marked degree. The pulse was always good. An examination showed the vault of the pharynx swollen and inflamed, the mucous membrane having a superficially eroded appearance, as if denuded of its epithelial layer. There was marked chronic rhinitis, with stenosis, from distension of the venous plexus of the lower turbinates. From this time on I saw the patient nearly every day up to the time of his death. A short time after this while making an examination, a small carious area, at the sphenoid-vomer articulation was found, a piece of bone the size of a pea was removed with the adenoid forceps, and a diagnosis of caries of the sphenoid made.

A consultation of physicians now held, resulted in the conclusion that his ailment was syphilis contracted at the time of the blood poisoning, the possibility of tuberculosis being excluded by a microscopic examination of the discharges. He next took a trip East and consulted Drs. Janeway, Gouley, Bryant and several others concerning the probability of syphilis, without receiving any definite opinion.

Mercurial treatment was persevered in unremittingly, and iodids, though thoroughly tested, were without effect, as he possessed an intolerance for them. In September, tinnitus aurium, accompanied by severe pains in the right ear developed, though there was no change apparent in the tympanum; and there was also pain in the right frontal sinus. This pain was so severe and persistent that the patient insisted there must be suppuration. An examination proved it to be healthy, but foul pus was being discharged from the sphenoid and the region of the ethmoid and it was evident that caries was progressing rapidly.

The swelling of the naso-pharyngeal wall and the extreme sensitiveness of the throat rendered a full rhinoscopic view difficult, but an area of diseased bone 2 c.m. in length by 1 c.m. in breadth could be seen and it was evident that the body of the sphenoid and basilar process of the occipital bone were disintegrating. At different times a quantity of carious bone was removed through the nostrils, with an instrument devised for that purpose, with no appreciable benefit. Frequent cleansing of the nostrils and throat now became necessary to remove the pus which was abundant. Through the winter of 1892 he became very feeble and occasionally morphin was necessary to relieve the pain. On Jan. 24, 1893, he was induced to take a trip to Florida in the hope that the outdoor life might improve his condition. Dr. Emmerling accompanied him and they stopped at Baltimore to see Drs. Osler and Halsted, who gave the opinion that he was suffering from necrosis of the base of the skull, and thought that an operation, while doubtful might be of benefit, and that a trip South would improve his physical condition.

During the first two weeks in Florida the patient improved markedly; the pus became greatly diminished and he could spend the whole day fishing. He ate well and was able to walk long distances. On a change of the weather, however, he contracted a slight cold and steadily declined in strength, suffering severe pains and having some symptoms of abscess of the brain. He was brought home on April 1, very weak; appetite bad; constant headache; twitching of the left trapezius and muscles of the back of the neck, with sensory disturbances of the face. The lymphatic glands on the left side, at the angle of the jaw had suppurated and were lanced; the resulting wound was exceedingly indolent, nearly closing at one time. The caries had progressed steadily and there were sinuses in the sphenoid and basilar process that admitted the entrance of a small probe for 3 or 4 mm. The pus was more abundant in the pharynx. This flow was freer at times, giving relief from the pain for a few hours. Ordinarily one-third of a grain of morphin was necessary twice daily. Finally, the bladder became inflamed and catheterization was required. To help the headache, frequent applications of the faradic current were made. During this decline, his faculties were preserved to the last, the only mental aberrations being wild dreams under morphin.

May 28, he was taking one-third grain of morphin, two or three times a day; refused food on account of nausea when it was brought to him, and always vomited when lying on left side. The gland that had suppurated now exhibited the character of a fungating ulcer, and a bed-sore over the sacral spine was very painful and difficult to heal. His eyes had a slightly crossed appearance, but he never complained of a diplopia.

June 2, the bed-sore was nearly healed, but the cystitis was much aggravated and regular catheterization was necessary. A proctitis had also developed from use of the rectum for alimentation; yet at this period he could walk to the lounge to have his nostrils cleaned or examined. During the next ten days he failed much, until the early morning of June 13, when he was found trying to vomit and on questioning what had happened, he said the pus was running down his throat; some of it ran from the nose and he expectorated about an ounce. His voice was peculiarly cavernous, having a nasal ring. He was mentally clear for a time and had less pain, but was very pallid and the respirations increased. Gradually he became comatose and died in a few hours.

Post-mortem:—The head only was examined. On removing the calvarium, which was not thicker than the average, the dura was found very adherent, especially to the frontal bones. The adhesion was not uniform but in spots; elsewhere it was soft, thick and easily detached. A pachymeningitis with passive congestion, was exhibited over the frontal and temporo-sphenoidal lobes of the brain. On dividing the dura and falx cerebri transversely, the pia and arachnoid were found to be hyperemic on both sides with considerable edema of the right side. Stripping the dura forward it was found adherent to the anterior pole of the cerebrum, by a lepto-meningitis. The left hemisphere was congested, but its consistency and color were normal, while the right was soft, putty-like and nearly diffuent. As the brain was lifted out of the fossæ the adhesion of the membranes to the frontal, and temporo-sphenoidal lobes was seen, and an abscess-cavity springing from the center of the right wing of the sphenoid entered the temporo-sphenoidal lobe. This abscess had dissected its way between the dura and the sphenoid back of the middle lacerated foramen, up over the petrous portion of the temporal bone as far back as the internal auditory meatus. This abscess, which was of the size of a walnut, traced medially, dipped beneath the structures which passed through the foramen rotundum and pierced the base of the right wing of the sphenoid, entering the sphenoidal and sphenothmoidal cells into the nasal cavity. The walls of this abscess in the brain were soft, without any resemblance to brain matter and the entire hemisphere was exceedingly soft.

By dividing the lesser wings of the sphenoid, the orbital and nasal cavities were exposed from above; pus was present in the orbit and it was found that a sinus led from the right side into the orbital cavity and connected with the anterior ethmoidal cells, and the abscess of the brain. The entire body of the sphenoid and basilar process of the occipital bone were riddled with sinuses, exposing the external surface of the dura and leaving it as the only protection and support of that part of the base of the brain resting on the clivus blumenbachii. The pterygoid processes and ascending rami of the palatine bones were carious and loose. The vomer was entirely gone, as also the perpendicular plate of the ethmoid. The cribriform plate of the ethmoid, the turbinated bones and lesser wings of the sphenoid were intact. Both antrums, the frontal sinuses and the turbinates were free from disease, while the post-pharyngeal wall was intensely congested and thickened to the extent of half an inch, nearly closing the isthmus of the naso-pharynx. This thickening of the mucous

membrane also extended to the sides of the nasopharynx, closing or obstructing the Eustachian tubes. The abscess and excavated bony base at the floor of the brain brought vital parts into great danger. The carotids, cavernous sinuses, crura cerebri and other structures were within a few cells distance of infection.

The pus that poured from the nose and into the throat on the morning when he died, came from this abscess of the brain, and the consequent passive congestion and anemia of the brain was the *coup-de-grace*.

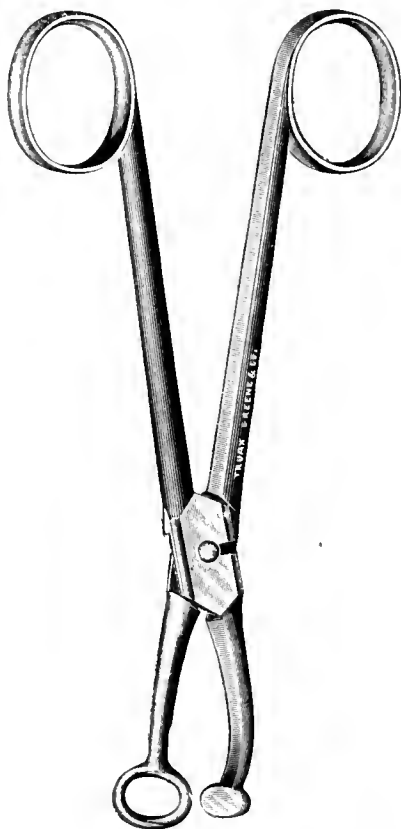
NEW SEPTUM FORCEPS.

Read in the Section on Laryngology and Otolaryngology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. J. ERWIN, M.D.

MANSFIELD, OHIO.

Having long felt the want of an implement for the correction of the deviated septum, I had these forceps made by Truax, Greene & Co., which I find to be very useful and convenient. The male blade being 4 m.m.



less in its diameter than the inside of the ring blade, it does not cut the cartilage while reversing its convexity; it produces at most, a kind of green stick fracture of the septal periphery, which makes it easy of support. In most cases a hard pledget of cotton will keep it in place as required for a few days. Sometimes you will find it better to use the pin. One size, just as large again as this cut, will answer for every case, except for children, and they do not need it.

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

ON THE LOCAL AND GENERAL CONDITIONS THAT CHANGE CORNEAL CURVATURES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association, Baltimore, Md., May 7-10, 1895.

BY LOUIS J. LAUTENBACH, M.D., Ph.D.

PHILADELPHIA.

Theoretically, astigmatism may be occasioned by any irregularity of curvature or of structure of any of the tissue layers of the eye lying in the course of the visual axis; but practically, it is usually lenticular or corneal in its origin and is an irregularity of curvature and not of structure. Of these the corneal variety is by far the most common, while the lenticular form is rarely sufficiently prominent to interfere with vision.

In this paper I will confine my attention to regular astigmatism developed in the cornea, and will but incidentally notice lenticular astigmatism. Formerly, regular astigmatism was considered a congenital deformity, sufficiently fixed and definite to remain ever in its original condition, excepting when modified by some violence, traumatic or inflammatory, exerted upon the cornea, or by some change in the lens substance from degeneration or injury. Later, when the opinion began to be expressed that perhaps the astigmatism was a little more variable than had been supposed, these changes when admitted, were attributed to alterations in the lens substance or in its curvatures, from distorted or spasmodic action of the ciliary muscle.

In my opinion, many and various are the causes of astigmatism and of its variation. I will attempt to explain how normal astigmatism develops and the influences which determine its origin and extent, and will also attempt to show that while astigmatism is nearly always present congenitally, with its seat in the cornea, this corneal astigmatism is not by any means constant throughout life, its degree and axes being subject to variations. These variations may be many, frequent and even sudden, due to a great variety of causes, constitutional as well as local.

Burnett¹ speaking of reported cases of progressive changes in the degree of astigmatism and in the direction of the principal meridian says: "We can not positively exclude a change in corneal curvature, but it is most probable that the change is due to alteration in the shape of the lens, either from changes in its substance or from a modified action of the ciliary muscle."

Fuchs² says that, "The cause of regular astigmatism in the great majority of cases is a congenital irregularity of the curvature of the cornea." He also writes: "Acquired astigmatism may have its cause in the cornea or in the lens. The former variety occurs when the curvature of the cornea has been altered, either because of disease affecting it or still more frequently because of operations. The lens gives rise to a regular astigmatism when it is obliquely placed, as for example, in subluxation."

Noyes³ says that regular astigmatism "is chiefly dependent upon abnormal curve of lens or want of homogeneousness in the lens." He acknowledged that "some rare cases of astigmatism are acquired; but as a rule the regular astigmatism of the cornea is congenital. Acquired astigmatism in the cornea when no opacity exists, comes from conicity of the membrane or happens after tenotomy of the muscles,

or after wounds of the cornea, iridectomy and extraction of cataract."

Schmidt-Rimpler¹ writes of regular astigmatism as follows: "As a rule, the affection is congenital. It is found occasionally in corneal opacity;" and "from ulcerations and ectasia, particularly keratoconus. It is especially frequent after cataract operation and may also occur after iridectomy."

A theory extensively advocated in the past, is expressed by Javal² as follows: "The meridian of greatest refraction corresponds to the shortest diameter of the skull." This theory places the burden of the formation of astigmatism entirely upon the development of the osseous structures and when these are fixed, no change of astigmatism can occur save from injury or disease.

Corneal curvature, and, consequently, corneal astigmatism when present, is the result of a number of forces more or less antagonistic, exerting their powers upon the corneal texture. The cornea, a dense elastic tissue, is inserted as a watch glass in the front of a softer spherical body; the eyeball which in turn rests upon a cushion of fat, being held in position by the recti and oblique muscles, aided by the orbicularis palpebrarum and, to some extent, by the optic nerve and orbital tissues. The sphere is made sufficiently tense to retain its normal shape by the rigidity of its walls, the pressure of its semi-fluid contents, and a resistance and muscular plane situated immediately posterior to the insertion of the cornea—I refer to the iris and ciliary body with the lens and its capsule. The corneal structure being denser than any other part of the sphere's walls, offers more resistance to pressure changes.

The pre-natal cornea is subjected to pressure from within and without. The corneal surface is the result of these opposing forces. The pressure from within the eye, during the period of growth, stretches the tissues of the eyeball in all directions. In consequence of this, the cornea being the densest and most rigid portion thereof, is subject to the least change in curvature, but having the radii of its curves increased, the support of the recti muscles and of the orbicularis still further opposes this flattening, the oblique muscles and to a limited extent the levator palpebræ aiding it. Among the other influences working at this time, is the resistance offered laterally and posteriorly, to the growth of the ball and to the play of the various forces indicated, by the walls and contents of the orbital cavity. If the equatorial resistance of the orbit be greater than normal, the corneal curvatures will in consequence be increased, while, *vice versa*, if too much pressure be exerted from behind the eyeball, they will be decreased and the cornea flattened. The corneal curvatures at birth are but the resultants of these conflicting forces, and through life these same factors play even as important a part in the retention or in the alteration of its curves, except that the forces applied are apt to be more irregular in their action, while the cornea having become fairly rigid and having assumed a more fixed and definite form, more strenuously opposes changes of all kinds, whether applied from within or from without the globe. All forms and varieties of astigmatism are the direct result of the action of these various influences and from the degree and axis of the astigmatism, we can, by careful study determine the exact location of the supra- and subnormal forces.

Presuming that the corneal resistance remains con-

stant, if the internal pressure be above normal, the corneal curvatures become more flattened. This flattening is usually more marked in the vertical meridian, as in this meridian the recti muscles normally offer the least resistance, and the orbicularis palpebrarum being at the same time by the increased bulging forward of the eyeball, thrown into a position to exert less than the normal pressure. In conditions where the intra-ocular pressure is diminished, exactly the opposite conditions result, the corneal curvatures increase—the vertical meridian becoming usually the more convex—the orbicularis again playing an important part in this change.

If the orbicularis is more than usually powerful, or too active, the vertical meridian becomes more markedly curved than usual; if this muscle be too weak, it is lessened. If the levator palpebræ are unusually developed, the vertical meridian is prone to become flattened. If the vertical recti muscles are more developed than usual, the normal astigmatism of an eye, namely, astigmatism with the rule, in which the curve in the vertical meridian is greater than in the horizontal, is apt to be increased, whereas if there is a want of development or any weakness in these muscles, the vertical meridian becomes more flattened. If the horizontal external pressure on the eye be greater than normal, if one or both the lateral recti muscles be too strong or in a spasmodic state, the curve in the horizontal meridian is increased, and if they be either weakened or paralyzed this curvature will be diminished. The effect of the oblique muscles is to twist the principal meridians away from their usual horizontal and vertical positions and to flatten all the curvatures, especially those near the horizontal meridian.

To more thoroughly appreciate corneal changes as affected by the recti muscles, a study of their insertions may prove valuable. Beginning with the weakest of the recti, the superior, it is inserted⁶ 3.3-5''' behind the cornea with its inner end 1''' nearer the cornea than the outer, while the inferior is inserted 3''' behind the cornea, $\frac{1}{2}$ ''' inward from the end of the vertical meridian and with its inner end 1''' nearer the cornea than the outer, while the inner, the thickest of the straight muscles, is inserted 2''' back of the cornea; and the outer, the strongest and longest, is inserted $3\frac{1}{2}$ ''' back of it. These individual peculiarities of length, strength, and especially of the insertion of these muscles prove interesting, not only as regards the relative weakness of the vertical recti, as instanced in the fact that both these recti are smaller and their insertions farther removed from the cornea than the horizontal, but also in the study of the origin and development of the not infrequent cases of astigmatism in axes not exactly corresponding to the horizontal and vertical.

The actions of the recti muscles, I have illustrated by constructing a series of small rubber balls having white varnished surfaces, with tapes glued to them to represent the muscles, and then drawing the various tapes with different degrees of strength, measuring the changes in curvature by means of the ophthalmometer. I used the same means to illustrate the changes produced by increased intra-ocular pressure with the expected result, and constructed artificial eyelids on these balls, and by the observations confirmed the theoretic consideration. Another method which I employed to illustrate the same subject was by mounting the eyes of hogs and pigs in the

guillotine of the ophthalmometer and then producing contraction of the muscles and measuring the corneal radii. This series of experiments, while entirely confirmatory of the results above given, are not yet in such shape as to allow of a full tabulated report.

To illustrate the action of the lids—the orbicularis palpebrarum and the relation of its actions to that of the recti muscles—I have constructed two rods of equal length, one to represent the horizontal meridian, the other the vertical. On the first, you see weights suspended from each end. These weights represent the pulling effect of the recti muscles. On the other rod, you observe the end weights are smaller, and sliding up and down these rods are two extra weights which you will observe I have so arranged that I can add to, or subtract from, as necessary. The end weights represent the pulling force exerted on the cornea by the vertical muscles, while the sliding weights represent the variable pressure as exerted by the lids—the orbicularis as opposed by the levator palpebræ. The nearer the center of the cornea this muscle exerts its influence, the greater its power, so as I move this weight toward the axis on which I have the rod suspended, the more weights do I place upon it, and the farther I remove this slide from the center, the more weight do I remove from it. This will illustrate the conditions which prevail in all eyes subjected either to extra intra-ocular pressure or extra post-ocular pressure, or in affections involving the orbicularis muscles. As the pressure increases, the lids are thrown back from the eye away from the corneal pole, and this muscle is placed at a disadvantage and is not able to exert its full muscular influence. Extra action of the levator palpebræ brings about the same condition.

The value of these actions being seen in the determination of the radii of curvature and the production of the principal meridians of the cornea, variations from the normal can in each individual case be explained by a consideration of the conditions present, as contrasted with those normally found. As before mentioned, increased intra-ocular pressure as well as increased post-ocular pressure, occasions a flattening of the curves, whereas if either of these be below normal it will result in an increase in the curvature in the first—the vertical meridian is apt to be the more flattened—and the latter more curved, whereas any increase of pressure either lateral, from the orbital walls, or, as exerted by the muscles, or from in the front, by the lids, results in an increased curvature, the meridian of greatest increase being in the line of greatest force.

While normal corneæ are under the influence of these antagonistic muscular and other forces, they usually show little or no sign of curvature changes, but when a change of this kind does occur without any definite and distinct cause, it is very slight, slow and regular, and is almost always an increase in the curvature of the vertical meridian as contrasted with the horizontal. This relative increase in the curvature of the vertical meridian may be considered as normal; it seems to be occasioned by a gradual giving way in this meridian, due to the constant slight excess of pressure of the vertical recti, plus the lids over the lateral recti, and to the slight weakness of the internal rectus so often produced in modern life by the intellectual pursuits, overtaxing the lateral muscles, and possibly to some extent leading to a gradual change in the ciliary muscle from over-use.

In the case of abnormal corneæ where the corneal tissues are below par, either from local inflammations, from interference with the nutritive supply from pressure, or from constitutional diseases, these corneal disturbances are not slight, slow and regular, but are often sudden and violent, the curvature and axes often varying as one or the other of the muscles or series of muscles is brought into action.

We can then for convenience arbitrarily arrange non-inflammatory changes in corneal curvature into two classes:

1. Those occurring in well nourished normal corneæ where the changes of radii or axes or both are slow, regular, but progressive; and

2. Those occurring in corneæ poorly nourished where the changes are rapid, irregular and variable.

Since reading a paper on corneal curvature⁸ before the Philadelphia County Medical Society in June of last year, I have been pursuing the subject in both a clinical and experimental manner. My clinical work has served but to accentuate the results therein expressed, while the experimental work so far as it has gone, confirms the clinical observations. In studying the cases clinically, I rely mainly on my ophthalmometer, but to some extent on skiascopy and the subjective testing with glasses with the accommodation paralyzed.

Considering the latter method first, I have found that in cases of suspected variability in corneal astigmatism, suspected because the ophthalmometric measurements indicated it, that the testing of the refraction almost invariably showed absence of marked improvement of remote vision, and that the principal axes were either not clearly defined, or perhaps not at the ordinary intervals of 90°, the results being uncertain, both as to the axes and the amount of vision obtained. These results appeared not only after the thorough use of homatropin according to the method indicated below,* but even after the thorough and persistent use of atropia. In these cases the skiascopic observations gave similar results as to the uncertainty of the axes and in the amount of astigmatism.

My method of using the Javal-Schiötz ophthalmometer I have already indicated in a paper⁹ read before the Pan-American Medical Congress in May, 1893. I use electric lights as illuminators and thus have practically the same illumination present in each case. The instrument is placed on a firm non-vibrating stand. The patient seats himself before the instrument, his feet resting firmly upon the floor with his arms upon the table. He then places his chin upon the sliding rest, which is raised or lowered so as to bring the eyes to the proper height and on an absolute level. Having attended to these details, the head is strapped firmly to the head rest. The patient is directed to look at a 5 mm. square placed upon the center of the field glass of the telescope, and the instrument is adjusted so that the exact center of the field is occupied by the mires in apposition. In some cases, a want of accuracy is occasioned by the drying of the cornea while under observation, which I obviate by the use of a weak solution of salt;

* In ordering homatropin, I always give a printed prescription as below, and ask that the directions be carefully observed, using five doses of the drops in the evening and five in the morning, the examination taking place after the last instillation.

R Homatropin hydrobrom gr. s. s.

Aque rose m. xxv.

M. Sig. Eye drops. One drop in the outer corner of each eye every half hour for two hours in the evening, and every twenty minutes the succeeding morning.

again the same difficulty is caused by profuse conjunctival discharges which is overcome by using castor oil in the conjunctival sac, rubbing thoroughly over the cornea.

My ophthalmometric observations have been made on over 3,000 eyes, and my attention was early called to the fact that corneal meridians and their axes were by no means constant. Not only did I observe them sometimes to vary from day to day, or from week to week, but also that these changes would occur during the course of a few seconds. I have found the corneal astigmatism to change from 2 to 3 dioptres in from eight to ten seconds, and the axes as much as 25° during the same period, this occurring in cornea not inflamed and not associated with any eye inflammation.

(See reference S.) (Case 1 illustrates these violent changes.)

Laqueur¹⁰ made the same observation, although he did not record such extreme cases as I have noted. I have invariably found these quick and instantaneous changes associated with depraved conditions of the general system, having observed it in advanced cases of syphilis; in the scrofulous, and the tubercular; in those subject to gout and rheumatism, especially the latter; after scarlet fever, diphtheria, typhoid fever and pneumonia and in those suffering from chronic diarrhea and exophthalmic goitre. Noyes writes: "It is not rare to discover, as Laqueur pointed out, that the curve of the cornea is not constant. It sometimes changes as we look at it; we note the images approach or separate instead of remaining still." Continuing: "They exhibit these oscillations under the action of the lids, and also if the upper lid is lifted off the globe, under the action of the motor muscles. Drawing on the lids at the outer angle will increase the corneal curves greatly." Laqueur¹⁰ observed that the traction on the upper lid, whether toward the temple or the nose, occasionally produced flattening of the horizontal meridian and increased curvature of the vertical meridian by pressure on the globe, so that regular astigmatism of from 2 to 4 D. developed.

I early observed that the corneal measurements were sometimes altered after the accommodation had been paralyzed. After noting this phenomenon a number of times, I made a series of experiments: 1, taking cornea whose meridians remained constant from day to day, I would paralyze the accommodation and while, often without any appreciable effect, when any change was occasioned it was usually of a decrease in the corneal curves with, often, an increased development of astigmatism if with the rule, and a diminution when against the rule. (Case 2 illustrates the experiment.)

It would seem from these observations that the ciliary muscle is one of the factors in the determination of the corneal curves.

The second series of experiments consisted in taking cornea with constant curves and, while measuring them on the ophthalmometer, throwing a pencil of light on the eyes, I found that changes in the meridian frequently occurred and that these changes were usually in the nature of an increased curvature with, often, a lessening of a degree of astigmatism when with the rule, and an increase of it when against the rule. (Case 3 illustrates the experiment.)

So far as I know, this theory of the action of the ciliary muscle in modifying corneal curvatures is

opposed to the views of all who have written on the subject, and yet these observations were so frequently and accurately made that I am sure some modification of the corneal curves must be attributed to the action of this muscle. The ciliary muscle serves, no doubt, as a muscular framework to support the eyeball immediately posterior to the cornea; when the muscle is in use it acts as a drawing string within the ball, constricting it anteriorly. In paralysis of the accommodation, the internal muscular force being removed, the corneal elasticity and the eye tension serve to increase the corneal radii. If the accommodative paralysis be long continued, the vertical meridian gives way proportionately more and more, as the lid pressure is gradually removed a greater distance from the corneal pole.

As previously indicated, corneal changes are of two kinds. It is in sound cornea subjected to unequal pressure, that we find the first class of changes before mentioned—slow, irregular and progressive variations in corneal astigmatism. In unhealthy cornea we have our second class of changes—that of the irregular, rapid and variable. A practical fact of some importance is that in this latter class of cases the symptoms of poor vision, head pains, vertigo and sick stomach are often extremely severe and can only be relieved by putting the cornea at rest, which is most readily accomplished by absolutely paralyzing the accommodation, in this way preventing the use of the external muscles with their consequent constant disturbance of the cornea. The monocular double vision occasionally observed, is undoubtedly in a not inconsiderable number of cases, thus produced.

According to Dobrowolsky¹² the irregular contraction of the fibers of the ciliary muscle changes the refraction of the eye by its influence on the curvature of the lens, while Wallace¹³ speaking of the Javal ophthalmometer says: "That variations of accommodation in the patient's eye do not modify the degree of astigmatism. The curvature of the corneal meridians remains the same during active accommodation as during the passive state." Burnett¹⁴ also seems to consider the ciliary muscle as exercising no effect on the cornea, as he says: "The accommodation in its entirety can not affect the amount of astigmatism, though it greatly modifies its general character." It would seem however from the reports of Dobrowolsky, Javal¹⁵ and others that "there can be a partial contraction of the muscle of accommodation, producing a lenticular astigmatism, the effect of which would be either to create a new, or increase an existing astigmatism, or to a greater or less extent, to neutralize that of the cornea."

I hope I have shown how such an apparently slight influence as the contraction or paralysis of the ciliary muscle may influence corneal curvature, and consequently its astigmatism, so I will refer more briefly to the greater influences that govern its meridians. I will premise by asserting that cornea are influenced, all other things being equal, in proportion as their development has been deficient, or their nutrition insufficient. Well developed and healthy cornea of thoroughly healthy and robust patients are, according to my observations, rarely affected by any but the most marked and violent local disturbances, whereas cornea deficient in resisting quality, either as the result of a previous inflammation or of an existing disturbance, and the cornea of those suffering from con-

stitutional dyscrasia, of those convalescent from acute febrile diseases, and of those who have been subject to the ravages of prolonged chronic disorders, are affected by the slightest local derangement—the least want of that exact balance of the various forces that so thoroughly control the shape and motion of the eyeball, whether this be an increase or decrease of orbital contents, or some variation in the tonicity of the eye muscles, some difference in the amount of pressure exerted upon the ball by the lids, some variation in the strength of the ciliary trestlework, or some change of pressure within the ball. In short, any change of pressure within or without the eye, may and often does alter the corneal meridians, always does so in weak corneæ, and if the want of balance be sufficiently long continued, will do so in sound healthy corneæ.

In dealing with wounds of the corneal tissues, it can be easily understood how any abrasion or injury of any kind, affecting the deeper layers, can be readily followed by a change of corneal curvature. If the wound be sufficiently extensive or near the pole, its effect upon the visual region of the cornea will be considerable and give rise to a marked disturbance of the corneal meridians. We all expect to have marked corneal changes develop after an iridectomy or a cataract extraction. We often find the astigmatism after a cataract extraction to be increased 10 to 16 D. or more, the meridian of least curvature being at right angles to the line of incision. As cicatrization and absorption advance, the astigmatism gradually diminishes until it approaches the normal. (Case 4 illustrates this).

Corneal inflammation involving the fibrous and elastic layers is always followed by changes in corneal curvature, these changes depending upon the extent and depth of the inflammation, and its practical importance to its proximity to the visual line. Staphylomata show, in an exaggerated degree, the effects of the intra-ocular and external muscular pressure on a weakened corneal texture—the staphylomata being the result of these antagonistic forces.

My experience after advancement and section of the recti muscles has been to find a marked change in the corneal astigmatism. In advancement, the meridian corresponding to the plane of the advanced muscle has its radius diminished on account of the increased tension thereon exerted, while the opposite meridian is occasionally flattened. In tenotomy, the meridian in the plane of the muscle operated upon is flattened, while the opposite meridian is often more curved. Noyes¹⁶ calls attention to this acquired astigmatism of the cornea, following tenotomy of the muscles.

Pterygii occasion irregular flattening of the meridian of their growth which increases as it advances and which usually subside if the pterygium is removed sufficiently early. (Case 5 is an illustration.) Noyes¹⁷ gives us a practical lesson when he writes: "I have formerly been indisposed to remove pterygium until it made appreciable advances toward the region of the pupil, but having noticed that under its influence astigmatism arises, I now remove it when not more than 2 millimeters beyond the limbus."

As illustrating the changes of the corneal curvatures from pressure exerted within the eyeball, I will for a moment direct your attention to the well-known changes occurring in the course of glaucoma. The importance of these observations consists in the

fact that in fully three-fourths of the cases of the disease there is a prodromal stage lasting often for months and even years, and that if the corneal curvature change, presenting itself in this stage be recognized, (and it is among the earliest of symptoms) the seriousness of the disease is often averted. As a glaucomatous attack begins to cause increase of pressure within the eyeball, it not only presses all the structures in an outward direction, but by reason of this very pressure interferes with the corneal nutrition. The corneal images as seen by the ophthalmometer, become more or less indistinct and later quite hazy, and the curvature of the principal meridians change, the horizontal becoming more curved and the vertical more flattened, while often the axes assume new relations to each other, not remaining 90° apart. As the disease advances, the changes become gradually greater until often there is developed a change of as much as 3 or 4 D., the astigmatism developing against the rule. (Cases 6 and 7 show this change.)

The same change is observed in glioma of the retina, sarcoma of the choroid, and sometimes follows vitreous inflammation and hemorrhage into the retina. I have observed the same change in some cases of exophthalmic goitre. (Case 8.)

As illustrating changes occasioned by variations in the capacity of the orbit, I have observed in some cases, when corpulence was increased, a change in the corneal curvatures, which disappeared after the excess of fat deposited in the orbit had been absorbed. Orbital tumors, such as exostoses, fibromata, sarcomata, lipomata, myxomata, melonomata, cysts, etc., have a tendency to alter corneal curvatures, their influence being most observed in the meridian of greatest pressure; their effect upon the cornea being entirely dependent upon the lines of greatest increased force.

In conclusion, it may be said:

1. That regular astigmatism is always corneal or lenticular, but usually the former.

2. That regular corneal astigmatism is the result of a variety of forces, acting upon the cornea, these forces being usually so accurately balanced as to result in the production of normal astigmatism, a low degree of astigmatism with the rule.

3. That these forces consist not only of the muscles of the eye and of the lids, but that the orbital resistance, the intra-ocular pressure, and even the ciliary muscle are concerned, as well as the tonicity of the cornea.

4. That anything that interferes in any way with the accurate balancing of these forces, results in the production of astigmatism, modified or altered in accordance with the excess or deficiency of the power exerted.

5. That the inequality of forces, when long continued, affects healthy cornea, giving rise to slow, regular, progressive changes in the axes or degree of astigmatism or of both.

6. That these unequal forces acting upon cornea weak from local or constitutional causes, produce more rapid and violent, often instantaneous, changes in the axes or degree of astigmatism or of both.

7. That any local condition that interferes with the texture or nutrition of the cornea predisposes to changes in corneal axes and curvatures.

8. That any constitutional affection in any way modifying the general circulation and thus changing the corneal nutrient supply, predisposes to these changes.

9. That any force acting unduly on the cornea should have its action modified as soon as possible.

10. That cornea under the influence of unequal forces, should be put at rest at the earliest possible moment.

11. That cornea weak from general or local conditions after being put at rest, should be promptly and efficiently treated in order to render them strong and healthy.

12. That in many eye affections, a study of the corneal changes will serve to shed light on otherwise obscure conditions.

13. That by carefully studying these corneal curvature changes in connection with the kind, degree and axis of astigmatism, indications for the treatment of the eye muscles will be obtained that were otherwise impossible.

Case 1.—*Illustrating sudden changes in amount of corneal astigmatism and in the axes of curvature:* Miss N. B., aged 21 years, pale, poorly nourished, blonde, of a scrofulous type; was first examined by me July 7, 1893. V. R. R. E., 6-15; L. E., 6-60. Ophthalmometer, R. E., images hazy, indistinct, axes variable above and below 90°. Astigmatism amount varying from 0.25 to 0.75 D. L. E., hazy, indistinct, axes variable, 15° above and below 38° and 120°, amount varying from 1.25 D. to 3.50 D. Re-examined July 11, 1893. R. E., axes variable to either side of 80° and 170°, amount varying from 0.25 to 0.75 D. L. E., axes variable, 15° above and below 30° and 120°, quantity from 1.25 to 3.50 D. The axes and amount continued to vary; gradually the extent and rapidity of variable becoming lessened as the girl's health improved under the influence of rest, tonics, codliver oil and mercury. Examination Oct. 1, 1893, indicated that the axes and curves were fixed, the ophthalmometric record being:

R. E., ax. 90°, amount 1-6 D., corneal radius 7.7 $\frac{1}{2}$ m.m.
 " ax. 180°, " " " 7.7 $\frac{2}{3}$ "
 L. E., ax. 125°, " 1 $\frac{1}{2}$ D., " " 7.5 $\frac{1}{3}$ "
 " ax. 35°, " " " 7.7 $\frac{2}{3}$ "

Refraction under atropin, Oct. 14, 1893, was found to be:

R. E., sp. - 0.50 D. \odot cyl. - 0.75 D., ax. 180°.
 L. E., sp. - 0.75 D. \odot cyl. - 1.25 D., ax. 90°.

The glasses ordered and which have given perfect satisfaction up to the present were, R. E. cyl. - 0.75 D. ax. 180° = 6-9; L. E. cyl. - 1.25 D., ax. 90° = 6-9.

Case 2.—*Illustrating the effect of paralysis of the ciliary muscle on the curvatures of normal cornea:* Miss E. W., aged 7 years. R. V. R. E., 6-30. L. E., 6-30. Measured upon ophthalmometer gave the following measurements at three different examinations: images clear and distinct; no varying in the axes or amount of corneal astigmatism. Last examination, July 7, 1895.

R. E., ax. 95°, amount corneal astigmatism 3 $\frac{1}{3}$ D., corneal radius, 8.4 $\frac{1}{2}$ m.m.; ax. 5°, amount corneal astigmatism, 3 $\frac{1}{3}$ D., corneal radius, 7.8 $\frac{1}{8}$ m.m.

L. E., ax. 85°, amount corneal astigmatism, 3 $\frac{1}{4}$ D., corneal radius, 8.5 $\frac{1}{4}$ m.m.; ax. 170°, 3 $\frac{1}{4}$ D., corneal radius, 7.9 $\frac{1}{2}$ m.m.

When examined Sept. 9, 1895, under mydriasis complete, gave the following records:

R. E., ax. 95°, amount corneal astigmatism, 3 + D., corneal radius, 8.4 $\frac{1}{2}$ m.m.; ax. 5°, corneal astigmatism, 3 + D., corneal radius, 7.8 $\frac{1}{8}$ m.m.

- 1 Burnett, S. M.: Treatise on Astigmatism, p. 46. 1887.
- 2 Fuchs, Ernest.: Text-book of Ophthalmology, p. 658. 1892.
- 3 Noyes, Henry D.: Diseases of the Eye, p. 111. 1894.
- 4 Schmidt-Rimpler, Herman.: Ophthalmology and Ophthalmoscopy, p. 84. 1889.
- 5 Javal, E.: *De l'astigm. and point de Vue de l'hygiene, Rev. de Hyg.*, 1880.
- 6 Metz, A.: The Anatomy and Histology of the Human Eye. 1868.
- 7 Allen, Harrison.: A System of Human Anatomy. 1883.
- 8 Lantenbach, Louis J.: Some Observations on Corneal Astigmatism and Conditions that Change Corneal Curvature. Proceedings of Philadelphia County Medical Society. 1894.
- 9 Lantenbach, Louis J.: The Value of the Ophthalmometer in the Determination of the Axis and Amount of Astigmatism. 1893. New York Medical Journal for August, 1893.
- 10 Laqueur.: Über die Hornhaut Krümmung in normalen Zustände u. unter Pathologischen Verhältnissen, Ophthalmometreschen Untersuchungen. Graefe's Arch. xxx. 1, p. 99.
- 11 Noyes.: (See ref. 3) p. 125.
- 12 Dobrowsky.: The Different Changes of the Astigmatism Under the Influence of the Accommodation. Arch. xiv. 3.
- 13 De Schweinitz, G. E.: Diseases of the Eye, p. 169. 1892
- 14 Burnett.: (See ref. 1) p. 71.
- 15 Javal, E.: Sur la Théorie de l'Accomodat. Compt. Rend. de la Soc. Biolog. 1882.
- 16 Noyes.: See ref. 3, p. 111.
- 17 Noyes.: See ref. 3, p. 370.

L. E., ax. 85 D., amount of corneal astigmatism 4 $\frac{1}{4}$ D., corneal radius, 8.6 m.m.; ax. 175°, amount of corneal astigmatism 4 $\frac{1}{4}$ D., corneal radius 7.8 $\frac{1}{3}$ + m.m.

As refracted by glasses the same day, the following result was obtained:

R. E., sp. + 4.00 D., cyl. + 3.00 D., ax. 90°.
 L. E., sp. + 4.00 D., cyl., + 4.00 D., ax. 90°.

Case 3.—*Illustrating the effect of accommodation on the curvature of normal cornea:* Miss M. S., aged 23 years. Examined on three occasions with a constant result. Last examination Sept. 9, 1894, as follows:

R. E., ax. 103°, amount astigmatism 2 $\frac{1}{2}$ D., corneal radius 8.3-4-5 m.m.; ax. 13°, amount astigmatism 2 $\frac{1}{2}$ D., corneal radius 7.9 m.m.

L. E., ax. 75°, amount astigmatism 2 $\frac{1}{2}$ D., corneal radius 8.4-1-5 m.m.; ax. 165°, amount astigmatism, 2 $\frac{1}{2}$ D., corneal radius 8.0-2-3 m.m.

These observations changed to the following when the light of a 16-candle power incandescent globe was reflected on the eyes:

R. E., ax. 103°, amount corneal astigmatism 1 $\frac{3}{4}$ D., corneal radius 8.3-2-5 m.m.; ax. 13°, amount corneal astigmatism 1 $\frac{3}{4}$ D., corneal radius 7.9 + m.m.

L. E., ax. 75°, amount corneal astigmatism 2 — D., corneal radius 8.3 $\frac{7}{8}$ m.m.; ax. 165°, amount corneal astigmatism 2 — D., corneal radius 8.0 $\frac{2}{3}$ m.m.

Case 4.—*Illustrates the effects of the operation of cataract extraction:* Mrs. C. L., aged 66 years. Ophthalmometric measurement March 10, 1894, as follows:

R. E., ax. 110°, amount corneal astigmatism 6 D., corneal radius 8.5 m.m.; ax. 20°, amount corneal astigmatism 6 D., corneal radius 7.5 m.m.

Graefe extraction with iridectomy June 1, 1894. Measurements taken June 22, 1894:

R. E., ax. 95°, amount corneal astigmatism 9 D., corneal radius 7.4 $\frac{2}{3}$ m.m.; ax. 10° amount corneal astigmatism 9 D., corneal radius 8.7 $\frac{1}{4}$ m.m.

Taken again April 26, 1895. Astigmatism much reduced: R. E., ax. 95°, amount corneal astigmatism 3 D., corneal radius 7.9 $\frac{2}{3}$ m.m.; ax. 20°, amount corneal astigmatism 3 D., corneal radius 8.3 $\frac{3}{4}$ m.m.

Case 5.—*Illustrates the influence exerted on the corneal curves as well as the changes occasioned by its removal:* Mr. P. M., aged 50 years. Pterygium L. E., extending 2 $\frac{1}{2}$ m.m. over cornea toward the pole from inner side.

Ophthalmometer showed the following:

L. E., ax. 80°, amount corneal astigmatism 2 $\frac{1}{2}$ D. irregular, corneal radius 8.9 $\frac{1}{2}$ m.m.; ax. 170° amount corneal astigmatism 2 $\frac{1}{2}$ D. irregular, corneal radius 8.3 $\frac{1}{3}$ m.m.

Pterygium removed Feb. 12, 1894. Re-examined April 17, 1894, with the following result: L. E., ax. 90°, amount corneal curvature 2 — D. irregular, corneal radius 8.7 $\frac{1}{2}$ m.m.; ax. 180°, amount corneal curvature 2 — D. irregular, corneal radius 8.3 m.m.

Cases 6 and 7.—*Illustrating the change in corneal curvature accompanying glaucoma:* Case 6, Mrs. W. C. W., aged 45 years. Ophthalmometric measurements many, usually with a result such as observed Feb. 10, 1893, which was as follows:

R. E., ax. 90°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 $\frac{1}{2}$ m.m.; ax. 180°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 + m.m.

L. E., ax. 90°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 $\frac{1}{2}$ m.m.; ax. 180°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 m.m.

Feb. 28, 1893, she came with glaucomatous symptoms beginning with iritis, sluggish, congested background with pulsation. The measurements were as follows:

R. E., ax. 90°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.0 $\frac{1}{2}$ m.m.; ax. 180°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 m.m.

L. E., ax. 90°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.0 $\frac{1}{2}$ m.m.; ax. 180°, amount corneal astigmatism $\frac{1}{4}$ D., corneal radius 8.1 — m.m.

This attack was recovered from, but on Sept. 5, 1893, she came to me with a yet more marked series of symptoms, when the measurements were as follows:

R. E., ax. 90°, amount corneal astigmatism $\frac{1}{2}$ + D., corneal radius 8.0 m.m.; ax. 180°, amount corneal astigmatism $\frac{1}{2}$ + D., corneal radius 8. + m.m.

L. E., ax. 95°, amount corneal astigmatism 3 $\frac{1}{4}$ + D., corneal radius 8.0 m.m.; ax. 180°, amount corneal astigmatism 3 $\frac{1}{4}$ + D., corneal radius 8.1 $\frac{1}{8}$ m.m.

When this attack was recovered from, she resumed her normal measurements.

Case 7.—Mr. A. G., aged 82 years. Came to me during the

opening of a glaucomatous attack Jan. 30, 1894, when the measurement was as follows:

L. E., ax. 85° , amount corneal astigmatism $\frac{1}{2}$ D., corneal radius $7.5\frac{1}{2}$ m.m.

R. E., ax. 175° , amount corneal astigmatism $\frac{1}{2}$ D., corneal radius 7.5 m.m.

The disease progressed rapidly; an operation was refused and the sight destroyed. The measurement taken March 30, 1894, was as follows:

L. E., ax. 80° , amount corneal astigmatism 4 D., corneal radius $7.4\frac{1}{4}$ m.m.; ax. 175° , amount corneal astigmatism 4 D., corneal radius $7.9\frac{1}{4}$ m.m.

By May 1, 1895, had increased as follows:

L. E., 75° , amount corneal astigmatism 10 D., corneal radius $7.1\frac{1}{3}$ m.m.; 165° , amount corneal astigmatism 10 D., corneal radius $8.0\frac{2}{3}$ m.m.

Case 8.—*Illustrating changes in corneal curvature occurring in the course of ophthalmic goitre.* Miss M. B., aged 23 years. Examined at the first suggestion of the disease showed the following measurements, Feb. 1, 1893:

R. E., ax. 85° , amount corneal astigmatism $\frac{2}{3}$, corneal radius $7.6\frac{1}{2}$ m.m.; ax. 175° , amount corneal astigmatism $\frac{2}{3}$, corneal radius $7.5\frac{1}{4}$ m.m.

L. E., ax. 95° , amount corneal astigmatism $\frac{3}{4}$, corneal radius $7.6\frac{3}{4}$ m.m.; ax. 5° , amount corneal astigmatism $\frac{3}{4}$, corneal radius $7.5\frac{3}{4}$ m.m.

Re-examined after its rapid development, April 7, 1895:

R. E., ax. 80° , amount corneal astigmatism $\frac{1}{2}$ + D., corneal radius 7.6 m.m.; ax. 170° , amount corneal astigmatism $\frac{1}{2}$ + D., corneal radius $7.6\frac{1}{2}$ m.m.

L. E., ax. 95° , amount corneal astigmatism $\frac{3}{4}$ D., corneal radius $7.5\frac{3}{4}$ m.m.; ax. 180° , amount corneal astigmatism $\frac{3}{4}$ D., corneal radius $7.6\frac{3}{4}$ m.m.

1723 Walnut Street.

SPINE BRACE.

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CHICAGO.

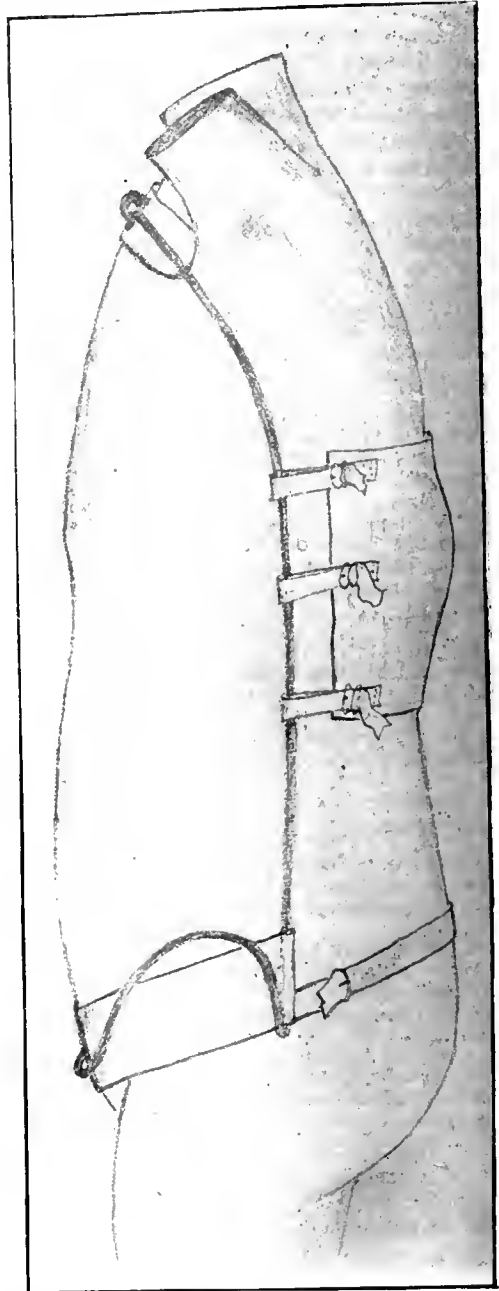
The brace that I wish to describe and exhibit, is one that I have designed and adopted for mechanical support of the middle region of the spine; the range of its greatest utility being the support of the spinal column between the middle of the lumbar and the middle of the dorsal regions, although its usefulness is not strictly confined to these limits. Inasmuch as the greater number of diseases of the spinal column requiring mechanical fixation occur within this region, its usefulness will be comparatively great if found to be an efficient brace.

In its simplest form the brace consists of a steel frame, a rigid chest pad and two aprons. The chest pad is adjusted in contour to fit the upper anterior portion of the chest. The pad should be in length about three times its width and adjusted transversely, resting immediately below the sterno-clavicular articulations. Its real length transversely should be as long as practical without being interfered with by the action of the pectoralis major muscles, in the movement of the shoulder. It should be made of sheet metal hammered to give shape and rigidity, covered and lightly padded.

The frame consists of one piece of light round rod steel, from three-sixteenths to five-sixteenths of an inch in diameter, so shaped that it crosses the body above and below and lies parallel with, and in close proximity to each side on a line with the axilla; the ends are welded or brazed where they meet, making it one continuous piece.

To facilitate the description of the frame we will divide it into four portions—an upper, a lower and two lateral portions. The upper and lower cross in front of the chest and pelvis respectively, and no

portion of the frame passes behind the body. The upper portion of the frame arches upward and forward from a short distance below the axillary space on one side, crosses the chest pad, and then downward and backward to a corresponding point on the opposite side, where it becomes continuous with the lateral portions. There is no fixed point to indicate where the upper and lateral portions come together; a gentle reverse curve marks the place. The lateral



portions are so adjusted as to lie close to the sides, a little nearer the posterior than the anterior aspects, and extend from below the axilla to the space just behind the anterior superior spine of the ilium, below the crest and above the trochanter major. In children, this portion is practically straight, while in adult females they bend in at the waist line and then arch out over the more or less prominent hips, but remain straight in the antero-posterior directions unless some deformity requires a change in this shape.

The lower portion is simply to connect the two lateral portions across the body at their lower ends and hold them rigid relative to each other. In the adjustment of this portion, however, there are some difficulties; for if we extend it straight across from the lower end of one lateral portion to the other, it would prevent the flexion of the thighs, and then again if we arch it up over the thighs it would cross the body above the umbilicus and very materially interfere with the clothing at the waist. And to cross behind the body would be still more objectionable, as the patient would then have to lie upon it and it would be more difficult to put it on and take it off; so it must take a somewhat tortuous course and cross in front, by avoiding those places where its presence would be objectionable. This is accomplished by having the lower portion turn sharply upon the lateral portion which it is to follow a short distance and then arch in over the flexed thigh and then depress to, or very near, the pubis, to some extent, following the fold of the groin in the direction of Poupert's ligament and as close as possible, having in mind that when the finished brace is applied no part of the frame touches the body, but lies very close to it at all points.

The upper portion of the frame rests by its central portion upon the center of the chest pad, to which it is secured by a double acting joint so that the pad may adjust itself to the chest.

The lower portion of the frame is prevented from touching the body and given a fixed point by an apron made of two thicknesses of canvas from two to four inches wide, according to the size of the brace, between the layers of which a few whalebones have been inserted vertically to prevent rolling. The apron is secured to the lower extremities of the lateral portions of the frame by its ends, and at such an angle that its direction from its attachment toward the center shall be downward, or, in other words, the upper margin of the apron at its attachment shall be the longer one, otherwise the tendency will be for the apron to slide up across the center of the abdomen. This apron should be just long enough to keep the lower part of the frame from touching the body. If properly adjusted it will pass across the lower part of the abdomen very close to the pubis, and upon each side will include, and remain below, the anterior superior iliac spines which constitute the lower fixed point of the frame.

To complete the brace of simple form it is only necessary to attach the second apron or back band. This second apron, which is to extend from one lateral portion of the frame across the back to the other, is to be also of double thickness made in shape to fit any angular deformity. It should be from three to six inches wide without whalebones. One end is to be permanently fastened to one lateral portion of the frame, at a position opposite that portion of the spine to be supported; the other end is to be provided with two or three straps with buckles with which to buckle it to the opposite lateral portion of the frame. Thus completed, we have a spine brace of the simplest possible construction, the smallest amount of material, and at the same time providing for the fixation of the three points relative to each other, in a most positive and efficient manner. The upper front part of the chest, the pelvic bones below and the weaker portion of the spine behind are retained in relative position to each other with positive certainty. Positive, be-

cause these are parts of the framework of the body that have a certain relative stability to each other, and between which all of the deformities in caries of the spine in this region occur. These are the points, and the only points, where definite and reliable resistance to deformity can with certainty be applied and maintained.

In regard to the mechanical adaptability of the different parts to the purpose for which they are designed, I will speak separately.

The frame as just described is identical with the first one that I made three years ago. While I have experimented considerably, I have not in any respect changed the design originally made for the plain brace. All that I can say of it is favorable; there are comparatively no objectionable features, while there are a few that are highly commendatory. It is very light, strong, rigid, simple of construction, easily changed in shape, composed of one piece, and it is as much out of the way as it is possible to have anything that can claim the name, spine brace. It can be readily constructed by any common blacksmith at the cross roads, which is no small consideration from an economical point of view.

The small canvas apron that crosses the pelvis shrinks and molds itself over and around the anterior spines so that a most satisfactory support for the lower end of the brace is secured, capable of resisting any force that may be required either continuous or intermittent, and without producing excoriations or large callosities. The difference between the plump or flat abdomen in the adjustment of the lower fixation is of no importance; even with the very fat there is less to contend with this, than with any other of the forms of lower fixation with which I am acquainted. This small apron, so called, which is little more than a strap, is all that can be required and comparatively speaking it is *multum in parvo*.

It is now about six years since I adopted the chest pad to support the upper part of the column. Why it had not been used, fairly and squarely before, I did not know. I could neither find that it had been used simply and alone, nor any reason why it had not been. To me it seemed perfectly feasible, and from an anatomic standpoint, eminently proper. I therefore determined to try it and, if possible, find out why it was in all corrective and retentive appliances for Pott's disease, that this particular region, the center and upper part of the chest, was universally avoided.

I began by using a small pad to which I secured the upper ends of the parallel uprights that support the back pads of the common form of brace. I found that the small pad was sufficient and comfortable, and as far as I could observe there were no ill effects from its use. Consequently, when I came to design the present brace, the chest pad was no experiment. It had already, in my hands, proved to be efficient and satisfactory. I have now used it on this brace for nearly three years, and in a great variety of cases, old and young, and in no single instance have I been able to observe the slightest deleterious consequences. There is no complaint whatever, and no local changes to be seen. I am, therefore, most emphatically of opinion that the proper place to secure and adjust the upper anterior fixation in spine brace is the upper part of the chest when the disease is low enough to permit. I do not believe that there is any

tendency to flatten or distort the contour of the chest; even the active rachitic patient tolerates this pressure without the slightest local change. Neither is there the slightest impediment to respiration. Relatively, the chest is the proper place, as suitable leverage can be obtained there and anatomically it is rigid and the effect of counter pressure is direct and reliable through the bony framework to the diseased portion and entirely independent of any muscular action whatever; and clinical experience thus far, shows that any required degree of pressure is tolerated with comfort, leaving perfect freedom of movement to the shoulders, a condition of things quite unusual in spine braces.

The back band that crosses the back at the seat of the disease, from one lateral portion of the frame to the other, furnishes, in my opinion, the best possible retentive force. The distribution of pressure over a large surface is an advantage. It is tolerated with perfect comfort. It does not induce pressure atrophy or excoriate. Pressing as it does, firmly upon the angles of the ribs as well as upon the spines, its influence to prevent or correct rotation or lateral deviation is far more than would at first sight be appreciated and when combined with some of the accessories which are to be described, this particular resistance to rotation and lateral curve or deviation becomes most effectual. The firm unyielding character of the support and the great degree of force in the direction of correction that can with comfort be tolerated is surprising. With a firm adjustment of this brace, bringing proper tension upon the gently curving chest pad, and bringing the pelvic strap or apron securely against the iliac spines and with the firm application of the back band to the full width of the back, exerting pressure upon the ribs as well as the spines, there is no tendency whatever, in the average cases, for any body movements to take place, such as the rotation of the upper part upon the lower, deviating to one side or the other. The support is practically perfect, maintaining equal poise and suspending all voluntary effort to sustain equilibrium and the erect attitude.

The foregoing description of the brace, together with the description of its applicability, refers only to the brace in its simplest form and to diseased conditions of average severity with but moderate deformity.

The brace, however, is susceptible of many modifications and the addition of many accessories to meet the requirements of varying diseases and deformities, without losing the original principles of construction.

The most simple modification which changes the shape of the frame is the substitution of a pad over the pubis and lower end of the rectus muscle, similar in construction to the chest pad, to take the place of the canvas apron at that point. The frame is then changed so that the side portions, just above the crest of the ilium, turn forward and inward, to follow nearly the fold of the groin, and to meet in the center over the pubic pad, and to which it is attached by means of a joint that will permit of a racking motion only; two staples, an inch or two apart, answer very well. This modification of the frame does away with that portion that passes down to the space above the great trochanter. This simple form is all that can be desired as a convalescent brace. It is light, easy, inexpensive and very efficient, and the pubis and tissues immediately above it tolerate the pad pressure remarkably well.

When it is desirable to fit this brace to a patient who has a tendency to a lateral inclination it should be provided with three pads, one above and one below on the concave side and the other in the middle of the convex side. The one below should be round and hung loosely on the lower end of the frame, so as to rest in and adjust itself to the space described above the great trochanter. The upper pad should rest just as close to the axilla as practical, the frame to be modified so as to support it. It may be arranged transversely or vertically. I usually use at this point, long or oblong pads. The middle pad should be long and attached, with its long axis vertical to the lateral portion of the frame at the place where the pressure is to be exerted.

As much retentive and corrective force may be applied in this way as the patient can tolerate. Where great need exists for lateral retentive force, it is advisable to add crutches to the brace. The crutches can be made a part of the frame, and adjusted from below by raising or lowering the entire frame, which can be done within short limits, or, what is better, have the crutches supported by a separate piece made adjustable upon the lateral portion of the frame. Where this lateral method is adopted it is necessary to have the back band secured by straps and buckles upon each side. Where the crutches are added it is also necessary to attach a supporting band at the lower end of the frame to carry the crutches and their superimposed weight. A strong webbing strap, buckled across the lower part of the back or sacrum from the lower extremity of one lateral portion of the frame to the other, answers this purpose exceedingly well.

Any required degree of support is easy to bear and is unyielding. It is by far the best crutch support with which I am acquainted. Taken together with the little pelvic apron that crosses in front it embodies the principle which is in the support adopted by the color bearer, in carrying the heavy pole and flag. Pads at the lower extremities of the lateral portions of the frame are advisable where the supporting strap is applied, although not strictly necessary where the frame is well made and rigid.

Where there is much compensatory lordosis, protrusion of the lower ribs, or a very prominent abdomen, an apron of proper dimensions should be strapped across the front of the abdomen at the place required and with the required tension. Occasionally it is desirable to include the whole front of the body in such an apron. In some cases where the body is thin and the spines prominent at the seat of the disease and deformity, it is advisable to provide the back band with two pads, to rest one upon each side of the spine. These pads should be secured to the back band, made wide enough to extend from the spines of the vertebrae to the angle of the ribs and as long as the band is wide. They should be made as hard and as smooth as practical by stuffing them with cotton or wool, or make them primarily of folded blanket.

To make the frame for any given case it is always advisable to first make a frame of soft iron, or copper wire, of a size that can be readily bent with the fingers, should be selected. The patient should be placed lying on the back, with the body in the position in which it is to be retained, and the wire bent to fit the body just as the finished frame should fit. It is best to adjust the wire across the lower part of the body first, and the ends will lap across the top of the chest.

where the lapped ends are to be secured by winding them around each other, or winding with a string; the former is the best plan. This wire frame which can be made exact in shape, furnishes the artisan perfect lines for the construction of the finished steel brace.

WHEN SHALL HYSTERECTOMY BE PERFORMED IN PUERPERAL SEPSIS?

Read at the Mississippi Valley Medical Association at
Detroit, Sept. 3, 1896.

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It must be admitted by all observers that too many women die of puerperal fever, even in these antiseptic and aseptic times. Curetting and irrigation with all their modifications are not always effective. Infection gets beyond the reach of the curette. The interior of the uterus becomes clean and relatively well, but the sepsis goes on. In the treatment of infected wounds, one of the first indications is the removal of the infected tissues. Hysterectomy alone in certain cases of puerperal sepsis meets this indication. It is the purpose of this paper to show when hysterectomy should be undertaken for this disease. Incidentally the frequency of the disease and some points in its pathology are treated.

I.—FOUR CASES OF PUERPERAL SEPSIS TREATED BY THE AUTHOR BY FOUR DIFFERENT METHODS.

Case 1.—Curetting and Irrigation only—Death.—The patient was a multipara 26 years old. She came from an Irish family and had had tubercular disease when a child. She was confined in a barn by a competent physician with no other person about to help him. There was violent post-partum hemorrhage which yielded to nothing, except the introduction of the hand into the uterus and slow removal of the placenta. This operation was done without help and without chloroform. Sepsis appeared almost at once. The uterus was carefully curetted several times and irrigated at frequent intervals. In spite of everything the sepsis continued for seven weeks and the patient died of pulmonary infarction at the end of that time.

Case 2.—Septic Peritonitis—Double Salpingectomy—Death.—This patient had a history of gonorrhea after the birth of her first child. She was 35 years old and had suffered frequent attacks of "pelvic inflammation." She had a second child three years ago, the birth of which was followed by sepsis. She was confined to her bed three months. She had an abortion performed on a three months fetus four weeks ago. This had been followed by a pronounced sepsis. The uterus had been curetted carefully by a competent physician and twice packed with iodoform gauze for six hours each time. On examination, March 10, 1895, I found her temperature 104.5. The pulse was 140. The respirations were rapid and constrained. The abdomen was tympanitic. Vomiting had been almost constant for three hours. The bowels had resisted all attempts to move them. A large area of dullness could be made out in the right inguinal region. The uterus was tipped over to the left. The right pelvis was filled with a doughy mass. The extremities were cold. Under these circumstances not much could be expected from operation, yet nothing could be gained by other treatment. The abdomen was therefore opened. The right pelvis was found to be a great abscess, in which the greatly distended and infiltrated tube was found. The left tube was also full of fluid (old pyosalpinx) and was removed. The uterus was almost exactly the normal size. It was not edematous and was left in the pelvis. Both sides of the pelvis were drained with gauze tampons through the abdominal wound. The patient rallied well after the operation and did well for five days. She gradually grew worse then, had several attacks of phlebitis and died of pulmonary embolism nine days after the operation. There were no symptoms of peritonitis after the operation.

Case 3.—Curetting—Removal of Right Tube and Ovary—Vaginal and Abdominal Drainage—Death without Peritonitis.—This

patient was 30 years old. She had been confined five weeks before examination. Symptoms of sepsis appeared on the fourth day and continued of a low grade. There was a renewal of septic symptoms on the tenth day after sitting up and walking a little. When I examined her, April 20, 1895, she was slightly tympanitic, the pulse was 112 and the temperature 101. She had no appetite and had vomited a little once or twice. The bowels were easily moved with enemas and mild laxatives. The vagina was edematous but the uterus was well contracted. The right side of the pelvis, as felt through vagina, was firm and hard, the left side somewhat less so. The patient was carefully watched for three days while the uterus was almost constantly irrigated and twice curetted, and packed with iodoform gauze. All the symptoms grew steadily worse, chills occurred twice a day with a slow rise of temperature and tympanitis. This led me to make abdominal section. The right tube was found as large as the thumb, red and infiltrated. It was removed with the right ovary. The uterus was firm, hard, small and not at all edematous. I did not remove it. The left tube was normal and was not disturbed. The right pelvis was drained by means of a tube from the abdominal wound above into the right side of the vagina and packed about with iodoform gauze. After a few days of improvement the patient grew gradually worse and died of septic phlebitis without peritonitis eight days after the operation.

Case 4.—Septic Peritonitis—Removal of both Tubes and Ovaries and the Uterus.—The patient was a multipara 32 years old. The labor occurred six weeks ago and was uncomplicated. A midwife, noted for her train of puerperal fever, was in attendance at the time. On examination, May 14, 1895, I found a temperature of 104 degrees and a pulse of 124. The abdomen was tympanitic and greatly distended, vomiting was almost constant. There was great tenderness over the whole abdomen. When the patient was on her back, both flanks were dull; when turned on her side, the left flank became tympanitic. In making a vaginal and bimanual examination, extensive infiltration of the right side of the pelvis could be made out. The uterus was about the size of a uterus when four months pregnant. Operation was undertaken for the removal of the septic material twelve hours later. After the proper preparation of the patient, she was chloroformed and placed in the Trendelenburg position, and the abdomen opened. On the first incision, about a pint of sero-purulent fluid slowly poured out. As the right tube was grasped, another gush of pus came out. This broad ligament was large and edematous. It was separated from its adhesions to the pelvic wall and tied off. The uterine artery was ligated and the uterus was then amputated from before backward, and from right to left with a dull knife. After ligating the other uterine artery and the left ovarian artery, the cervix was closed upon itself by two rows of catgut sutures; one buried in the cervical tissues and one superficial in the peritoneum. All hemorrhage was stopped, the abdomen carefully washed out with several pitchers of sterilized hot water and the pelvis drained with a large iodoform gauze drain coming out at the lower part of the abdominal wound. The rest of the abdominal wound was closed with two rows of sutures. In spite of the fact that this operation was done in a hovel, and in spite of the additional fact that a factory next door burned down three days after the operation, making it necessary to lay the patient for an hour on the sidewalk in front of the house, she made a most excellent and rapid recovery and was out of bed in five weeks.

The pathology of this case is extremely interesting. The section of the uterus measured 4.5 centimeters in anterior posterior diameter after hardening in formalin. The transverse diameter just below the opening of the tubes, was 7.75 centimeters. The diameter of a section of the ovarian ligament was 2.5 centimeters on the right side and a little less on the left side. There was an abscess in the right ovarian ligament with partial necrosis of its posterior wall. This abscess was about a centimeter in diameter. There were two other abscesses about the same size in other parts of the ligament. On inspection of a thin transverse section the interior of the uterus was found lined with a black necrotic mass. Pigmentation extended outward from the mucosa about a centimeter in all directions. The whole of the right broad ligament was of this same dark color. On microscopic

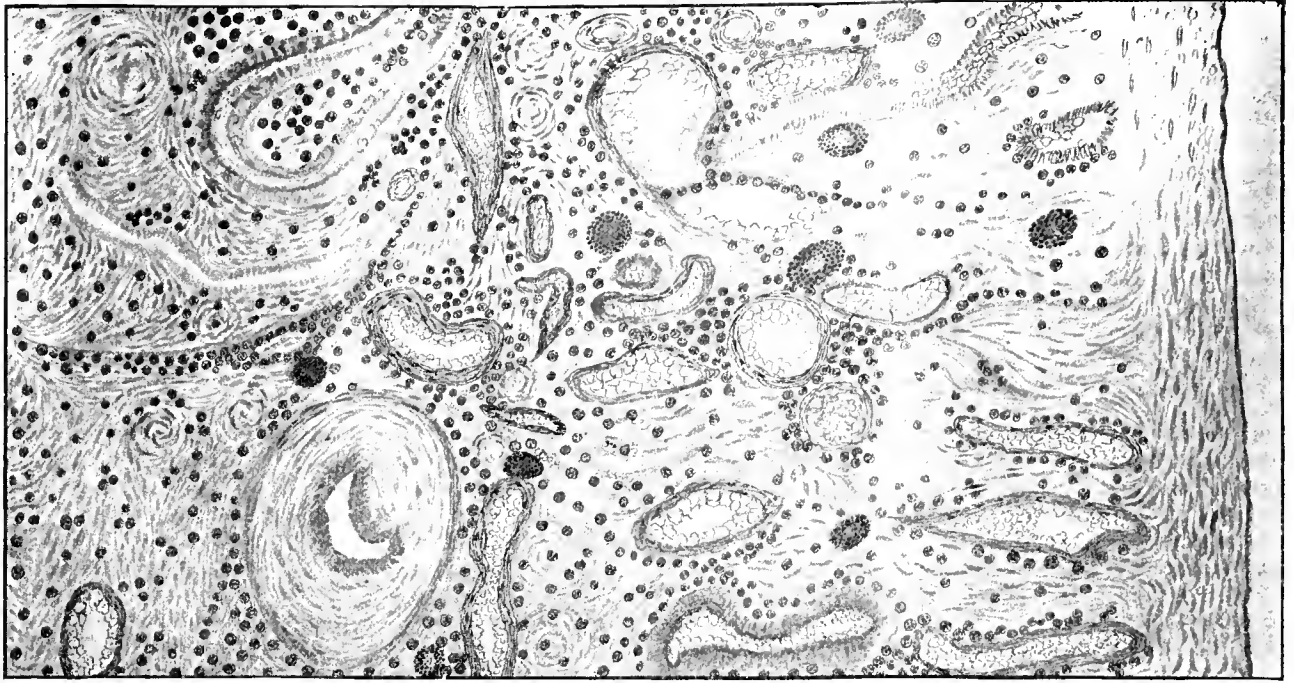


FIG. 1.—A highly magnified section of the body of the uterus, partially schematic; *p*, the peritoneal surface; *a, a, a*, obliterated blood vessels with the perivascular lymph spaces filled with pus corpuscles (*c*) and leucocytes; *m, m*, mastzellen. The other end of the section showed a reproduction of the mucosa throwing off a necrotic mass. The mucosa was everywhere surrounded by groups of pus corpuscles.

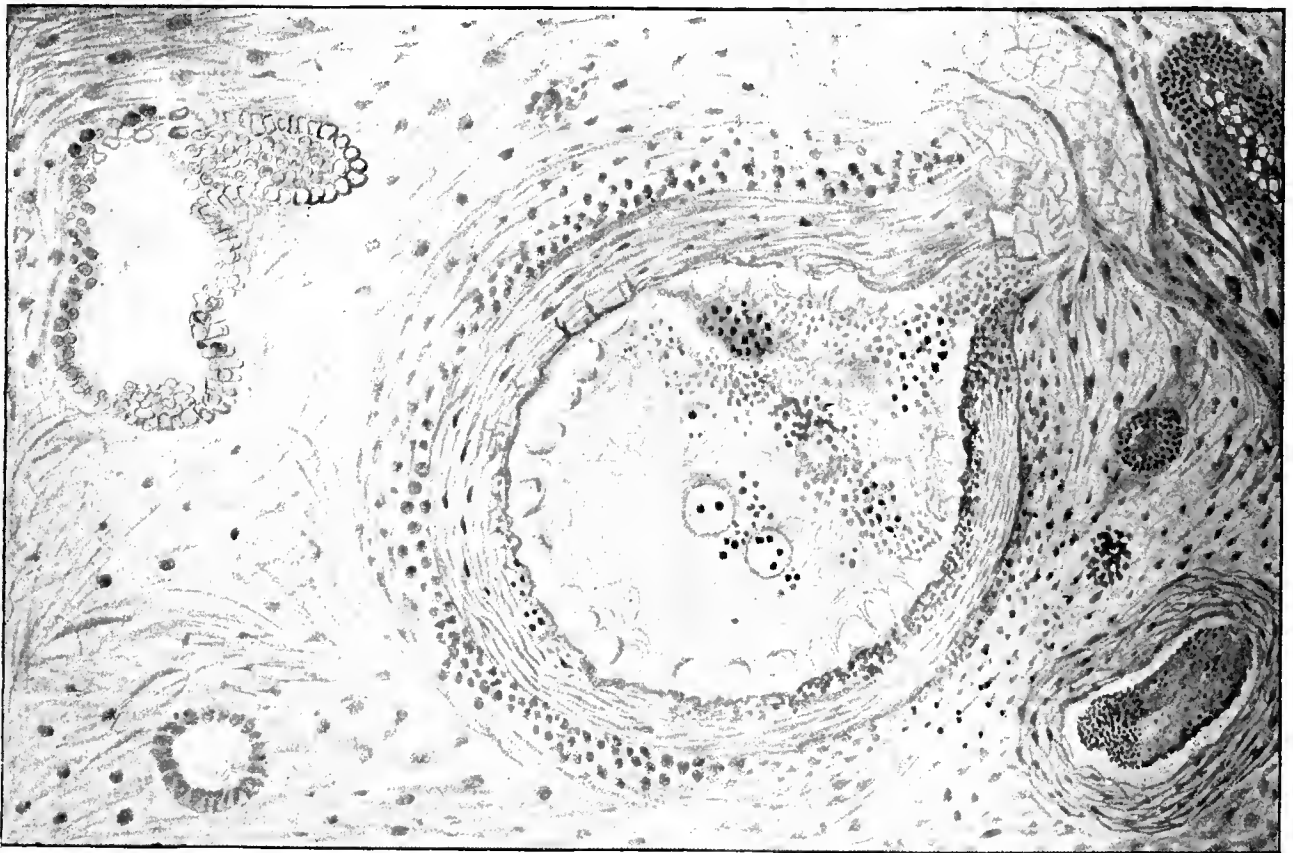


FIG. 2.—Section of the right broad ligament showing an advancing thrombus in an artery coming out from an obliterating thrombus in a branch, (*a*) marked perivascular infiltration (*b*) and complete thrombosis of accompanying vein (*c*).

examination the mucosa was found in a condition of rapid reproduction. In many places, as shown in the drawing, repair was nearly complete. Yet everywhere the epithelial cells and mucous glands were surrounded with groups of pus cells. The perivascular lymph spaces in the musciosa from the mucosa outward were in many places crowded with pus corpuscles, but in no place was an abscess of any size found. *Mastzellen* were very abundant in some parts of the musciosa, but not very often found where the pus corpuscles were most numerous. Many of the blood vessels of the uterus were entirely obliterated with thrombi and these thrombi were sometimes crowded with pus corpuscles. In one section of the broad ligament a small blood vessel was found partially occluded by a thrombus which had gone out from a small branch of the artery. The drawing shows the condition very well. The obliterating thrombus in the branch is full of pus corpuscles. The advancing thrombus in the trunk has many such pus corpuscles between the intima and the thrombus. The wall of this artery is invaded on one side. Some such blood vessels were entirely obliterated. Many sections of the tube on both sides showed no accumulations in the tubes, no destruction of the *arbor vitae* of the tube and no considerable inflammation of the peritubal tissues.

The condition may be described as a suppurative endometritis, suppurative perivascular lymphangitis of the uterus, of the ovarian ligaments and of the broad ligament. Obliterating thrombosis of uterine and peri-uterine blood vessels. Multiple abscess of the right ovarian ligament. Multiple peri-uterine peritoneal abscesses, adhesive and limiting peritonitis.

II.—THE RESULTS OF CURETTING IN THE HANDS OF ITS ADVOCATES.

Leopold (*Dritter Beitrag zur Verhütung des Kindbetfieber*). *Arch. für Gyn.*, vol. xxxv. p. 149) considers 1,369 cases of labor attended 1888 and out of these 15 died, only two of them sepsis.

Braun-Firnwald (*Ueber antiseptische Excochleatio uteri bei Endometritis puerperalis*. *Arch. für Gyn.*, vol. xxxvii, p. 452) made a study of 7,600 cases of labor in a period of two and half years, 1887-1889, curettement was performed in 101 of these cases. Out of these 101 cases, 96 recovered and 5 died. Beside these five deaths there were forty other deaths.

The following tables show the causes of death:

12 cases from March 1, to December 31, 1887.

Placenta previa, hemorrhage	3
Rupture of the uterus	2
Suppurative nephritis and cystitis, old tuberculosis	1
Phlegmon of the foot, pyemia	1
Eclampsia	1
Pericervical abscess	1
Puerperal sepsis	3
—12	

During the year 1888, diffuse peritonitis from rupture of the gall bladder during labor		1
Rupture of cervix uteri		3
Osteomalacia, Cæsarean section, degeneration of liver and kidneys without asepsis		1
Apoplexy, Cæsarean section, living child		1
Eclampsia, (1 hemorrhage nephritis)		5
Osteomalacia, Cæsarean section, sepsis		1
Rachitis, Cæsarean section, sepsis		1
Puerperal sepsis		8
—21		

Jan. 1 to Sept. 30, 1889. Placenta previa, hemorrhage		1
Rupture of the uterus		2
Chronic nephritis		1
Puerperal sepsis		3
—7		

Total deaths	40
Puerperal sepsis	14
Per cent. of deaths from sepsis of all deaths	35

It appears that puerperal sepsis was the greatest cause of death even in the hands of a careful obstetrician. The curetting of the uterus was not an unfailing remedy, as the following epitome of the histories of the five cases that died after curetting shows:

1. Normal labor, slow infection on fourth day. Curetting. Peritonitis on eighteenth day. Temperature 40 degrees, vomiting, delirium. Death on thirtieth day.

Autopsy: mild puerperal endometritis; uterine lymphangitis; general purulent peritonitis; hemorrhagic left pleuritis. Observations. Hysterectomy ought to have been performed on the eighteenth day.

2. Normal labor. Chill and rapid infection on the fifth day. Intra-uterine irrigation without effect. Curetting on the eighth day, no avail. Sudden onset of vomiting and distension, thready pulse. Death on the tenth day.

Autopsy: slight endometritis; double salpingitis; general suppurative peritonitis with large exudate. Observations. Hysterectomy ought to have been performed on the eighth day.

3. Normal labor. Fever on the second day. Bad smelling lochia. Curetting on fourth day with removal of decidua no avail. On the twelfth day distension, vomiting. Death on the seventeenth day.

Autopsy: endometritis; uterine phlebitis; diffuse suppurative peritonitis. Observations. Hysterectomy ought to have been performed on the thirteenth day.

4. Normal labor. Chill on the morning of the fifth day. Temperature 39.2 degrees. Intra-uterine irrigation, no avail; diarrhea. On the ninth day, curetting, no avail. On the thirteenth, symptoms of phlebitis. Death on the twenty-first day.

Autopsy: slight endometritis; general peritonitis. Observations. Hysterectomy ought to have been performed on the eighth day.

5. Normal labor. On the fifth day slow infection. On the sixth, temperature 39 degrees. Curetting, normal temperature the two following days. On twelfth day chill, temperature 40 degrees; fresh blood in lochia. Intra-uterine irrigation; iodoform tamponade. No avail. On nineteenth day large hemorrhage from uterus. Death on twenty-ninth day.

Autopsy: endometritis; subsequent septicemia; acute anemia. Observations. Hysterectomy ought to have been performed on the nineteenth day.

In the 101 cases of sepsis in this series, the following table shows the time of onset of infection as indicated by the rise of temperature, or by the chill, and interpreted by the subsequent history:

On the day of labor	1 case
1 day after labor	1 "
2 " " "	10 "
3 " " "	14 "
4 " " "	30 "
5 " " "	21 "
6 " " "	11 "
7 " " "	6 "
8 " " "	3 "
10 " " "	2 "
11 " " "	1 "
12 " " "	1 "

Total. 101

We see, then, that in 101 cases of sepsis treated by Braun-Firnwald, curetting failed five times and in these five cases there is every reason to believe that hysterectomy would have been effectual in saving the life of the patient.

III.—PUERPERAL SEPSIS IN CHICAGO, NEW YORK, AND BROOKLYN.

In the city of Chicago during the years 1881-1894, 2,127 deaths from puerperal fever were reported, or about 0.9 per cent. of all deaths. This is computed to be about 3.5 deaths to each 1,000 births. In the year 1894, 214 deaths were reported from the city of

Chicago as due to puerperal fever, while many other reports, under different heads, would indicate a still larger death rate from this cause. It is estimated that more than half of all confinements in the city are in the hands of midwives.¹

The following table is copied from the report of the Department of Health of Chicago and gives in the first column the year, in the second column the number of deaths reported during that year from puerperal fever, in the third column the per cent. of these deaths of the total mortality, and the fourth column the number of deaths from this cause to the 1,000 births reported:

Year.	No. deaths reported.	Per cent. of deaths.	No. deaths per 1,000.
1881	144	1.03	7.31
1882	107	0.81	5.16
1883	152	1.32	7.08
1884	108	0.86	4.57
1885	107	0.86	4.23
1886	126	0.92	4.41
1887	149	0.91	5.16
1888	186	1.18	6.10
1889	137	0.81	3.65
1890	166	1.76	3.55
1891	176	0.63	3.64
1892	174	0.66	3.13
1893	181	0.67	3.31
1894	214	0.89	3.22

In New York for the six years ending May 31, 1890, there were 250,359 deaths, of which 116,126 were females; 2,236 died in the puerperal state and 1,250 of these deaths were due to puerperal fever.

In Brooklyn² during the same period, there were 112,467 deaths, 53,866 being females; 867 deaths were in the puerperal state and of these 462 were due to puerperal sepsis.

The question of treatment of puerperal sepsis by hysterectomy is therefore one which vitally concerns at least 214 persons a year in Chicago, 208 persons a year in New York city, and 78 persons a year in Brooklyn.

IV.—ANALYSIS OF THE CASES OF DEATH FROM PUERPERAL SEPSIS OCCURRING IN 6,635 CONSECUTIVE CONFINEMENTS.

Perhaps the relation of puerperal sepsis to the normal uninfected puerperium can be best understood by making a study of the work of some of the obstetrical hospitals under the best management. For this purpose I first call your attention to the Charité, of Berlin. All my information comes from the official reports in the *Charité Annalen* for the years 1889-90, 1890-91 and 1891-92, 1892-93. In these four years, 6,635 women were confined, with 79 deaths from all causes. Of these deaths, thirty-three resulted from puerperal sepsis. In order to fully understand these cases I have made brief abstracts of the histories and the pathologic findings at post-mortem. These cases were treated by Hensoldt,³ Schwarze, Hünemann and Hochsetter, during the four successive years mentioned, each having the clinic a year at a time.

During the year Hensoldt had 1,626 confinements, covering a part of the calendar years 1889-90. There were sixteen deaths, that is to say a death rate of 0.61 per cent. This death rate was distributed as follows: puerperal fever, ten; heart failure, two; eclampsia, two; pneumonia, one; hemorrhage, one; total, sixteen.

There were sixty-two cases of puerperal fever during the year 1890-91. Some cases were insignificant. Among these were three cases of unknown origin, two cases of puerperal endocarditis, two cases of mild phlegmasia alba dolens, eleven cases of parametritis, three cases of diphtheria of the external genitals, one case of inflammation of the sacro-iliac joint, and one case of tuberculosis of the lung. In fourteen cases the gonorrheal condition of the flow was demonstrated. In one of these cases puerperal fever followed labor. One ovarian tumor was present in a secundipara. Syphilis was present in 63 cases out of the 1,626, but we are not told how many of these were included in the 62 cases of sepsis.

The total number of infected cases among these 1,626 confinements was 62, being 3.81 per cent. This compares very favorably with the records of the hospital during the previous years. In the twelve months preceding, the hospital year 1888-89, the per cent. of infected cases was 2.31. In the year 1887-88 the rate of infection was 2.50 per cent., and in the year 1886-87 it was 2.31. The number of deaths from infection during these four terms of twelve months each was .61 per cent., .36 per cent., .37 per cent. and .55 per cent. respectively. Nine of the ten cases that died under Hensoldt's care I have carefully abstracted and added a line of observations. They are as follows:

1. Normal birth, chill on fifth day, scarlet-fever-like eruption over whole body, marked gastric symptoms, stinking lochia, urine free from albumin. The eruption disappeared on the tenth day, but the fever continued and a slight systolic murmur appeared with mild bronchitis. The spleen became enlarged and the abdomen distended. On the fourteenth day, emboli under the skin showed themselves, and on the fifteenth day collapse and death.

Autopsy: gangrene of the skin of the right index finger: multiple infarcts of the left arm; fatty degeneration of the heart muscle; mitral stenosis; mitral endocarditis; edema and red hepatization of the lungs; hyperplasia and infarcts of the spleen; nephritis; hepatitis. Observations. This case could probably have been saved by hysterectomy performed on the tenth day or before the fourteenth.

2. Normal birth, chill on the third day, systolic murmur on the eighteenth day, delirium on the twenty-first day with symptoms of compression of the brain, exophthalmus on the twenty-third day, death on the twenty-fourth day.

Autopsy: purulent meningitis of the base, endocarditis and pericarditis; dilatation and hypertrophy of the heart; right circumscribed pleuro-pneumonia, edema of the lungs; slight parenchymatous nephritis; metritis; endometritis; pyelitis; cystitis. Observations. This case might have been saved by hysterectomy performed on or before the eighteenth day.

3. Normal second birth, chills on the third day, bad smelling lochia, peritonitis on the fourth day, death on the seventh day.

Autopsy: general fibrinous peritonitis; diphtheritic endometritis; phlegmonous parametritis; pulmonary edema; parenchymatous myocarditis; parenchymatous hepatitis; hyperplasia of the spleen. Observations. This case could probably have been saved by hysterectomy performed on the fourth or on the fifth day.

4. Normal third birth, on the third day stinking lochia and high fever, evidence of tuberculosis in apices of both lungs, on the tenth day a venous thrombus on the inner side of the right knee; on the twelfth day this thrombus was opened and discharged pus, dyspnea this day with bloody expectoration; on the fourteenth day somnolence, thin brownish sputa, right pleuritis; on the sixteenth day sudden death in collapse.

Autopsy: endometritis; pericarditis pleuritis; parenchymatous nephritis; hepatitis; splenitis; old phthisis; suppurative right pneumonia. Observations. This case could perhaps have been saved by hysterectomy performed on the tenth day with coincident removal of the thrombus in the leg.

5. Primipara 19 years old, normal labor, followed by rapid pulse, 92-120; membrane appearing on the vagina on the

¹ Report of Commissioner of Health, 1885, pp. 263.

² Billings, John S.: Vital statistics of New York city and Brooklyn. U. S. Department of the Interior. Washington, 1894, 4°.

³ Hensoldt: *Charité Annalen*, sixteenth year, 1891, p. 256, et seq.

third day; on the sixth day high fever with foul lochia, pain on the right side of the uterus; on the eleventh day chill, high fever and severe general symptoms; on the fourteenth day vomiting, with abdominal pain and distension, on the fifteenth day continued vomiting, increased tympany, diffuse bronchitis, very small and rapid pulse and rapid respirations; on the twentieth day the left shoulder became swollen and painful, respiration more rapid, right-sided pleuritis; on the twenty-first day emboli were observed under the skin of the back and beginning bed sores, death on the twenty-sixth day.

Autopsy: puerperal fever, endometritis diphtheritica placentalis; adhesive and encapsulated suppurative peritonitis; general fibrinous; purulent and ichorous peritonitis; hyperplasia of the liver; endarteritis of the aorta; edema of the lungs. Observations. Hysterectomy was indicated on the fourteenth day. It is uncertain what the membrane was. If diphtheria, it is a question to be studied.

6. The eighth birth of a woman 45 years old. Repeated attempts had been made by two physicians to apply the forceps before admission to the hospital. The high operation was performed and a large child (58 c.m. long, 5320 g. weight) easily delivered. The placenta was removed on account of hemorrhage and atony of uterus. The patient vomited almost continually, the pulse was very rapid (116-124) the temperature high and the lochia offensive. On the eighth day irrigation of the uterus and a second tamponade of uterus; the seventh day after this there was a chill, the temperature rose and the lochia continued offensive. The uterus did not contract. On the fourteenth day painful dyspnea, diffuse bronchitis, small pulse (108-120) frothy expectoration. Death on the nineteenth day.

Autopsy: puerperal sepsis; diphtheritic endometritis; parenchymatous myocarditis; fatty degeneration of the myocardium; edema of the lungs. Observation. Hysterectomy was indicated on the tenth or eleventh day, and would doubtless have been effective in saving the life of the patient.

7. Primipara, 31 years old. Placenta previa, hemorrhage and delivery of a dead child in the tenth month (51 c.m. long, 2680 g. wt.); on the third day rise of temperature; on the fifth a chill and all the ordinary symptoms; on the eighth day delirium, collapse, and on the tenth day death.

Autopsy: diphtheritic placental endometritis; nephritis; hepatitis; parenchymatous gastro-adenitis; hyperplasia of the spleen; multiple suppurative and lobular pneumonia; hypertrophy of the heart; fatty degeneration of the myocardium; chronic endocarditis. Observation. Hysterectomy was indicated on the eighth day and would probably have been effective in saving the life of the patient.

8. Placenta previa. Last menstruation in October, 1889. Jan. 25, 1890, to end of March repeated hemorrhages, treated the latter part of the time with vaginal tamponade. On March 27 she entered the hospital in extreme anemia. Temperature 38.5, rapid pulse. The cervix admitted one finger. The fundus stood at the umbilicus. Labor pains. Antiseptic tamponade of the cervix. Anesthesia after four hours and removal of the macerated fetus and succentrate placenta. Curettement of uterus. On the next day temperature 40 and over, pulse 149, vomiting; on the second day delirium. The lochia was not offensive. On the fourth day hyperesthesia with full temperature and considerable rise of pulse rate. Death on fifth day. Autopsy: Puerperal sepsis; diphtheritic endometritis of the cervix; beginning right hypostatic pneumonia; edema of the lungs; hyperplasia of the spleen; parenchymatous nephritis. Observation. This is a case of rapid infection. Hysterectomy might have saved the patient if performed on the second or third day.

9. Primipara, 21 years old, delivered of a small child (42.5 c.m., 1670 g.) with the forceps. The patient was frail and anemic but had a perfectly normal course until the eighth day. On the ninth day there appeared with severe constitutional symptoms a temperature of 39.9 and a pulse of 132. The slightly bloody lochia became offensive. After irrigation of the uterus the temperature fell on the eleventh day to normal but the pulse remained at 100. On the fourteenth day the lochia again became offensive. A second irrigation of the uterus showed no coagula in the cavity, but as the catheter was being withdrawn the patient went with a sudden spasmodic movement into a deep collapse and died.

Autopsy: puerperal fever with parenchymatous changes in all the organs of the body. Observation: this case shows the dangers of conservative treatment even. There was perhaps no time during the life of the patient that hysterectomy was indicated.

During Schwarze's⁴ service, 1890-94, 1,480 women were confined. Of these fifteen died as follows:

Puerperal fever five; eclampsia six; rupture of uterus two; heart failure one; hemorrhage one; total, fifteen.

1. Second confinement, 20 years old. Two days before admission, chills and fever, with diarrhea. Temperature 39.5, pulse 124, cyanotic countenance, dry tongue, rapid breathing, no cause in lungs. Tympanitis. Rapid spontaneous birth of a living child. The high fever continued after the birth with all the ordinary symptoms. Death in the second week, apparently of edema of the lungs.

Autopsy: puerperal sepsis; general ichorous peritonitis; nephritis; hepatitis; parenchymatous myocarditis; hyperemia and edema of the lungs; hypertrophy of the spleen. Observation. This case of infection before labor was one in which hysterectomy was indicated and would doubtless have been effectual in saving the life.

2. Primipara, 20 years old. Began labor with a distended tympanitic abdomen; pulse 72; no fever. Some pain over Poupart's ligament on the right side; with the use of an enema a free movement was secured. Five days later labor came on and in a few hours of normal labor a poorly nourished living child was born. Immediately after delivery deep collapse, pulse 160. The abdomen tympanitic, painful, shortly all the symptoms of general puerperal infection, and death on the twelfth day.

Autopsy: endometritis and purulent peritonitis; multiple pulmonary abscesses; parenchymatous nephritis and hepatitis; hyperplasia of the spleen. The abdomen was full of brownish pus. The abdominal and pelvic organs were adherent. The appendix showed the scar of an old ulcer. Observation. This seems to have been a case of chronic appendicitis which was perhaps one source of infection. It is uncertain from the history whether or not it was the only source. If it was the only source of infection, it was a case of appendicitis complicating the puerperal state. If this idea is correct, removal of the appendix was indicated.

3. Primipara, 29 years old. On June 17, chill and fever which subsided after a few hours. On June 18, labor pains came on in the night and in a few hours a living child was born. During labor no fever. About one and a half hours after delivery, chill, temperature 40.8 and bilious vomiting. On the morning of the second day after delivery temperature 37.9. A second chill in the afternoon with a temperature of 39.6. The disease continued until June 27 when the patient died, on the ninth day after delivery.

Autopsy: puerperal endometritis; phlegmonous parametritis; phlegmonous myositis of the right arm; arthritis of the left elbow; hyperplasia of the spleen. Observation. This was a case of rapid infection which called for early interference. It could have been treated on the third day or as late as the fifth day with good hope of recovery by the removal of the uterus and tubes. The history, however, is too incomplete to form the basis of the indication as to time.

4. Primipara, aged 21 years; normal birth. On the fifth day fever and offensive lochia. Temperature and pulse continue high and a membrane appeared in the vagina. Exudation felt on both sides of the uterus. On the seventeenth day all the symptoms of peritonitis and on the nineteenth day death.

Autopsy: purulent endometritis; purulent para-uterine thrombophlebitis; perithrombotic abscesses; fibrino-purulent peritonitis; subinvolution of the uterus; hyperplasia of the spleen; parenchymatous hepatitis; nephritis and gastritis; multiple pulmonary abscesses. Observation. There was abundant time in this case to remove the infection. It should have been done probably on the eighth or tenth day.

5. The ninth confinement of a woman 39 years old, normal birth. Great edema of the lower extremities with large varicose veins. On the fourth day chill, temperature 39, pulse 120. The lochia became offensive. On the fifth day painful thrombosis of both thighs; the region of these thrombi quickly became inflamed. On the labia majora great swelling. Death on the seventh day of cyanosis and edema of the lungs. The thrombi in the legs were in a gangrenous condition.

Autopsy: gangrenous diphtheritic endometritis; parenchymatous hepatitis; hyperemia and edema of the lungs; hyperplasia of the spleen. Observation. This was a case of rapid infective thrombosis. It was hopeless after the fifth day.

6. Secundipara, placenta previa, tamponade after hemor-

⁴ Schwarze: *Charité Annalen*, seventeenth year, 1892, p. 479.

rhage and extraction. On the fifth day fever and rapid pulse. On the seventh, edema of the labia extending to the rectum. Diphtheritic membrane on the vagina and cervix uteri. Thrombosis and phlegmonous inflammation of the back and thighs. No chill, no infiltration of the parametrium. Death on the tenth day.

Autopsy: puerperal sepsis; vaginal wounds; diphtheritic vaginitis and diphtheritic inflammation of the cervix uteri; multiple abscesses of the skin; incipient parenchymatous; myocarditis; endocarditis; incipient endocarditis of the aorta; multiple abscesses of the left lung and edema of the lungs; fibrino-purulent and ichorous left pleuritis; nephritis. Observation. This is a case of rapid infection. Hysterectomy might have saved the patient, if performed on the second or third day.

7. Primipara, 21 years old. Delivered of a small child (425 c.m., 1,670 g.) with the forceps. The patient was frail and anemic but had a perfectly normal course until the eighth day. On the ninth day there appeared with severe constitutional symptoms, a temperature of 39.9 and a pulse of 132. The slightly bloody lochia became offensive. After irrigation of the uterus, the temperature fell on the eleventh day to normal, but the pulse remained at 100. On the fourteenth day the lochia again became offensive. A second irrigation of the uterus showed no coagula in the cavity.

During Hünemann's⁵ service out of 1,860 cases in the obstetrical department of this hospital, 27 died during the year 1891-1892: eclampsia ten; placenta previa one; tuberculosis of lung one; vitium cordis two; puerperal sepsis thirteen; total twenty-seven.

Beside the thirteen deaths from puerperal fever there were one hundred and forty-four cases of fever, sixteen cases of parametritis, six cases of perimetritis, one case of diphtheria of the external genitals with endometritis, and forty-one cases of severe puerperal infection, with recovery. There were two cases of thrombosis of the femoral vein. Tuberculosis of the lungs was observed in fifteen cases. There was one case of pyonephrosis; ninety cases of syphilis; seventeen children required treatment for gonorrheal ophthalmia.

1. Strongly built woman but poorly nourished. Temperature on admission 39.5. Stupid labored respiration, pulse 132 to 96. Uterus three fingers above the navel. In urine .1 volume of albumin. Three-quarters of an hour after admission spontaneous delivery of a small 28 c.m. child and placenta. Death eleven hours after delivery. Autopsy: exquisite puerperal sepsis. Observation. This was a case hopeless from the first.

2. The eighth confinement of a 33-year-old woman. Rupture of the membranes at time. Three days the mother went about her work until an arm presented. Dilated cervix, contracted uterus. Temperature 39. Cyanosis. Difficult version. Delivery of a slightly macerated boy (51 c.m., 2950 g.). Lignor amnion stinking. Immediately after birth the temperature was 41.7 and the pulse 144. On the next day the typical picture of sepsis, double-sided pneumonia, severe albuminuria, tympanitis, offensive lochia, persistently high fever. Death on the fifth day.

Autopsy: puerperal sepsis; double pneumonia; diphtheria of cervix uteri; diphtheritic endometritis and cystitis; parenchymatous nephritis. Observations. Hysterectomy useless, except on the day of delivery.

3. Third confinement, version and extraction outside the hospital. On the next day dilatation of the abdomen and on the second day temperature 38.6, pulse 96 to 124. Abdomen very tympanitic. Irrigation of the uterus and discharge of clots of blood. The sepsis continued without chills, temperature 40. Frequent and severe dyspnea, obstruction of the bowels, and diffuse peritonitis. On the twelfth day edema of the lower extremities and death on the fifty-fifth day in collapse.

Autopsy: slow puerperal peritonitis, purulent and fibrinous; parenchymatous hepatitis; nephritis and gastritis; interstitial abscesses of the kidney; pyonephrosis; hyperplasia of the spleen and perisplenitis; perimetritis with abscesses; acute endometritis and parenchymatous gastritis. Observations. In this case of slow infection there was abundant time for hysterectomy. It should have been done during the second week at latest.

4. Secundipara, 29 years old. Spontaneous delivery of a dead child before admission to the hospital. On admission temperature 38.8, pulse 120. On the second day vomiting and tympany. On the third day chill. Continued vomiting and tympany of abdomen. Temperature 39.2, pulse 124. On the sixth day petechia over the whole body, icterus, friction sounds on the lower back part of right lung, impure heart's tone, large amount of albumin in the urine. On the eighth day more icterus and death on the ninth day.

Autopsy: diphtheritic endometritis myocarditis; parenchymatous nephritis; hepatitis; hyperplasia of the spleen; icterus. Observations. Hysterectomy would have been effective doubtless on the second day, but not later.

5. Eighth birth, 36 years old, small child (34 c.m., 840 g.). Temperature on admission 39.8. The birth had taken place some hours before. After-birth, which was partly in the vagina, was removed under narcosis and the uterus washed out and tamponed with iodoform gauze. This was removed on the second day. From the second day to the seventh day the temperature was 39. Frequent irrigation of the uterus with 2 per cent. carbolic acid solution. On the eighth day a chill. Temperature 40, pulse 144. Murmur at heart apex. Chills on the eleventh, twelfth, thirteenth, fourteenth and fifteenth days, with temperature between 37 and 40, pulse rapid, unaccountable. On the sixteenth day swelling of the left leg with recognizable thrombus. Death on the seventeenth day.

Autopsy: puerperal fever; endometritis placentaris; suppurative thrombo-phlebitis; syphilitic cicatrices of the kidney; varicosa endocarditis. Observations. This was a slow infection and offered every hope that recovery would have followed hysterectomy on the eighth day.

6. A primipara, 24 years old. Some days before confinement, a chill as the result of attempted abortion. Spontaneous discharge of the dead fetus, (25.5 c.m. 340 g.). Temperature 38.9. On the third day a chill, temperature 39. On the fourth day, after an irrigation of the uterus, three chills. Splenic tumor, vomiting, tympanitic abdomen. Pronounced peritonitis. Temperature 40 until the eighth day. On the ninth day no fever. On the tenth death.

Autopsy: the site of the placenta covered with a grayish-black ichorous mass. The cervix was gangrenous, with two furrows, both on the posterior lip, extending from the vagina to the body. (Marks of abortion.) Puerperal sepsis; general fibrinous and purulent peritonitis; endometritis placentaris; gangrene of the cervix uteri; gangrenous right oöphoritis; recent parenchymatous myocarditis and hepatitis; nephritis; hyperplasia of the spleen; right adhesive pleuritis; purulent thrombo-phlebitis. Observations. This case offered hope of recovery after hysterectomy on the fifth day or earlier. The history is too incomplete to indicate the time of latest hopeful operation.

7. Primipara, 25 years old. Moderate laceration of the cervix, normal birth under midwife. Normal course until fifth day when fever and high pulse came on and continued until the eleventh day. On admission, exudation in right parametrium. Twelfth and thirteenth days normal temperature. On the fourteenth renewed fever, with intermission daily until the eighteenth, then a remittent high fever, pleuro-pneumonia, dyspnea, until death on twenty-sixth day. No symptoms of peritonitis; no chills. Autopsy: puerperal fever, parametritis and perimetritis, multiple and purulent; subinvolution of the uterus, double hydrothorax beginning double fibrinous pneumonia, hepatitis, nephritis, myocarditis, gastritis, right hemorrhagic pyelitis. Observation. This case offered great hope of recovery by hysterectomy on the seventeenth day.

8. Primipara, 20 years old, normal birth of a full-sized boy (52 c.m., 3,000 g.). Distension of abdomen immediately after delivery. An area of dullness appeared on the third day, on the right side of the uterus, as large as the hand. Regular course of sepsis to the eighteenth day, when death ended it.

Autopsy: ichorous peritonitis, endometritis, edema of the lungs, hypertrophy and dilatation of the heart, right pleuritis and right catarrhal pneumonia, nephritis, hepatitis and splenitis. Observation. This case should certainly have been saved by hysterectomy on the sixth day.

9. Normal birth, normal until fourth day. Temperature then 39.5; rapid pulse, abdominal pain; irrigation of uterus; on seventh day child, with temperature 40. Digital removal of a large piece of placenta; iodoform tamponade; frequent irrigation of the uterus; on the fifteenth day evidence in urine of nephritis; on the twentieth day pupillary hemorrhage of right eye; on the thirty-second day edema of the lower extremities; on the forty-eighth day death.

Autopsy: puerperal fever, parametritis with right throm-

⁵ Hünemann: *Charité Annalen*, eighteenth year, p. 545.

bo-phlebitis, bacterial nephritis, cerebral thrombo-phlebitis multiple. Observation. This case could have been saved by hysterectomy on the fifteenth day and perhaps later.

10. Spontaneous birth of an average child (41 cm. 1320 gr.) Considerable hemorrhage, manual removal of placenta. High fever during the first day. On the second day infiltration of right lung, on the eighth day of the left lung. Double pleuritic effusion. On the tenth day peritonitis and death.

Autopsy: uterus bicornis. Endometritis, universal purulent peritonitis, double fibrinous pleuritis, partial pulmonary atelectasis. Observation. It is hard to say whether or not hysterectomy would have helped this case.

11. Normal birth on the third day of a child; temperature 38.6, pulse 96; on the fourth day a chill, temperature 40.9, pulse 120. On the tenth day a pyemic abscess of the left thigh, many other abscesses; death on the thirty-eighth day.

Autopsy: puerperal sepsis, pulmonary edema, multiple phlegmonous, diabetes sacralis, marasmus. Observation. It seems that hysterectomy was indicated on the sixth day.

12. Normal labor; sepsis began on the fourth day, death on the fourteenth day. Poor history.

Autopsy: puerperal sepsis, ichorous endometritis, thrombosis plexi pampiniformis, phlegmonous oöphoritis, diffuse fibrinous peritonitis, fibrinous and purulent left pleuritis. Observation. This case was one very strongly demanding hysterectomy. It should have been done before pleuritis came on.

12. The birth was normal, but there was great hemorrhage with icterus on the third day, with an infiltration of the left arm. This was incised. It discharged no pus but an edematous fluid. On the fifth day a chill; on the ninth day parotitis. Death on the tenth day.

Autopsy: puerperal sepsis, suppurative and fibrinous meningitis, phlegmonous oöphoritis, anemia, icterus gravidus. Observation. It does not seem likely that hysterectomy would have helped this case.

Hochsetter⁵ had during the year 1,719 confinements and 21 deaths.

Puerperal fever, five; rupture of uterus, one; eclampsia, twelve; chronic nephritis, one; collapse, one; heart failure, one; total, twenty-one.

Septic infection with recovery 10; phlegmasia, 1; metritis, 17; perimetritis, 5; light puerperal fever, 104; fever from known cause, 46; total, 183. 10.6 per cent. of all. Of these cases, 98 had syphilis.

1. Multipara, age 33, eighth birth. Two last births child was turned, owing to transverse position. On admission, temperature 37.8, pulse 120, pelvis flat, abdomen lax and pendulous, head retracted toward right, heart beat below navel, os admits two fingers. Patient stated that waters had passed on previous day, consequently examined by midwife. No pains; patient placed on right side, abdomen supported, producing appearance of head in os. Following day no pain, normal temperature. Second day, morning temperature 37.8, evening temperature 38.9, pulse 104 to 110. No labor pains. Pain in right inguinal region. Third day, temperature 39.4 and stinking lochia; no tympany of uterus, chills, and temperature 41. Pains; extraction of child nearly dead; irrigation of uterus; fall of temperature; manual removal of placenta on account of profuse hemorrhage and weakness of patient; irrigation of uterus. No hemorrhage; iodoform tampons in uterus and vagina. Tampons removed on following day, temperature 38 to 38.5. Fourth day, chills and high fever, remittent, then continual; twenty-nine chills. Thirty-sixth day after birth, death occurred.

Autopsy: diphtheritic endometritis; gangrenous, phlegmonous right parametritis. Right ovarian thrombo-phlebitis; thrombo-phlebitis of left renal vein and vena cava; multiple metastatic pneumonia. Hyperplasia of the spleen; ulcerative endocarditis. Observation. Abundant time for hysterectomy.

2. Primipara, 22; pelvic measure 25-27, 5-30-17, 5-10. First stage of labor on first day; second day chills, temperature 39.9, pulse 120, contracted uterus, heart beats 192 to 200, stinking lochia. Extraction of child with instrument; foul-smelling child; irrigation of uterus before and after spontaneous expulsion of placenta; fever intermittent, then continuous; constant irrigation; no relief; five chills, spleen, tumor and right sides parametric exudate. Twenty-first day after confinement, death.

Autopsy: peritonitis; adhesive and purulent double left

parametritis with phlegmons; diphtheritic endometritis; gangrenous metritis; thrombo-phlebitis; parenchymatous nephritis. Observation. Abundant time for hysterectomy.

3. Multipara, 28, seventh birth. Admitted after delivery of dead child on previous day. Suffering from large condylomata. Placenta ejected by pressure on abdomen, then removal. Third day fever, irrigation of uterus, many coagulated blood masses removed from vagina, foul-smelling, injury of vagina to left of cervix, irrigation of uterus continued, curettage, removal of decidual remains. Temperature 37.6 to 38, pulse 110 to 120; ninth day chills, temperature 39.3; profuse hemorrhage from genitals; digital exploration of uterus, removal of large piece of decayed placenta; irrigation of uterus. Fourteenth day, death.

Autopsy: diphtheritic endometritis; parenchymatous nephritis; hepatitis; myocarditis; fibrinous right pleuritis; right hydronephrosis. Broncho-pneumonia of the right lung. Observation. Abundant time for hysterectomy.

4. Fourth day chills, temperature 40, high fever with moderate pulse. Ninth day, to right of uterus painful resisting mass, lochia stinking. Fifteenth day, incision of gluteal abscess, swelling of knee joint. Two incisions on fourteenth day with much pus, fever continuous; few days later two abscesses opened on nates; twenty-fifth day removed to other hospital; death four weeks after.

Autopsy: chronic suppurative perimetritis; psoas abscess; several para-articular abscesses about the right knee joint and right shoulder joint; parenchymatous nephritis and hepatitis. Observation. Hysterectomy should have been performed on the twelfth day.

5. Primipara, 24; fifth day after delivery, chills, fever 40.5, pulse 132, irrigation of uterus, no result, continued high fever. Sixth day, abdomen tender on pressure and distended; peritonitis. Death on eleventh day.

Autopsy: suppurative and fibrinous peritonitis; parenchymatous; myocarditis; hepatitis; nephritis and gastritis; erysipelatous endometritis and edema of the parametrium. Observation. Hysterectomy should have been done on the sixth day.

CONCLUSIONS.

1. Puerperal sepsis still causes almost one-half the deaths occurring in the puerperal state.

2. The causes of puerperal infection are the same as the causes of other wound diseases and should be treated on the same principles.

3. Curetting and irrigation are unavailing when the infection has passed outside of the endometrium and submucous connective tissues of the uterus.

4. The removal of the uterine appendages for infection outside the endometrium leaves behind the infected uterus from which the septic process goes on.

5. Removal of the uterus and its appendages should be performed when puerperal sepsis has gone beyond the endometrium.

6. The indications for hysterectomy in puerperal sepsis seem to be these: (a), curetting and uterine irrigation and tamponade have failed; (b), peritonitis or pelvic cellulitis is present; (c), hopeless localization of infection outside the pelvis can not be found.

7. Hysterectomy may not be helpful in the course of diphtheritic vaginitis and endometritis.

8. Hysterectomy may not be available in cases of rapid early infection.

9. Hysterectomy may not be helpful in cases of septic phlebitis reaching outside the pelvis.

10. The method of operating will depend: (a), upon the size of the uterus; (b), upon the condition of the uterine tissues; (c), upon the experience or choice of the operator.

11. Except in early operations in which the uterus is still large and therefore difficult to manage through the vagina, the vaginal method with the clamps will be preferred because it is a more rapid method, it is less objectionable in the public mind and it furnishes the best possible drainage.

⁵ Hochsetter: *Charité Annalen*, nineteenth year, 1892-93.

12. When the uterus or its cervical portion are gangrenous, and when the operation is done during the first two weeks after confinement with a subinvolved uterus, the combined operation will be found necessary. The clamps are put on the uterine arteries and the cervix detached through the vagina, and then the abdomen opened and the clamps put on the ovarian arteries and the uterus removed by the abdominal opening. The abdominal wound should then be closed.

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Eighth Annual Meeting, held in Washington, D. C., Nov. 12, 13 and 14, 1895.

FIRST DAY—MORNING SESSION.

The Association met in the banquet hall of the Hotel Shoreham at 10 A.M., and was called to order by the PRESIDENT, DR. L. McLANE TIFFANY, of Baltimore, Md.

DR. S. C. BUSEY, of Washington, delivered an

ADDRESS OF WELCOME.

on behalf of the medical profession of the District of Columbia. In his closing remarks, Dr. Busey said: "I solicit your aid and coöperation in our effort to secure the protection of our people from the horde of impostors and charlatans, which you have driven from your borders by the enactment and enforcement of medical practice laws, and which has made the District of Columbia a common rendezvous where the most atrocious methods of the charlatan and mercenary impositions are openly and flagrantly committed to the wrong, injury and robbery of its citizens. You represent the most influential and intelligent class of suffragists for whose aid on the hustings and at the polls we plead."

"To state the deplorable condition of this District fully and broadly, there are five medical schools and several medical societies chartered by acts of Congress, or under the general incorporation law authorized and empowered to license persons to practice the art and science of medicine, without any uniform, and by some, without any, standard of qualification beyond the ability and willingness of the applicant to pay the required fees, or give promissory notes for such payment; and under the provisions of the general incorporation law any dozen of persons can obtain a charter upon payment of the fee for recording the same, authorizing them as a body corporate to confer the degree of M.D. at their pleasure and will. Such is the status of this Federal territory, which is under the exclusive jurisdiction of the highest tribunal of legislation in the land, made up of the Representatives and Senators from forty-nine States and Territories, which have enacted medical practice laws for the protection and welfare of their citizens. Take these facts home with you and reëcho them throughout the length and breadth of the land, that such criminal neglect, not less disgraceful and scandalous than the slums of vice, may not continue to afflict the citizens of the Federal territory."

PRESIDENT TIFFANY responded to the Address of Welcome for the Association.

After some announcements had been made by DR. JOSEPH TABER JOHNSON, of Washington, Chairman of the Committee of Arrangements, the reading of papers was taken up.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper entitled

PERSONAL EXPERIENCE IN THE TREATMENT OF STAB WOUNDS OF THE INTESTINES AND PERITONEUM.

At the outset, the author stated that about one hundred and thirty cases of stab wounds of the peritoneum and intestines had come under his care during his entire professional experience in both private and military practice. In less than one-third of the cases the intestines were wounded. It is a little remarkable, said the author, that there should be such a disproportion in the number of intestinal wounds in these cases; in other words, it is a singular fact that in a large majority of abdominal wounds the intestines escape injury, even when such wounds are extensive. Transverse and longitudinal stab wounds of the intestines were then considered at length. Dr. Brown regards the saber wound as one of the most dangerous in its immediate and remote

results. If the edge and point of the saber are sharp, the wound inflicted is large and deep. The weapon cutting through the intestines and mesentery, usually passing through the abdomen, severs large blood vessels and causes frightful hemorrhage, which is speedily fatal. He had seen three saber wounds of the abdomen, and they ended fatally in a brief time. The stiletto is a dangerous instrument, as it almost invariably enters an intestine or other organ. It does not kill by hemorrhage usually, but makes an opening in the intestine sufficiently large to permit the escape of a small quantity of fecal matter, causing septic inflammation. It is one of the most difficult of all intestinal wounds to detect.

The diagnosis of intestinal wounds was then dwelt upon, reference being made to Senn's hydrogen gas test to detect wounds of the intestine. While he considered it a useful test, in remote sections of the country far from large cities and towns, it is not practicable because of the impossibility of procuring the apparatus and generating the gas. In all abdominal stab wounds, the author's rule has been, after cleansing the hands and thoroughly disinfecting them, to insert the index finger and explore the intestine to ascertain if there is an opening. In certain cases a wound may exist in the intestine, but it may be so small as to escape detection. But if the intestine is wounded, whether we can insert the finger or not, there is always more or less extravasation of fecal matter and gases, and if the finger comes in contact with this matter it is certain to retain for a length of time the peculiar odor of human feces. This will always afford positive evidence of an intestinal wound.

In treating simple wounds of the peritoneum, the author's rule has been to close them with silver wire sutures after thorough disinfection. Formerly he closed these wounds without regard to antiseptic measures, except that the wound was washed with hot water and soap. On the battlefield and in field hospitals, wounds were washed with any water that was convenient, and were not washed at all when water could not be obtained. Previous to the introduction of antiseptic treatment in dressing wounds, but little attention was paid to the condition of instruments, sutures, sponges or dressings except the practice of ordinary cleanliness, and the percentage of cases of healing by first intention of simple wounds of the peritoneum was large. In dressing simple wounds of the peritoneum, scrupulous attention should be paid to the laws of cleanliness. In treating wounds of the intestines, two vital procedures are necessary. One is a complete and thorough closure of the intestinal wound; the other is to cleanse the peritoneal cavity of all fecal matter, blood and gases escaping from the intestine. Dr. Brown then described a simple method of reducing a protruded intestine in stab wounds. He takes two long slender curved needles, threaded each with a silken cord ten or twelve inches long. One of these needles is passed midway through the margin of the wound; the other needle is passed through the opposite margin and then each cord is tied in a separate loop. These cords are drawn in opposite directions by two assistants, upward and outward, firmly and tightly. By this means the wound is made to expand or gape widely, and at the same time the walls of the abdomen for a large area around the wound are very considerably elevated above the intestines, while the patient reclines in the dorsal position, and a considerable vacuum is in this way created and the intestines will glide back without force or manipulation to fill this newly created vacuum.

DR. RICHARD DOUGLAS, of Nashville, said that in peritoneal wounds we always have a mixed infection, which is more serious than an infection from the colon bacillus. Peritonitis, whether local, adhesive, general or septic, should be considered of germicidal origin. In closing the abdominal wound, he thinks it is proper to always approximate the peritoneum, as by so doing we lessen the danger of hernia.

DR. C. A. L. REED, of Cincinnati, expressed himself as being apprehensive about mere exploration with the finger to detect stab wounds of the intestines. However erudite the tactile sense of the surgeon may be, at times it would prove misleading, and therefore in certain cases it was exceedingly important to enlarge the original incision or wound, and that part of the viscera lying immediately beneath it should be brought out and carefully inspected. He believes with Dr. Douglas that the peritoneal margins should be carefully approximated.

DR. JAMES EVANS, of Florence, S. C., related an instance where nine men had received chest wounds by the bayonet during the war, the bayonets having been previously stuck in the ground, and yet all of the men recovered. He attributes their recovery to the form of wound made by the bayonet.

net. In another case, a man had been shot within half an inch of the navel. He had no rise of temperature, yet when he saw the patient the omentum had extruded to the size of his both hands. He applied a double ligature, then put a piece of adhesive plaster over the surface, and the man recovered. He had frequently seen gunshot wounds of the abdomen during the war in which there was extravasation of fecal matter through the wound but unaccompanied by shock.

Dr. A. VANDER VEER, of Albany, had always made it a practice to first inquire carefully as to the kind of weapon by which the wound is made. He had seen several of the wounds inflicted by bayonets during the war, but does not remember of having seen the intestines or stomach penetrated by them. There should be no delay in treating stab wounds. The surgeon should act promptly and not wait for symptoms to present themselves. Just as a case of perforative appendicitis will terminate fatally in a short time, so will stab wounds of the intestinal tract, unless timely interference is resorted to.

Dr. HUGH T. NELSON, of Charlottesville, Va., said the necessity of enlarging the abdominal wound, under all circumstances, was an imperative one. Four years ago he saw a case in which the small bowel was wounded by a knife and the patient refused operation for twenty-four hours, believing that this viscus was not cut. Symptoms became alarming and the patient finally consented to have an operation performed. Dr. Nelson opened the abdomen by a long incision, finding it impossible to remove from the peritoneal cavity the extruded contents of the bowel, owing to the fact that an adhesive inflammation had taken place and had agglutinated them to the bowel so firmly that he could not wash them away. He attempted to resect the peritoneum into the pelvic cavity where the fecal matter had burrowed, but could not do so. Peritonitis became general and the patient died. The sooner the abdominal incision is enlarged in stab wounds the better.

Dr. GEORGE ROSS, of Richmond, asked whether there was any way of distinguishing between the symptoms of nervous shock and shock due to hemorrhage.

Dr. BROWN replied, that one of the most unerring symptoms was rapid reduction of temperature, but there was no symptom that would enable the practitioner to distinguish accurately between the different forms of shock except the gravity of the condition.

Dr. W. E. B. DAVIS, of Birmingham, desired to speak of the point in reference to injuries of the gall bladder. The essayist referred to the fact that injury to this viscus would produce a septic peritonitis. An injury that would produce peritonitis would result in death very soon if there is a large escape of bile into the peritoneal cavity, but Dr. Davis does not believe it is a septic peritonitis. He believes that in the majority of cases the shock following abdominal injuries is due to hemorrhage, and that hemorrhage plays an important rôle in the production of symptoms in these injuries. It was the hemorrhage from these wounds that frequently caused death.

Dr. JOHN D. S. DAVIS, of Birmingham, expressed himself in regard to the diagnosis of intestinal wounds, as having very little confidence either in Senn's hydrogen gas test, or the flushing method spoken of by the essayist. He had seen perforative wounds of the abdominal viscera where it was impossible, from their character and location, to flush the abdominal cavity through the opening sufficiently to thoroughly clean it. In addition to the three forms of shock mentioned by the essayist, there should be added the shock of sepsis.

Dr. BROWN, in closing, agreed with Dr. W. E. B. Davis that all cases of violent or dangerous shock were due to hemorrhage. In regard to approximating the peritoneum, he had always left it untouched in closing simple wounds in the abdominal wall, and had found it good practice.

REPORT OF SEVEN CASES OF ABDOMINAL SURGERY IN WHICH THE MURPHY BUTTON WAS APPLIED.

This paper was read by Dr. A. VANDER VEER, of Albany N. Y. The author stated that the seven cases he desired to present had a bearing upon the use of the Murphy button which is now receiving attention both in this country and abroad, and as a method of intestinal anastomosis is being placed thoroughly on its merits. It is difficult to understand some of the unfavorable reports made by English and German surgeons, when we contrast the very successful results indicated by so many of our American operators, in the practical application of this mechanical device. Perhaps there is no part of surgery that within the past quarter

of a century has presented so much in theory, and in which there has been so much disappointment, when practical use has been made of the suggestions, as in the field of abdominal work, with all its complications. In other words, how much we have changed from time to time our methods of treatment of many complications, and yet withal there have come certain reliable advances that have met all requirements for which they were indicated, leaving permanently in our possession the comforting thought that a grand progress in the sum total has been made; that we can treat all manner of pathologic conditions, traumatisms, malformations, etc., of the intestinal tract and abdominal cavity with less embarrassment than perhaps in any other part of the body, and yet there are very few portions of the human system upon which we operate where more rapid thought and best judgment are to be employed than in abdominal work.

The first case was one in which gastro-intestinal anastomosis was made for carcinoma of the pyloric end of the stomach by means of the medium-sized Murphy button, between the upper end of the jejunum and greater curvature of the stomach. Patient was comfortable after the operation but died from exhaustion on the third day.

Case 2 was carcinoma of the sigmoid flexure, removal and end-to-end anastomosis. Operation consisted in removing a mass in connection with the sigmoid flexure, three inches in length, and an anastomosis of the large intestine by means of the button. Cause of constriction was found to be carcinoma. Patient died from exhaustion on the eleventh day, but was much exhausted and emaciated previous to the operation.

Case 3. Removal of gall stones from the gall bladder, using the long drainage tube button. Recovery.

Case 4. Removal of eight inches of the small intestine with papillomatous ovarian cyst. End-to-end anastomosis by the button. Perfect recovery.

Case 5. Anastomosis of the gall bladder with small intestine. Recovery.

Case 6. Operation revealed a tumor the size of a cocoanut in the immediate vicinity of umbilicus, a portion the size of a silver dollar implicating the umbilicus and in a gangrenous condition. On making an incision there was found a strangulated hernia, and many old and firm adhesions. Peritoneum intensely congested; very dark in color. Loop of small intestines included in tumor and gangrenous for space of ten inches. Vessels in mesentery secured and this portion of the intestine excised. Murphy button used for end-to-end anastomosis. Button passed thirteen days after operation, followed by a large movement of the bowels. Uninterrupted recovery.

Case 7. A diagnosis of biliary calculi was made in this case. Dr. Vander Veer made the usual incision for exploration of the gall bladder, found it containing about two ounces of bile, and through the walls and down into the cystic duct could be felt a number of small calculi. There were some adhesions. He made use of the long drainage tube button to the fundus of the bladder, and closed the wound, after a careful examination for any possible cancerous mass, which was not found to be the case, then placed the patient in bed. He regarded the use of the button in this instance as a saving of time, leaving the patient in good condition for removal of the gall stones later. Several days after he had made the exploratory incision the attending physician removed five irregularly shaped calculi, which Dr. Vander Veer exhibited. At this time the patient began to show marked symptoms of cerebral anemia, with delirium, which continued, patient finally passing into a comatose state and died, temperature just before death reaching 105.5 degrees. Dr. Vander Veer said that although the cases he had reported were not many, yet they covered a field in which the Murphy button might be made use of so readily and easily, and the result so satisfactory, that he had considered them worthy of attention as having a bearing upon statistics. He believes he had given a just criticism of the accumulation of facts, so that we could reach and determine definitely as to the value and usefulness of this contrivance. The Murphy button will not answer for every lesion about the intestinal tract, but surely has its sphere of usefulness, being clean, easily handled, and saves the patient from a much longer operation, when time alone is the great desideratum, which can not be secured by some of the other methods.

Dr. H. H. GRANT, of Louisville, followed with a paper entitled:

INTESTINAL RESECTION AND ANASTOMOSIS.

The Doctor said there had always been a division of judgment upon the question of immediate suture in acute ob-

struction or injury, requiring resection of the intestine, which even the improvements in technique and means of aid in operative work have not adjusted. The members were all familiar with the Murphy button and doubtless many had employed it. What it is intended to do it does well; but too often it does what is not intended, and disaster and death result. There is abundant evidence that it becomes a foreign body; that it occasions spreading necrosis, which involves the peritoneal coat; that recontraction takes place after lateral anastomosis; that fatal results are frequently directly attributable to its use, besides other less important objections.

Lateral anastomosis is now beyond all question the most acceptable method of resection of the continuity of the bowel, if we exclude the button. It is best to accomplish by direct suture, and direct suture is of difficult execution except in very skilled hands. In order to facilitate this suture, Dr. Grant presented a device for clamping opposing surfaces of the bowel, cutting off fenestra between them, and retaining them so opposed until the suture can be completed. He then demonstrated the *modus operandi* of his device. He had experimentally used the clamp sixteen times with fourteen consecutive recoveries, but he had had but one opportunity to use it in practice. On May 25 he operated on Mrs. E., aged 53 years, who had a fecal fistula at the right femoral opening, the result of a strangulated hernia, operated on eight months ago. An incision was made just above Poupart's ligament near the fistulous opening. The fingers easily liberated the intestine, which presented an opening occupying half of its lateral surface and as large as a quarter of a dollar. The mesentery was greatly thickened; the distal segment of the bowel was reduced in size, the proximal dilated at the site of the fistula. About four inches of the intestine was resected; the blades of the clamp were applied opposite the mesenteric borders of each segment, and the anastomosis made as above described. After suturing, the communication between the opposing surfaces was found ample. The cut ends were then invaginated and the anastomosis returned; the abdominal wall closed with silkworm gut sutures; the site of the fistula curetted and filled with iodoform gauze and the patient put back to bed in forty-two minutes. There was very little shock. At the present time the patient is well. The advantages of this method over the other aids, except the button, are manifest. Not only does it do away with the foreign body, but cuts an opening three or four inches long at the fenestra. It is fully as easily accomplished, and takes less time. It is no more difficult to use than is the button, but the operation can not be so quickly completed, as the invagination of the ends is not necessary after the end-to-end approximation by the button. The clamp makes direct suture easy to an ordinarily skilled hand.

Dr. C. A. L. REED said experience would establish the fact that the Murphy button ought not to be used in approximation of the large intestine, for the reason that the intestinal contents were not sufficiently liquid to pass through the small opening in the button. In the small intestine it is different. There we have liquid contents that will pass through the opening in the button and the approximation is satisfactorily accomplished. Dr. Reed reported a case of resection of the sigmoid for malignant disease (which terminated fatally) in substantiation of the above remarks, the anastomosis being made by means of the Murphy button. He commended the device presented by Dr. Grant, and although he preferred the end-to-end procedure, he would try the device in the next case in which he performed lateral anastomosis. Cholecystenterostomy by means of the Murphy button was one of the easiest, neatest and altogether most satisfactory operations known to surgery.

Dr. JOSEPH M. MATHEWS, of Louisville, said he had taken occasion more than once to call attention to the difficulty that attends diagnosing tumor of any kind in the sigmoid flexure. Time and again he had been mistaken, as he believed others had, in supposing he had a malignant tumor of the sigmoid when he had not, and supposing, on the other hand, that he did not have when he really did. A few years ago a patient was brought to him from an adjoining State, and from evidence outside of palpation he believed that the man had malignant trouble of the sigmoid flexure. A few days thereafter he was taken to Chicago, was examined by a very eminent surgeon, who positively stated that there was no tumor of any kind in the flexure, and advised the patient to go home and go to work. In less than a week the man was dead. Autopsy revealed carcinoma of the sigmoid flexure. His reasons for opposing resection of the sigmoid and making anastomosis by the Murphy button were in substance the same as Dr. Reed's. Cancer in the sigmoid flexure was

not only usually attended by systemic infection, but there is an involvement of other organs and tissues of the body. He would therefore ask, could a man live any longer after a surgeon had removed the tumor than he would if it was left untouched? Grant that there is total obstruction, would it not be better to perform colotomy and let the man live out his allotted days with cancer in a more pleasant way than he would if an operation were done? In lieu of this, it had occurred to him that the plan suggested by Dr. Bacon, of Chicago, of anastomosing the colon to the rectum, leaving the growth there, would be a more favorable operation than extirpation of the carcinoma.

Dr. A. M. CARTLEDGE, of Louisville, said in doing a cholecystostomy there was not much time saved by using the Murphy button, and it was not as useful as the ordinary method of suturing. He thought this was well illustrated in one of the cases reported by Dr. Vander Veer in which there was a passage of stones after the operation, and where it was necessary on account of the extremely feeble condition of his patient. In cases with numerous small calculi extending into the cystic and common ducts, he had made a comparatively large incision in the gall bladder and sutured it to the peritoneum, where the stones could not be removed, and they would then pass for days externally through the drainage tube. The orifice in the button is too small to permit the stones to pass, whereas they would escape through a drain and come out. He expressed himself in favor of Dr. Grant's device, and considered it an excellent one for lateral anastomosis.

Dr. W. E. B. DAVIS believes the Murphy button can be used to advantage in intestinal work where it is necessary to do operations quickly; otherwise the method of stitching similar to that practiced by Abbe is better, is more certain, and accidents are not so likely to follow it as by the use of a mechanical appliance which is non-absorbable. Cholecystenterostomy by the button should be resorted to only in those cases where it is impossible to remove the obstruction in the common duct. The old method, as pointed out by Dr. Cartledge, is decidedly better in the other class of operations.

Dr. VANDER VEER, in closing, was satisfied that end-to-end anastomosis with the button in the large intestine was not likely to be a satisfactory procedure, inasmuch as the caliber of the button was such as not to permit of the passage of hardened feces through it, while in the small intestine the feces would easily pass through the orifice in the button. He believed Dr. Grant had presented an appliance that would be of value to the profession. The fact that new devices were being presented from time to time before medical gatherings for intestinal anastomosis was ample evidence that we had not yet reached an ideal method. The Murphy button is an excellent device in the performance of cholecystenterostomy and other operations.

Dr. GRANT believes that any surgeon of ordinary skill with his device, after having the two surfaces of the bowel directly opposed, can suture them without soiling the peritoneum or letting them slip away.

Dr. J. McFADDEN GASTON, of Atlanta, Ga., read a paper on

SURGICAL INTERFERENCE IN RECTAL DISORDERS.

After outlining the anatomy of the rectum, the author said it is a mooted point in regard to the practicability of eradicating rectal troubles of syphilitic origin by medication, and with the present light on the subject it seems justifiable to resort to such a surgical measure as the condition indicates, while constitutional treatment is being carried out in the case. There are instances of supposed development of specific disease in the form of stricture of the rectum, after the lapse of many years subsequent to any syphilitic contamination, and some authors claim their ability to diagnose specific stricture even without a previous history of primary syphilis. Strictures of the rectum from fibrinous depositions in its walls, call for division or excision of the structures involved. When carcinomatous induration of the rectal tissues is detected early, there is encouragement to undertake an operation, but after the breaking down of the neoplasm with infiltration of surrounding structures, no benefit is derived from excision of the parts involved. The rectum affords material for surgical work of the most important character, and it should not be relegated to those professing to deal with so called official surgery. Dr. Gaston is fully impressed with the conviction that many cases find their way into the hands of quacks which ought to be treated by members of the regular medical profession, and preferably by those who have made a special study of rectal diseases and are prepared to treat properly all the surgical

disorders of the rectum. Reference was then made to a paper by Dr. Gerster, read before the American Surgical Association, upon the surgery of the rectum, in 1893.

The burning and urgent appeal to the surgeon to-day is for a definite settlement of the issue as to active interference in cases of pronounced cancer of the rectum. Shall we content ourselves with the mere palliative measure of inguinal colotomy and leave the diseased structures untouched, as urged by Dr. Mathews in his paper before the AMERICAN MEDICAL ASSOCIATION, or shall we endeavor to remove all the tissues involved by extirpation, as recommended by Dr. Gerster. The full statistics of results in the hands of skilled operators ought to be collected and a fair analysis made before a final adjudication of the question can be reached. The materials for such a comparison should be obtained from cancer hospitals in this and other countries, as well as from general hospitals receiving and treating this class of patients, and being grouped together a fair inference may be drawn as to the feasibility of active interference in any case of carcinoma of the rectum.

DR. J. M. MATHEWS said the essayist incidentally alluded to fissure of the rectum giving rise to reflexes. He was glad he mentioned this, simply to emphasize the point, that to have reflexes from the rectum we must have a pathologic condition. The so-called official surgeons had run wild with reflexes from the normal rectum, and as a consequence many respectable citizens in his own city had lost healthy rectums. In regard to stricture of the rectum, his observation has been that benign rectal stricture is very seldom met with. There were cases, however, mentioned by authorities, but Dr. Mathews had failed to find them. If he does find it, it is simply an annular constriction of the mucous membrane which is easily dissipated. It does not require excision. When the surgeon introduces his finger into the rectum and finds stricture there, it betokens one of three serious diseases—syphilis, tuberculosis, or cancer, and the patient should not be turned aside with a jesting remark that he has a rectal stricture. It is a serious thing. He maintains that 60 per cent. of the cases of stricture of the rectum arise from syphilis, or are the result of it. He had asked his professional friends to investigate this matter and make known their investigations. The responses he had received were nearly all in the affirmative. He regards stricture of the rectum as more frequent than either cancer or tubercle. With reference to excision of the rectum for a cancer that has blocked the rectum to the sigmoid flexure, in nearly every instance we have systemic infection. This being the case, can the man be cured by surgical interference? He wished, like Dr. Gaston, we could successfully remove the rectum for cancer, but he doubts it.

DR. H. M. NASH, of Norfolk, Va., had seen a number of cases of ulcer of the rectum cured by dilatation of the sphincters and topical applications. He uses the Sims' speculum, placing the patient in the exaggerated Sims' position, which gives the operator all the room he wants for manipulation in the rectum.

DR. GASTON, in closing, congratulated Dr. Mathews on his attitude of masterly inactivity in a great many cases of carcinoma of the rectum.

-Adjourned.

(To be continued.)

NECROLOGY.

FRANKLIN TOWNSEND JR., M.D., died at Albany, N. Y., October 31. He had been an invalid for many months, suffering from a complication of diseases, terminating in consumption. His specialty was diseases of women and children, and he was the author of many valuable papers pertaining to the subjects. He is survived by his widow and two young sons. He was graduated in 1876, from the College of Physicians and Surgeons, New York.

EDWARD J. HARVEY, M.D., died suddenly October 27, at his home in Red Bank, N. J., of heart disease. He was 54 years old. He was born in Brooklyn, where he practiced for many years. He inherited a handsome fortune, and decided to give up his practice and moved to Red Bank about fourteen years ago. A widow and five children survive him. Dr. Harvey, soon after removing to New Jersey, rendered his name memorable by rescuing one or more persons from

drowning, in the course of which rescue he performed the difficult task of resuscitating the inanimate rescued person while in the circumscribed space of a small row-boat. He was an alumnus of the Long Island College Hospital in the year 1874, and during his residence in Brooklyn was a member of Kings County Medical Society.

THOMAS F. YOUNG, M.D., of Brooklyn, died October 26, aged 28 years. He was the son of the late Dr. John S. Young, of the same city who died a few weeks since. He was a native of Brooklyn, and a graduate from the Long Island College Hospital, about four years ago. He was like his father before him, an employe of the Department of Health. His illness by pneumonia was of brief duration.

H. W. RAND, M.D., of Brooklyn. A minute in memory of the late Professor Henry W. Rand has been placed on the records of the Faculty of the Long Island College Hospital. It commemorates the loss of the college in his departure, and its appreciation of the estimable qualities of the deceased, saying:

"Our admiration for the man was the highest and most enduring, and was inspired by his many noble qualities of head and heart. In all his relations to us, the teaching faculty of this institution, he was always honest, honorable, earnest and competent. He was securely established upon the highest plane of professional success, and while we were rejoicing in the hope that he would continue his good work for many years, he was suddenly called hence."

RICHARD B. FRUIT, M.D., died at his home at Hazleton, Pa., November 10. Dr. Fruit was born at Jerseytown, Columbia Co., on August 12, 1827. In 1854, he was graduated by Jefferson Medical College and located in Hazleton immediately after, remaining there ever since. In 1855 he was married to Miss Jennie E. Longshore, daughter of Dr. Longshore. His wife died seven years ago. Three children survive the union. Dr. Fruit continued to practice medicine until four weeks ago, when he was stricken with apoplexy. From this stroke he never recovered. When Hazleton was incorporated as a city four years ago, Dr. Fruit was selected as President of the Board of Health. This position he held until the time of his death and was his only public office.

JOSEPH WILLIAM BROCKBANK, M.D., died of pneumonia at his home in Philadelphia, November 7. He was born in Elk County, Pa., July 18, 1862. He began life as a teacher in the public schools, but becoming interested in medicine, took up its study and was graduated at the University of Maryland in 1883. He settled in Philadelphia, in a suburb known as Nicetown, when he practiced until a week before his death. He was one of the originators of the North Philadelphia Hospital, of which he was appointed chief of the surgical staff. This was the predecessor of the Samaritan Hospital which continues in active operation under the management of Grace Baptist Temple. Dr. Brockbank leaves a widow.

GEORGE FOLLANSBEE JACKSON, M.D., of New York city, died November 10, from apoplexy. He was born in Pittston, Maine, on Oct. 7, 1827. He was a graduate of Bowdoin College; taught school; studied medicine in Gardner, Maine, under Dr. G. S. Palmer as a preceptor, and finally graduated in 1853 from the Jefferson Medical College. He gave much attention to school matters in his ward, having been an inspector for ten years before his death.

DWIGHT MORGAN LEE, M.D., of Oxford, N. Y., who died October 5, of angina pectoris, was one of the prominent practitioners of Chenango County. He was a native of Georgetown, N. Y., having been born there nearly fifty-three years ago; the son of Hiram and Miranda Bacon Lee. He was a graduate from the Albany Medical College in 1864, and directly thereafter settled for the practice of his profession at Oxford. Interment took place at Riverview Cemetery.

CHARLES BARTOW, M.D., formerly of the staff of the Presbyterian Hospital, New York city, died at Astoria, L. I., on October 26. He was graduated at Columbia College in the class of 1891, and took his degree of Doctor of Medicine at the College of Physicians and Surgeons in the class of 1894, graduating with high honors, and winning the second Harsen prize of his year.

ROSS O. SIDNEY, M.D., of Brooklyn, died October 31, in his seventy-fourth year from a brief illness by pneumonia. He was for twenty-five years a resident of Brooklyn, and at one time prominent in political affairs. He was an alumnus of the class of 1846, of the University of Pennsylvania.

JOHN LLOYD ZABRISKIE, M.D., of Brooklyn, N. Y., died suddenly while away from his home on the 11th inst., in his sixty-fifth year. He was the eldest son of Dr. John Barrea Zabriskie, who married Miss Abby Lefferts Lott of Flatbush, a member of one of the oldest families on Long Island; she died in 1848. John Lloyd Zabriskie was born on August 26, 1831, in the old house of the Zabriskie homestead, which stood until a few years ago at the corner of Flatbush Avenue and Church Lane, just in front of the present family residence. It had stood there for two hundred and twenty-five years, and was the oldest house in Flatbush. His early education was acquired at Erasmus Hall Academy. He then entered Columbia College and took a literary course. After graduating from Columbia he studied medicine with Dr. J. M. Ingraham of Flatbush, who had been his father's most intimate friend, and at the same time attended lectures in the New York Medical College, and was graduated in 1853. In 1861 he married Miss Eliza B. Garvin, and their union has been a most happy one. The friends of the dead man say that there was not in all Brooklyn a home more refined, more hospitable or more exemplary as to the purity and peacefulness of the family life than the Zabriskie home. Although a busy physician, Dr. Zabriskie found time to indulge his fondness for music. He had a cultivated voice, and was an accomplished performer on the violin. His sunny disposition, his kindness, sociability and his sincerity made him good friends everywhere. He was a member of the Kings County Medical Society, consulting physician at the Kings County Hospital, a member of the Board of Education, an elder of the Dutch Reformed Church and a member of the Knickerbocker Field Club. He had for many years been identified with the Medical Board of the Long Island College Hospital. He has left a widow and three children, of whom two are sons who have elected to follow their parent in the medical profession. One of the sons is at present studying pathology at the University of Berlin. The cause of Dr. Zabriskie's sudden demise is set down as heart disease, culminating in angina pectoris. The profession has lost in Dr. Zabriskie one of its staunchest and sincerest supporters.

PUBLIC HEALTH.

The Pasteur Institute of New York and Its New Serum Plant.—

It is reported that an out-of-town extension of this Institute will be made. The conductors have made a purchase of thirty-five acres near Tuxedo, on which will be established an experiment station. It will be stocked with cows, horses, sheep, mules and goats, which will be bred with the express idea of producing antitoxin for the prevention of cancer and diphtheria. This substance sells for a high price and its manufacture will be very profitable. The station is well located, and one of its features will be a house in which the patients of the Institute will be treated. A new station is to be established on the Erie Railroad near by, which will be known as Pasteur.

A Miniature Hospital in the Home.—In the *Practitioner* for September, Dr. Malcolm A. Morris, of London, favors the proposition that in planning a house, regard shall be had for the future needs of the occupants in the time of sickness. His recommendation is that one room should be set apart in design as the sick room. This room should be shut off as much as may be from the common atmosphere and common noises of the dwelling—or, rather, it should be so arranged that it can be shut off at any time—and there should be a bath room and water closet close at hand. The walls and floors and other surfaces should be impervious, so as to harbor no impurities and to admit of ready cleansing, and the furniture and fittings should be simple, with the same object.

If in addition there should be a second room available for the nurse's use, the essentials for the proper seclusion of infectious cases are provided, as far as possible in a private house. A miniature hospital is then ready at hand, and at ordinary times it can serve as a spare room or even as a bedroom in regular use, differing only from any other room in its adaptability to the special purpose in question. This plan should be especially welcome to the paterfamilias in whom the home feeling is active, and whose olive branches sprout out thick and fast. To such an one the little private ward may be a positive and blessed economy in saving the doctor's bills that are apt to pile up where the children's diseases—as they are improperly called—take a run through the family. This incentive is apart from the higher economy that may also take place, namely the saving of the lives of some of the juniors of the family.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Detroit and Rochester, smallpox reported November 9.

SMALLPOX—FOREIGN.

Glasgow, October 19 to November 2, 9 cases.
London: October 19 to November 2, 5 deaths.
Naples: October 19 to November 2, 6 cases, 6 deaths.
Odessa: October 19 to November 2, 6 cases, 1 death.
Warsaw: October 12 to 19, one death.
Montevideo: October 5 to 12, 5 cases, 3 deaths.
Buenos Ayres: August 1 to 31, 41 deaths.
Dublin: October 26 to November 2, 3 cases, 1 death.
Buda-Pesth: October 21 to 28, 2 cases.
Calcutta: September 21 to 28, one death.
St. Petersburg: October 19 to 26, 3 cases, 3 deaths.

CHOLERA.

Bombay: October 8 to 15, 2 deaths.
Calcutta: September 21 to 28, 35 deaths.
Yokohama: September 20 to October 11, 10 cases, 9 deaths.
Austria-Hungary: October 15 to 21, 57 cases, 32 deaths.
Russia: Volhynia Govt., September 1 to 7, 4,237 cases, 1,668 deaths; September 8 to 15, 3,554 cases, 1,417 deaths; Podolia Govt., September 1 to 15, 51 cases, 19 deaths; Primorstajah-zirk (Siberian Russia), July 30 to September 18, 82 cases, 58 deaths.

Egypt: Damiatta, October 11 to 16, 15 cases, 8 deaths.

YELLOW FEVER.

Cuba: Santiago, October 26 to November 9, 29 deaths; Sagua la Grande, October 26 to November 2, 3 cases; Cienfuegos, November 3 to 10, 1 death.

BOOK NOTICE.

The Diseases of Children's Teeth, their Prevention and Treatment. A Manual for Medical Practitioners and Students. By R. DENISON PEDLEY, M.R.C.S., L.D.S., F.R.C.S. Illustrated. 8vo, cl. London: J. P. Segg & Co. Philadelphia: The S. S. White Dental Mfg. Co.

This work is intended to supply information on the nature and treatment of diseases of the teeth to students and general practitioners of medicine. More particularly, says the author, for those who "settle down in the country where the area of practice is wide and the opportunities of obtaining skilled dental assistance are few." Notwithstanding the fact that it was particularly intended for the especial class mentioned, yet it is evident on inspection, that the work may be read by many dental and oral surgeons with profit. While American dentistry has forged ahead in the international race for superiority with gigantic strides, still we suppose our practitioners may be interested in the elementary work of our British cousins—but the general practitioner of medicine who can not and does not wish to reach the high plane of the metropolitan dentist, will find that there is very much to interest and instruct him in this little volume; indeed we scarcely know what other work "fits that particular niche" with such nicety.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, NOVEMBER 23, 1895.

POST-TYPHOID BONE LESIONS.

Typhoid fever may have many sequelæ, and not the least interesting and important of these are the post-typhoid bone lesions which have attracted considerable attention, both before as well as after the discovery of the specific cause of typhoid fever. As would be naturally expected, the identification of the EBERT-GAFFKY bacillus as the specific cause of typhoid fever has been followed by a thorough investigation of the post-typhoid bone lesions and the results have established an undoubted relation between them and the primary typhoid attack.

EBERMAIER¹ obtained the bacillus of EBERTH in pure culture from two instances of suppurative periostitis following typhoid fever. ORLOFF² and ACHALME³ found the same bacillus in pure growth under the same conditions. Others have made similar observations. PEAN and CORNIL⁴ describe necrosis of the tibia, occurring eight months after recovery from typhoid fever, in which the bacteriologic examination showed the typhoid bacillus associated with other organisms, and FASHING⁵ and E. FRAENKEL⁶ both found the typhoid bacillus associated with pyogenic microbes under similar conditions. Then there are also examples of post-typhoid bone affections associated with the pyogenic cocci only. Such post-typhoid inflammatory and suppurative lesions in the bones may consequently be produced by the ordinary or less common pus microbes alone or associated with the bacillus of typhoid fever and careful investigations have also shown that they may be caused by the latter microorganism alone.

Naturally, the question of the pyogenic properties of the typhoid bacillus is of much interest in connection with the sequelæ. ORLAFF⁷ and ADENOT⁸ both

caused suppuration in dogs and rabbits by the subcutaneous inoculation of pure cultures of the typhoid bacillus. More recently this problem has been subjected to an elaborate experimental investigation by DMOCHOWSKI and JANOWSKI,⁹ and these workers reach the apparently incontestable conclusion that there is no animal tissue in which the bacillus typhosus may not cause suppuration under suitable conditions. Inasmuch as the pyogenic staphylococci and streptococci cause suppuration in various tissues only under what may be called suitable circumstances, it follows that the typhoid bacillus is similar to them in this respect, and it may be said that it is now settled beyond all doubt that the bacillus of typhoid fever when in possession of a certain degree of virulence, possesses distinct pyogenic properties.

A satisfactory explanation of the occurrence of bone lesions after typhoid fever has not as yet been advanced, but many valuable observations bearing on this point have been made. Thus QUINCKE¹⁰ demonstrated the presence of the typhoid bacillus in the spleen and the bone marrow, especially the ribs, as late as the seventh week of the disease. In nine cases examined, eight showed the organism in the rib marrow. It has also been shown that this bacillus has a very marked tenacity of life outside of the body. Now these points certainly throw some light on the development of post-typhoid bone lesions at periods long after the attack of the febrile disease, but the causation of a distinct necrosis in one instance and not in another is the problem that baffles all efforts at explanation.

Very recently PARSONS¹¹ reviews this subject of post-typhoid bone lesions and describes six cases observed in the surgical clinic of the Johns Hopkins Hospital. Four of these six cases were in men and two in women. The period after recovery from typhoid fever at which the lesions appeared varied from one to sixteen months. The character of the typhoid attack did not bear any relation to the occurrence of the bone changes. It is interesting to note the general fact that the symptoms of the bone infection, almost without exception, come on some time after convalescence has been well established. In one case¹² only did the bone changes manifest themselves during the course of the fever. In PARSONS' cases the lesions were situated in the ribs or the costal cartilages in three instances, in the tibia once, once in both tibiæ, and once in the left radius and the right tibia.

From the cases described in the literature it appears that almost any bone in the body may be involved, but that the tibia is undoubtedly the bone of choice, the instances in this situation greatly predominating, whereas the hands and the feet are remarkably free.

From the bacteriologic notes accompanying the cases described by PARSONS, it is seen that the

typhoid bacillus was present in pure culture in four out of the five cases that were examined; the remaining case was one of mixed infection, a focus in the radius showing the typhoid bacillus associated with the staphylococcus pyogenes citreus, and a focus in the tibia the staphylococcus pyogenes aureus only.

Usually, the first symptom of a post-typhoid bone lesion is pain. Sometimes this will be complained of while the patient is still in bed convalescing from the typhoid fever, at other times the pain will appear soon after getting up and about. The pain is usually localized and almost invariably involves the region subsequently the seat of the necrosis. This pain has been likened to the bone pains of secondary lues. Usually, this pain subsides and may leave a little soreness over the formerly painful spot. Simultaneously with the pain, a slight swelling usually occurs which disappears with the subsidence of the spontaneous pain. Now, in some cases the trouble soon recurs with pain, swelling and indications of necrosis; in others this may be delayed for months; in other cases, again, there may be repeated exacerbations and remissions that never seem to be followed with necrosis. As a rule, there is an entire absence of fever, and the clinical course is marked by a peculiar chronicity.

In one of the cases described by PARSONS, the swelling that formed underwent resolution; it had appeared during convalescence just above the left costal margin; eight months post-typhoid it again appeared and subsided to make its third appearance about one year after the onset, after which it disappeared again leaving a painless induration.

The chronicity of this post-typhoid process in the bones, which seems to be a characteristic feature especially of these cases that are found to be due to a pure infection with the typhoid bacillus, has caused it to be considered by some as analogous to the cold suppurations of tuberculosis and the necrosis of syphilis. Histologic examination of the diseased tissue has failed to reveal anything that could be considered characteristic of, or peculiar to, these lesions, although some authors speak of the changes due to the typhoid bacillus as partaking more of the nature of a pure necrosis than of typical suppuration as shown by the examination of the pus; the usual appearances under the microscope show a marked round cell accumulation with a greater or less leucocytic infiltration.

The diagnosis of such cases would rest largely upon the history of a previous typhoid fever, or perhaps of some indefinite continuous fever. The occurrences of inflammations in bones during or after convalescence is suggestive of a pure typhoid infection, whereas the mixed infections in bone and soft parts, and the typhoid infections in the soft parts are seen more frequently during the course of the disease.

As a rule, the prognosis is good, although a fatal case of disease of the femur showing association of typhoid and colon bacilli has been reported by KLEMM.¹³

Complete excision of all the diseased and suspected tissue appears to be the most satisfactory treatment. Mere excision is not sufficient, because it has been so often found that the microorganisms will persist in the wound for an almost indefinite length of time.

THE PHYSICIAN IN OREGON.

The legislative assembly of the State of Oregon, in its 1895 session, passed a new law for the regulation of the practice of medicine and surgery, which, in some of its features, is of more than local interest. Among other things, it provides that the Governor shall appoint five persons from among the most competent physicians of the State, all of whom shall have been residents of the State for seven years and of at least five years' practical experience in their profession, who shall be known as the Board of Examiners for the State of Oregon. Three of the board shall be regulars, one "eclectic" and one "homeopathist." The full term of office is five years. The board is required to hold meetings for examination on the first Tuesday of January and July of each year, at Portland, and it may call special meetings when in the opinion of a majority of the members it is deemed necessary.

Examinations shall be in anatomy, physiology, chemistry, materia medica, therapeutics, practice of medicine, surgery, obstetrics, diseases of women, medical jurisprudence and such other branches as the board shall deem advisable. They must be both scientific and practical, and of sufficient severity to test the candidates' fitness to practice medicine and surgery. They may be by written or printed, or partly written and partly printed, questions and answers.

The board may refuse or revoke a license for unprofessional or dishonorable conduct, subject, however, to the right of the applicant to appeal, from the decision of the board, to the circuit court. And before a license can be revoked, a complaint of some person under oath must be filed in the office of the secretary of the board, charging the acts complained of; the accused must be served with a written notice and copy of such complaint; a time and place for hearing thereon appointed, and stated in the notice, and the accused be given an opportunity to appear and

¹ Deutsches Archiv. für Klin. Med., Bd. XLIV.

² Centralb. für Chirurg., 1889.

³ La Semaine Medicale, J. X, 1890.

⁴ Bull. de l'Academ. de Med., 1891.

⁵ Wien. Kl. Wochenschr., 1892.

⁶ Baumgarten's Jahresbericht, VI.

⁷ Loc. cit.

⁸ Arch. de Méd. Experimental, J. 1.

⁹ Zeigler's Beiträge, XVII, Bd., Heft. II.

¹⁰ Quoted by Parsons, Annals of Surgery, vol. XXIII, No. 5.

¹¹ Annals of Surgery, vol. XXII, No. 5.

¹² Ebermaier, loc. cit.

¹³ Arch. für Kl. Chir., Bd. XLVII.

defend himself, personally and by counsel, have the sworn testimony of witnesses taken and present other evidence in his behalf.

The words "unprofessional" or "dishonorable conduct," are declared to mean: 1, the procuring or abetting in procuring a criminal abortion; 2, the employing of what are popularly known as "cappers" or "steerers;" 3, the obtaining of any fee on the assurance that a manifestly incurable disease can be permanently cured; 4, the willfully betraying of a professional secret; 5, all advertising of medical business in which untruthful and improbable statements are made; 6, all advertising of any medicines, or of any means whereby the monthly periods of women can be regulated, or the menses reestablished if suppressed; 7, conviction of any offence involving moral turpitude; 8, habitual intemperance.

The person receiving a license shall file the same, or a copy thereof, with the county clerk of the county wherein he resides, and in case he shall move into another county, he shall procure from the county clerk a certified copy of such license and file the same with the county clerk in the county to which he removes.

The penalty for practicing medicine or surgery without a license, or contrary to the law, is a fine of not less than \$50 or more than \$100, or imprisonment in the county jail not less than ten nor more than ninety days, or both such fine and imprisonment. All fines are to be paid into the State treasury for the use and benefit of the common schools.

Any person shall be regarded as practicing medicine within the meaning of this act who shall append the letters "M.D." or "M.B." to his or her name, or, for a fee, prescribe, direct or recommend for the use of any person, any drug or medicine or agency for the treatment, care, or relief of any wound, fracture or bodily injury, infirmity or disease; provided, however, the act shall not apply to dentists in the practice of their dental profession.

THE CRIMINAL BRAIN NOT NECESSARILY DEGENERATE.

At the Philadelphia Academy of Natural Sciences the subject of degeneration was discussed recently by the Section on Anthropology. DR. CHARLES K. MILLS presented the brains of three murderers and demonstrated in them the abnormalities in the course and development of convolutions and fissures, apparently showing a reversal to the brain conformation of anthropoid apes. Two of the murderers were insane, which also was indicative in the mind structural peculiarities.

DR. M. V. BALL dwelt upon the distinction between the "degenerate" and the "atavistic" brain, the former being pathologic; the latter the result of reversion to a lower type. Idiots, insane and epileptic

subjects belong to the degenerate class, while, according to LOMBROSO, born criminals are the result of a halt in evolution, or what is termed reversion. Some criminologists maintain the view that the changes are due to faulty nutrition, and as criminals are usually of the pauper classes, the fault, in that case, would be primarily social.

PROF. D. G. BRINTON declared that because a man's brain showed characters of a lower type, it need not be inferred that he was necessarily criminally inclined. The lower races are often as ethically elevated as many civilized races, and furthermore, men of honest habits may possess brains exhibiting the anomalies referred to. Crime is not so much the result of anatomic, as it is of social conditions; if it were solely physical, we could do little toward improvement, whereas we know that crime can be reduced by better social advantages and an improved environment.

PROFESSOR COPE expressed his belief that physical organization does control action, but an unfavorable environment acts by developing degenerate and physically inferior individuals. Society may do much toward improving the human race by preventing the physically degenerate from reproduction.

PROF. L. WITMER exhibited a cast of the brain of LAURA BRIDGMAN, who in the physical sense was a degenerate, though morally and intellectually of high culture and development. Some of the characters of the alleged criminal brain were present, and there was deficient development of the centers in the cortex where the faculties of sight, speech and hearing have been located, showing that degeneration here was to be traced to disease of the sense organs.

PROF. ERNEST LAPLACE said that he had examined the brain of GAMBETTA shortly after his death, and though a very small brain, comparable in size to that of an idiot, it was strongly developed in the region of the speech centers, which corresponded with his great oratorical ability during life. Criminality, according to PROFESSOR LAPLACE, is an exaggeration of selfishness, and he suggested that a center for selfishness may some time be determined.

PROF. HARRISON ALLEN spoke of the non-permanence of peculiarities of brain structure, and said that they constantly tend to return to an earlier type of formation. Man is a domesticated animal and like other domestic animals has a tendency to revert to a more primitive condition. He maintained that because ape-like characters are found in a brain, we have no right to assume that the person's actions during life were ape-like, any more than we have to assert that those which showed features which are found in the hog are necessarily hog-like. The brain may exhibit apparent abnormalities or peculiarities without proving anything against the moral character or mentality of the owner.

THE CORRESPONDENCE OF THE INSANE.

The latest report of the New York State Commission in Lunacy contains two letters from the Assistant Postmaster-General, giving the opinion of the Department in regard to rights of the insane, and others under legal detention, in the matter of their correspondence. The question often arises with asylum physicians as to how far they are justified in withholding or examining letters sent to inmates when, for good medical or other reasons, this seems imperative or advisable. According to the ruling of the Post-office Department, they have the right to withhold letters from patients when it seems necessary to do so, but the right of examination is not specifically stated, though it seems to be inferred by the New York Commissioners.

The safe statement of the case seems to be this: the legal and natural guardians of the lunatic, and lacking such the asylum authorities, have the full right to say whether or not he shall receive letters, but whether they can open and inspect them without his consent, may yet be a question for decision by the Department.

As regards the sending of insane patients' letters, there should be no legal question—it ought to be left entirely to the judgment of the physician in charge. Some years ago, it is said a recovered patient in England brought suit for damages against a doctor for mailing his insane correspondence, and it is not hard to see a possible reason in his complaint. There is, nevertheless, an almost perennial movement in our various State Legislatures for enlarging the freedom of the insane in this direction. For example, a few years ago, a bill was introduced into the Illinois Legislature to allow every inmate of a State hospital to select a correspondent with whom all communications either way should be inviolate. The bill had perhaps a fair prospect of becoming a law until its possible consequences were practically demonstrated by samples of insane correspondence to the committee that had it in charge.

The chances for serious consequences from too lax an oversight of the letters sent out by lunatics are real, and very serious mischief has been done in this way. A few years ago, the authorities of the Willard Asylum were embarrassed by the arrival of a whole family from Europe who had broken up their home, sold out their interests and came there on the representations of a megalomaniac inmate, only to find themselves the victims of the delusions of a lunatic. The still more probable possibilities of libelous statements and improper communications are also to be borne in mind, as well as the mortification any right-minded person would feel on recovery or in lucid intervals, in knowing that such evidences of his disorder had been allowed to go abroad. It was this last consideration that was the basis of the

English suit already referred to, as stated in the account of the case given at the time.

The matter is one that is of interest, not merely to asylum officers, but to any medical man who may be consulted in regard to the management of the insane. It is well that, in view of the coming legislative sessions, medical influence and opinion should be firmly against any pseudo-philanthropic measures that are against the best interests of those they are ignorantly intended to serve.

THE MEETING OF THE TRUSTEES.

The semi-annual meeting of the Board of Trustees was held November 16. Only two members were absent and the meeting was a harmonious one. All regretted that the illness of Dr. REEVES prevented his attendance. The Treasurer's statement showed a larger balance in the ASSOCIATION treasury than for several years past, and the editor's report, printed in another column, told the story of the year's prosperity. The Board took measures for increasing the number of subscribers, and the membership of the ASSOCIATION, and for the betterment of the equipment of the JOURNAL. The allowance of \$400 for the expenses of the Committee on the Department of Public Health was made in accordance with the resolution of the ASSOCIATION at the Baltimore meeting, and will furnish that committee with a sum sufficient to carry on an active canvass during the winter.

The great improvement in the JOURNAL and its affairs will not induce the management to remain quiet, but, on the contrary, only operates to encourage renewed effort. The ASSOCIATION, in founding the JOURNAL, had no intention of making it a commercial enterprise, and the only legitimate object of the money in the treasury is to make the JOURNAL better and better, as fast as its funds will allow, so that the members may receive the benefit in the form of an improved publication.

Our readers will be glad to know that SECRETARY ATKINSON has completed a card index to the first twenty volumes of the JOURNAL, and the Trustees have ordered it printed in book form, which will be sold at a nominal price.

This index will follow the index to the thirty volumes of the ASSOCIATION, issued by SECRETARY ATKINSON when the annual volume of Transactions was suspended and the publication of the JOURNAL was begun by a Board of Trustees with N. S. DAVIS SR., as editor. From that day to this, there has scarcely been a break in the steady progress of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and we can truthfully say that, notwithstanding the great financial depression of the past three years, few business enterprises have prospered more than our JOURNAL. Let the fact, as it stands, encourage the members to go on with the good work of organization, until our ASSOCIATION stands first in membership of any in the world, as it is now first in America!

CORRESPONDENCE.

A Case of Malignant Hemorrhagic Malaria with very Large Spleen.

ELGIN, ILL., Nov. 15, 1895.

To the Editor:—With the permission of Dr. J. F. Bell, I wish to report an interesting case of hemorrhagic malaria in which I was called in consultation:

W. M., male, age 25, recently from a malarial region of Kentucky and for years a victim of that disease. He has had several chills during his three weeks' residence here, of the remittent form. October 27, last, the patient left the house feeling very well, not having had a rigor during the last week. While waiting in the depot for a train to Chicago, he suddenly became quite sick. He struggled back to the house and on reaching it he fell to the floor, complaining of pain, and also had a chill. Dr. Bell was called, and found the patient in a delirious state, temperature 104, pulse 130, strong and full; palpation and pressure over the spleen and liver was resisted by the patient; percussion revealed increased dullness of both organs; the Doctor prescribed quinin in large doses frequently, sponge baths and opium as a sedative. I was called a few hours later and found that the patient had passed a very large quantity of sanguineous urine, had also vomited a fluid substance of a very blackish hue. The vomited matter was not saved, so could not tell what the nature of it was. His temperature had increased to 105, fluid extract ergot 5ss. doses every two hours ordered for the hematuria. Dr. Bell called again about four hours later, patient being no better, fever and hematuria still persisting. I saw him at 9:30 that evening with Dr. Bell. Temperature was 105.5, pulse 140, skin very hot and slightly icteric, sclera yellow. He was quite restless and still delirious. His brother exhibited a chamber vessel which was about half filled with sanguineous urine which patient had passed during the last five hours. Pot. bromid gr. xv, chloral hydrat. xv was ordered to be given every two hours until sleep was produced. The treatment of the morning kept up and ice cap applied. He passed a very restless night. Dr. Bell and I saw him several times during the next day. During the early morning hours he became very much jaundiced, the entire body being of an intensely lemon yellow color. Resorting to the various antipyretics, cold, enemas, ergot in smaller doses more frequently did not seem to check the temperature or hematuria. He became so restless that restraint was required to keep him in bed, and was much worse about 3 P.M., at which time his temperature per axilla was 107.25, with a quick running pulse. He died at 4:15, thirty-one hours after attack.

I made an autopsy on the remains about twenty hours after death, assisted by Drs. Albert Swartz and J. F. Bell, and found on external inspection a young man of great muscular development. No emaciation, skin of a bright lemon hue, also conjunctivæ; rigor mortis very pronounced. Examination of the organs followed. Pericardium contained a greater quantity of fluid than normal. A stringy, colloid, sticky and thickened material was found to extend into the aorta and after removing it was found to be about a foot in length and corresponded to the rounded shape of that vessel; insufficiency of aortic valve, otherwise heart was about normal in appearance, weight and size. Lungs were congested, more marked on lower lobes. Liver greatly enlarged, of a dark reddish brown appearance, capsule slightly thickened, on cut surface of a yellowish brown color filled with pigment, and cutting with more resistance than usual. Gall bladder full of fluid; no concretions; openings and ducts patent. The spleen was nine inches in length, six and one-half in breadth and three inches thick, weight 1,630 grams, of a grayish-brown color; capsule not thickened. The parenchyma, soft, of a dark brownish color and impregnated with pigment. Kidneys enlarged, swollen and congested; capsule slightly adherent; cortical markings indistinct. The medullary substance of a dark grayish-red color with scattered areas of pigmentation. Stomach contained a quantity of dark greenish fluid. Bladder also contained a quantity of sanguineous urine.

I will add that the cutting of the skin was accompanied by a raw leather-like resistance to the knife, also cutting the serous surface was like cutting cartilage.

H. J. GAHAGAN, M. D.,
Assistant Physician, Illinois Northern Hospital for Insane.

A Specific for Spasmodic Croup.

SAN DIEGO, CAL., Nov. 16, 1895.

To the Editor:—Among the remedies for acute laryngitis suggested in a recent and elaborate contribution to the JOURNAL, I am surprised that no mention is made of the oleoresin, improperly called "balsam" copaiva. I regard its employment as quite an advance on the antiquated ipecac, turpeth mineral, *et id omne genus* treatment, and for many years I have used it to the exclusion of all such. Preferably, it should be given in a full dose of 15 or 20 drops to a child 2 or 3 years old, at bedtime, or immediately following the first hoarse inspiration or cough. This will generally carry the little patient through the night, or certainly until the early morning hour, when a recurrence of the paroxysm is often expected. *En capsule* is the best method of administration, for the purpose of disguising the unpleasant taste. The syrup of copaiva, prepared by rubbing the oleoresin with calcined magnesia, and adding oil of peppermint and simple syrup, is an eligible formula. Less so, is an emulsion with mucilage, yolk of eggs, or alkalies. The required doses, however, are so few, and time often of such importance, that I commonly extemporize a combination of the remedy with sugar or molasses. The element of fear of suffocation usually renders the little patient quite tractable, so that he gracefully submits to almost any form of medication at such times. I can yet recall, *ad nauseam*, the not infrequent doses of "hive syrup" of my youth.

In the presence of a severe attack, I give the copaiva *imprimis*, and then transfer the child, if in a cold room, to the nursery or kitchen, where he is subjected to heat and steam. A shawl thrown over the heads of nurse and child, as well as over the teakettle, is a ready method. The first whiff of steam relaxes the spasm, if the remedy has not already done so, and the crisis is past. The child should be detained in a warm room for the two succeeding days and nights, taking similar or smaller doses each evening upon retiring, and, if thought best, a few drops at intervals during waking hours.

By this method, the system is not relaxed with a tendency to contract additional cold, and I am sure it will supply a long-felt want to paterfamilias if not to his progeny.

C. M. FENN, A.M., M.D.

ASSOCIATION NEWS.

Report of the Editor to the Board of Trustees.*Semi-annual Meeting held in Chicago Nov. 16, 1895.*

[Published by order of the Board.]

TO THE PRESIDENT AND MEMBERS OF THE BOARD OF TRUSTEES.

Gentlemen:—I have the honor to report that since your last account the affairs of the JOURNAL have progressed smoothly, the only serious annoyance being the difficulty of readjusting our plan of advertising. Fortunately the Chairman of the Committee on advertising was easily accessible, and the cases in doubt were referred to him. As a report may be expected from that member, I will not further dwell upon the subject, except to say that we are applying the ASSOCIATION rule absolutely with regard to all *new* advertisements. Many old ones cheerfully furnished the formula, and those that have not furnished the formula, have been informed that the JOURNAL could not renew their contracts without their full compliance with the rule. I caused slips to be printed, of which the following is a copy:

TO ADVERTISERS.

The Board of Trustees adopted, and the Association by unanimous vote approved, the following order:

"Hereafter advertising of medicinal preparations in the JOURNAL shall be limited to those advertisers who furnish for publication in the JOURNAL the official or chemie name and amount of each ingredient contained in the said preparation."

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

This is sent to all advertisers and advertising agencies, when inquiry is made concerning an advertisement.

The value of advertisements that have been dropped under the rule, is \$910.

The value of advertisements that will not be renewed on account of the rule, is \$2,388.40.

Advertising orders refused, \$345.60.

The amount of changed advertisements by furnishing formulæ is \$2,451.20.

Contracts for \$1,003.20 are being held awaiting action.

The income of the JOURNAL, May 31 to October 31, from various sources, is \$10,683.34.

The regular issue of the JOURNAL has now reached 6,200 copies, and last week was 6,400. It will be seen (from the detailed statement) that the receipts from subscriptions are growing steadily, but do not show the real amount nor the increase, as many of the new subscribers are transferred to the membership list within a few weeks after receiving the JOURNAL. The Treasurer of the ASSOCIATION receives the money from this class. You will be pleased to note that the balance in the ASSOCIATION Treasury has been steadily increasing, and notwithstanding our increased expenses on account of enlargement of the JOURNAL, the balance is larger than at any period in the last four years. The eight page enlargement of the JOURNAL last year proved inadequate to the relief from the pressure of manuscript, and another enlargement was made whereby the average number of pages of reading matter has been raised to fifty-two. For the present, I think the JOURNAL large enough, but sixty pages a week should be the eventual goal. That will allow an increase of matter sufficient to prevent criticism on the part of those who are not interested in specialties and do not like to see so much space given them, by providing an abundance of reading matter for all.

The increase in the subscriptions since the Baltimore meeting has been made by personal letters written by Dr. Montgomery in Pennsylvania, similar letters written by the editor in accordance with a suggestion made by Dr. E. Fletcher Ingals, and by a traveling solicitor.

The advantages of the plan of canvassing can scarcely be estimated in dollars and cents, for the work may give results months after the solicitor has made his visit. Beside, most of the subscribers eventually become members of the ASSOCIATION. We now hold applications waiting the receipt of the necessary remittance. There have been very few discontinuances; a marked contrast from the conditions when I assumed the office.

The property of the JOURNAL office is now worth \$10,000, a plant which has been wholly purchased within the past two years except the type. An expenditure of \$1,200 for new type, and \$1,000 for new automatic folder, will be necessary during the next six months. Much inconvenience would be saved the mechanical department by having the type asked for. It is especially necessary when we run the large number of pages, as proofs must be sent to contributors and the type beld. An iron chest or cabinet for holding manuscript should be furnished, unless we move into a building having a vault.

The quarters are entirely unsatisfactory. We have to pay high insurance rates, and the persons in control of the building have not put it in repair as was agreed upon. I request to be allowed to look for other quarters by the time of the expiration of the present lease in April next, or sooner, if arrangements can be effected without loss.

The elevator service could scarcely be worse than it is now, and the shaking of the building when the machinery is running gives an impression of insecurity, which is confirmed if the window-sills and walls be examined.

At my solicitation, the Secretary of the ASSOCIATION, Dr. W. B. Atkinson, has prepared a card index to the whole of the JOURNAL down to December, 1894. The instructions of the Board do not say whether to print in the JOURNAL or in book form. In my opinion the index will be more convenient in a book. The estimated cost of 1,000 will be about \$500.

I have to commend the employees of this office for their faithfulness and industry. Seldom have I seen an establishment where every person employed seems to have a personal interest in the growth and success of the business; but I have to report that that feeling is the rule in this office,

and I have frequently noticed their actual enthusiasm in promoting the success of the JOURNAL within their respective lines.

Finally, I have to thank the Trustees for their encouragement and support, and the patient attention given to the various questions coming before the office for settlement.

Very respectfully, JOHN B. HAMILTON, Editor.

SOCIETY NEWS.

College of Physicians of Philadelphia.—A stated meeting of the Section on Ophthalmology was held in the Lower Hall, College of Physicians of Philadelphia, Oct. 15, 1895, Dr. Wm. F. Norris, Chairman presiding. Present, Drs. Fenton, Harlan, Norris, Oliver, Ring, Risley, de Schweinitz and Zeut-mayer, Fellows of the College; and Drs. Keely, Leahman, McGuigan, Pancoast, Posey, Rogers, Schwenk, Shoemaker, Stevens, Thorington, Wetherill; Worrell of Terre Haute; Ziegler and Zimmerman as guests.

DR. GEORGE DE SCHWEINITZ described a case showing angioid streaks in the retina, and exhibited a water color sketch of the ophthalmoscopic conditions.

DR. CHARLES A. OLIVER gave a brief report of the history of a case of successful iridectomy and extraction of lens capsule and lens debris with recovery of vision in an eye that had been considered useless for more than ten years. Dr. Harlan gave a short account of a somewhat similar case where the accident dated back some thirty-three years, and in which the patient's vision was fully restored. By invitation Dr. P. U. K. Schwenk read the details of Dr. Harlan's case.

DR. S. D. RISLEY exhibited a new and compact case for ophthalmic instruments. The case was made of aluminum and white mahogany and had adjustable compartments for sterilizing apparatus.

DR. OLIVER exhibited two cases; one of successful iridectomy for congenital zonular cataract, in which vision was increased for the first time in the patient's life, from finger counting at 35 centimeters to five thirty-fifths, and the other showing the final results of operative treatment in a case of subconjunctival dislocation of the lens, in which vision was restored to full acuity.

The Section then went into executive session. Upon motion adjourned.

CHARLES A. OLIVER, M.D.
Clerk of Section.

Harrisburg Academy of Medicine.—The formal opening of the Academy of Medicine, founded by the Harrisburg Medical Society, took place at Harrisburg, November 7, the new building, a roomy brick and brownstone structure, being crowded. The program began with appropriate remarks by Dr. E. H. Coover. Dr. John Curwen, superintendent of the State Hospital for the Insane at Warren and ex-president of the Dauphin County Medical Society, made a few congratulatory remarks. Then Governor Hastings was introduced, and discussed briefly the relation of the medical profession to the Commonwealth. The Governor always makes a good speech, and he was roundly applauded by the assembled doctors and their guests. "Why a Community should support a Medical Library" was the subject of an interesting address by Dr. H. C. Wood, professor in the medical department of the University of Pennsylvania. He gave reasons in support of his subject and happily illustrated his points. "Some Physicians in the Past Century of Dauphin County" was the subject of the historical address by Dr. W. H. Egle, who gave brief sketches of the more prominent men in the medical history of the county and referred to their characteristics. The formal exercises were closed with the benediction by the Rev. Dr. Stewart. This evening at 8 o'clock, a banquet in connection with the opening of the Academy, took place at the Chestnut Street Hall, which was decorated for the occasion. There were numerous toasts.

MISCELLANY.

Tonsillitis of Malingers.—According to *Le Progrès Medical*, the following unusual development of malingering has been observed at a French garrison-hospital: A French dragoon, who was lying in the garrison at Compiègne, and who wanted a vacation, persuaded a male nurse to blow a little powdered cantharides into his throat. The result, the next day, was a

tonsillitis with pseudo-membranes, and the patient was sent to the hospital. He was treated for eight days, and then was discharged well. No cause for the disease could be discovered, and as he was not sent home to convalesce as he had expected, the nurse fixed him another attack, but was taken sick at the same time. The attending physician thought this mysterious, and one day a tobacco pouch was found in the nurse's bed filled with cantharides powder. The affair was brought before a military court, the nurse received six months' imprisonment, and the dragoon was sent to an African regiment.

Union in Nerves by First Intention.—According to the *Deutsche Medicinische Wochenschrift* for July 4, Glück presented before the Berlin Medical Society the case of a child of a year and a half, operated on May 7, for extensive tuberculosis in the right radius. In the operation the radial nerve was severed. After careful disinfection the nerve was sutured and then the external wound closed. Union of the wound by first intention resulted. After fourteen days the first symptoms of restoration of the nerve were shown, and about four weeks later the functions of the muscles supplied by the radial nerve became normal. It is believed this is the first recorded instance of primary union in human nerves. Experimental investigations on animals show that after such nerve suturing, a portion of the nerve filaments retain their vitality.

A Medical Contributor to Ethnology.—Dr. Walter J. Hoffman, of the Smithsonian Institute's Bureau of Ethnology has given to the world a book, entitled "The Beginnings of Writing," and intended to trace the first steps in the development of writing among the North American Indians. Dr. Hoffman has been a diligent student of American ethnology; was with Lieutenant Wheeler's expedition into Nevada and Arizona in 1871, post-surgeon in Dakota in 1872, when he was able to study the ethnology of the Sioux, and later, in connection with Professor Haydon's survey and in the Bureau of Ethnology, continued work and study among the American Indians. The publishers' notice says: "Professor Hoffman, one of the most successful workers in the field of American ethnology, presents the first steps in the development of writing, from tangible reminders like quipus and wampum belts, through picture writing to phonetic writing with an alphabet. These first steps are described especially as they are shown among North American tribes. Our native peoples made much use of reminders; they drew truly expressive pictures; they developed complicated systems of pictography; and some peoples of Mexico and Central America were passing from the use of ideograms to phonograms. This transition period is most interesting." In clear and popular language, Professor Hoffman sets forth the latest results of scientific study, and his references are illustrated with many helpful pictures.

Lesions of Fatal Electrical Currents.—An article in the *Lancet* for August 31, gives an abstract of a recent paper by Dr. Kratter on this subject. His report was made to the Styrian Medical Society. The case examined by him was that of a workman who was killed by a shock received while he was occupied in stringing telegraph wires. Post-mortem examination, performed twenty-one hours after death, showed a ruptured blister on the left forefinger, marked rigidity and intense ecchymosis on the dependent parts of the body. There was also hypervelocity of the blood, venous engorgement of the lungs, extravasation of blood into the common sheath of both the carotid arteries and the vagus nerve, and symmetrical hemorrhage along the spinal cord. If an electric current of 1,500 volts acts upon rabbits, some of the animals live, and others show typical symptoms such as tetanic contraction of all muscles and instantaneous stoppage of respiration, the heart, nevertheless, continuing to act. There may also sometimes be found disorganization of the brain, with destruction of the peripheral parts of the cortex and intracranial effusion of blood. The stoppage of the respiration lasts half a minute. From these experiments it results that the first effect consists in permanent or temporary arrest of the respiration. Death from electric shock is, therefore, a form of suffocation, and persons who meet with such an accident are to be treated by artificial respiration, as in ordinary cases of suffocation.

Must Show Authority for Removal of Cadaver.—"If any person without lawful authority, dig up, disinter, remove or carry away any human body," a statute of Iowa proclaims, he shall be punished, etc. One night certain parties were apprehended while dragging a dead body on the ground by means of a rope around the neck and arm attached to a back. They were armed with revolvers, and had opened the grave and removed the body in a secret and clandestine manner. On appeal from a conviction of one of the men, it was urged that the trial court erred in instructing the jury that, where one who has disinterred or removed a dead body from its resting place seeks to justify the act he must show that he had a lawful permit from the State Board of Health. If it be conceded that it was error to direct the jury that the subject of disinterment and removal of the dead was under the control of the State Board of Health, the Supreme Court of Iowa holds, in the case of *State v. Schaeffer*, decided Oct. 2, 1895, that the instruction was clearly without prejudice, because it was not incumbent on the State to prove the negative fact that the defendant had no authority to do the act. And, even if that burden was on the State, the proof of the criminal intent and the want of authority was manifest from the manner in which the act was performed. It was incumbent on the accused to show that he was not criminally liable for the act, because he was within the exception in the statute, if such were the fact.

Obligation of Town to pay Physician.—That a town may be liable on an implied contract for services rendered by a physician to a pauper seems to be well settled in Wisconsin. Notice to one of the supervisors of the town also seems to be sufficient to create the contract. But in the case of *Beach v. Town of Neenah*, decided by the Supreme Court of Wisconsin, September 26, 1895, the town denied all liability. The evidence was to the effect that the physician who brought the suit had seen the chairman of the board of supervisors of the town in relation to the matter, and told him that there were at that time four or five sick in the family in question, and that they were in need of everything, and that they would have to have help; that the chairman said that he would see to it that they should have whatever they needed; and that the chairman knew that this physician was attending the family, who thereafter continued to treat them as a physician. In the circuit court a nonsuit was granted on the ground that this evidence failed to establish an express contract of employment. But the supreme court reverses its judgment, and orders a new trial, holding that upon such evidence it was for the jury to say whether the supervisor so notified acquiesced in the employment of the plaintiff or impliedly agreed that the town should pay for his services after such notice.

Meningitis in the New-Born Due to Umbilical Infection.—In *Pediatrics* the above subject is reported upon briefly as having been discussed at a Section meeting of the New York Academy of Medicine:

"Dr. Ira Van Gieson reported the only two cases of acute exudative meningitis that had been observed in the new-born in the Sloane Maternity Hospital, as a result of infection from the umbilicus. These cases were very carefully recorded, including the results of a bacteriologic examination. On inspection there was no evidence of any abnormal condition about the umbilicus, but on dividing the umbilical vein, this vessel was found to contain pus. Pure cultures of the streptococcus pyogenes were obtained from the meninges and from the umbilicus, and microscopic examination showed a severe acute exudative meningitis. No other lesions were observed. Dr. Tucker said that he had seen several cases illustrative of this remarkable fact, that the pathogenic bacteria in their passage from the umbilicus may pass by certain viscera, and ultimately find a lodgment in some remote part. The only effective treatment for these infections in the new-born was a prophylactic one, and this consisted in carefully dressing the umbilicus with a dry, clean powder. Dr. Fruitnight said that in the earlier years of his practice when moist dressings for the cord had been in vogue, he had seen suppuration of the umbilicus much more frequently than since he had adopted the practice of using dry dressings.

Chinese Testimony Regarding the Japanese Red Cross.—Colonel Cockerill, of the *New York Herald*, sends from Japan a narration by a Chinese officer concerning the operations of

the Red Cross Society of Japan in its humane treatment of himself and other prisoners. This narrative is in effect the involuntary outburst of gratitude of a man who has received kindness and entertainment from a supposed embittered enemy. The writer is a naval officer having an American education, Tsouy Chan by name. The following is a part of his manuscript:

"In the Red Cross Hospital the patients were treated most kindly. Plenty of milk and fresh eggs were given. Rice, beef, fish, turnips and onions formed the ordinary diet. Mr. Mesaki was the superintendent of the hospital, and is a most conscientious man. Unless on public business, he never left the hospital, and every night he went through the patients' quarters twice. The head nurse was Mrs. Tanaka, the wife of an officer, and a very energetic lady. She was not afraid of work and did many kind acts to relieve the sufferers. Ten other nurses were under Mrs. Tanaka, all of whom had special duties at regulated times. The nurses seemed to have administered to the patients with a sense of religious duty. There were two or three Christians among them; the rest, adherents of Buddhism. There were two young doctors who never left the hospital unless doing duty in the prisoners' lodge. They took turns in the night watches. Every morning a senior doctor came to examine the patients. Scrupulous cleanliness was kept in the hospital. One day an army surgeon, Dr. Arima, and the Rev. Mr. Wada, of Tokyo, visited the hospital and spoke to us most kindly, wishing us a pleasant passage home and a joyful reunion with friends and relatives. At the word home, many dropped tears. One night we were treated to a magic lantern exhibition. The different pictures showed the history of the Red Cross Society, and among the pictures were also those of their Majesties, the Emperor and Empress of Japan. The wives of some Japanese officers visited the Red Cross Hospital. The first party gave 3 yen to the patients to buy what they liked; the second party gave 7 yen. Some handkerchiefs, tobacco and cakes were distributed to each of us in the hospital as souvenirs to take back home. It is with an indescribable feeling of sadness and joy that I write this account. It is sad to have been made a prisoner of war; but, having been captured, I am glad that it was my good fortune to have been thus kindly treated. The total number of prisoners at Osaka, including officers and men, was very nearly three hundred, and all agreed that we were better treated than we had any reason to expect. It is usually with reluctance that men speak well of their opponents, but facts like these ought not to be concealed. We have a saying in China that kindness received should never be forgotten. I have not written this account with the joy and enthusiasm of a sensational novelist, but simply to discharge what I feel to be clearly my duty."

Society Notes.

THE Tri-County Medical Society, at its regular meeting held in Paxton, Ill., November 8, elected the following: President, W. P. Pierce, Hoopestown; Vice-President, T. N. Bowe, Loda; Treasurer, J. Y. Campbell.—The annual meeting of the Topeka, Kan., Academy of Medicine and Surgery was held November 11. The following officers were elected: President, M. B. Ward; Vice-President, W. E. McVey; Secretary and Treasurer, Ida C. Barnes.—The annual meeting of the Schuylkill County Medical Association was held in Pottsville, Pa., November 12. The following officers were elected: President, A. P. Carr, St. Clair; Vice-President, A. F. Bronson, Girardville; Secretary and Treasurer, George Little, Tamaqua.

Hospital Notes.

FREDERICK HOLME WIGGIN has been reappointed visiting gynecologist to the New York City Hospital by the Commissioners of Charities and Correction.

POST-GRADUATE HOSPITAL OF NEW YORK.—The Board of Estimate of New York city has made an appropriation of \$60,000 in support of the gratuitous hospital and dispensary work done by the above named institution for the year 1896.

HOSPITALS REMEMBERED.—Under the will of the late William Stackpole, of Brooklyn, N. Y., reversionary interests are conveyed to certain charitable institutions. Of these, the St. Mary's Hospital and the St. Mary's Female Hospital will receive each \$1,000.

Detroit Notes.

TYPHOID FEVER.—A communication dated October 16, has been received by the Health Board of the city of Detroit, from the State Board of Health, stating among other things, the fact, that owing to the prevalence of typhoid fever in Detroit, the disease has spread to other parts of Michigan, and as a result there have been ten outbreaks and three deaths. It also requests the Detroit Board to enter vigorously upon the work of notification and restriction of the disease in Detroit. On the strength of this communication, Dr. Samuel P. Duffield, health officer of the city, has issued circulars to the nurses and persons in charge of typhoid patients, instructing them to disinfect all discharges as soon as possible, by pouring a quantity of the solution of chlorid of lime or copper sulphate into the bed-pan, and to have the mattresses and other bedding destroyed. He also sent a circular to the undertakers, impressing upon them the necessity of carefully and thoroughly washing out the intestine, either with the solution of one-half pound blue vitriol and one gallon of water, or two pounds zinc sulphate and one gallon of water, and not to place any reliance on the virtue of the embalming fluid to kill the typhoid germ.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the last meeting of this Association, October 14, a very interesting paper entitled, "Hay Fever; a successful Treatment based on a New Theory," was read by Dr. F. W. Strangways, and discussed ably by Drs. E. L. Shurly, P. M. Hickery and H. J. E. Emerson.

WAYNE COUNTY MEDICAL SOCIETY.—At the regular meeting of this society November 14, a very interesting paper on smallpox was read by Dr. John F. Bennett; it was the more interesting from the fact of the existence of smallpox in Detroit at the present time. A number of physicians from Windsor, Ontario, Delray, Highland Park and other surrounding places were present. Dr. J. J. Mooney also read a paper entitled "Angio-neurotic Edema."

PERSONAL.—Dr. N. W. Webber is now convalescent from his late attack of rheumatism.

MORTALITY REPORT for the week ending November 16: deaths, 78; under 5 years, 26. Births, male 53; female 35; total 88. Report for week ending November 16, (contagious diseases) diphtheria: last report 43, new cases 22, recovered 34, died 6, now sick 25. Scarlet fever: last report 11, new cases 6, recovered 4, died none, now sick 13. Smallpox: last report 1, new cases 2, recovered none, died none, now sick 3.

St. Louis Notes.

THE WEEKLY MORTUARY REPORT, gives for the week ending November 16: deaths, 156, compared with 167 during the preceding week, and 165 for the corresponding week of 1894. Births reported, 294. The contagious diseases reported during the week ending November 16, were: diphtheria, 126 cases, 10 deaths; croup, 16 cases, 7 deaths; typhoid, 10 cases, 2 deaths; measles, 15 cases; scarlatina, 8 cases.

ST. LOUIS MEDICAL SOCIETY.—The program of the meeting of November 16 consisted of a paper on "Tuberculosis of the Knee-joint," by Dr. Funkhouser, with prepared discussions by Drs. H. H. Mudd and Pinckney French. The general discussion was further maintained by Drs. Hoffman, Fairbrother, and Hodgson.

CHARITY COMMISSIONERS.—At the regular meeting November 11, the supervision of the various city institutions was divided among the commissioners, and hereafter written monthly reports on each institution will be required. In future, an effort will be made to prevent the prolonged detention of boys in jail in the contaminating atmosphere of the criminal classes.

PROVISION FOR IDIOTS AND IMBECILES.—There has been some public agitation of late of the question of State provision for this dependent class. Such improvements are to be accomplished only after assiduous efforts on the part of those who come in contact with such individuals, and the medical profession should lose no opportunity to show the need of this socially protective charity.

MEAT INSPECTION.—At the request of the Health Commissioner, a bill has been presented to the Municipal Assembly repealing the present meat inspection ordinance and providing for the thorough inspection of live animals intended for food; also, for the inspection of meats of all kinds, poultry, game, etc., when ordered. It provides for the same force of inspectors numerically as now employed, namely, four; one to be a chief inspector at a salary of \$150 a month, and three assistants at salaries of \$125 a month each. Two of these must be practical butchers. All must work under the

supervision of the Board of Health and each must be secured by a bond of \$4,000 for the faithful performance of his duties. Accompanying this bill was a statement of the Health Commissioner who explained that he found that the laws respecting meat inspection were very inefficient; that this branch of the service cost the city \$5,000 a year, with very meager results; that quantities of meat unfit for food, but the real condition of which was not revealed by inspection, were sold by the butchers; that no check was placed upon the slaughter of diseased animals; also, that he had ordered the inspection of meats stopped and placed the inspectors at points where the greater number of animals, intended for food were killed.

THE ST. LOUIS ACADEMY OF MEDICAL AND SURGICAL SCIENCES, is the title of a new medical society lately organized. The officers are: Dr. G. W. Cale, James Moores Ball, Arthur E. Mink, Emory Lanphear, Thomas G. Summers, Wellington Adams and George H. Thompson. It is reported that the membership is to be limited to 50, and that an applicant for membership can gain admission only upon the merit of a thesis submitted.

DAMAGE SUIT.—Dr. Carl Barck has successfully defended a suit brought against him for \$10,000 damages, by a patient, for the loss of sight. The case was clearly one where ignorance on the part of the patient had led to a disastrous result, and to a hope to make the Doctor pay for what he was in nowise responsible. One of the patient's eyes had been injured to a degree requiring enucleation; this operation was refused in spite of warning for the safety of the uninjured eye. Later, the patient returned for operation, and the doctor performed enucleation, stating at the time that there was great probability that the operation was then too late to save sight in the opposite eye. The fulfillment of his prediction was the occasion of the suit.

Philadelphia Notes.

THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA have conferred the title of Emeritus Professor of Comparative Anatomy upon Dr. Harrison Allen, in acknowledgment of his services to the institution in the chair which he recently resigned bearing a similar title.

THE OFFICIAL STATISTICS of attendance at the University of Pennsylvania show a slight increase over last year. The medical department has 819 in all the classes this year. Last year the number was 815. The dental department has 306 against 278 last year, hygiene 56, or 15 more than last year, and veterinary medicine has 16 less than last term. The total attendance in all departments is 2,472 students. The entering class at the Jefferson is small this year on account of the inauguration of the four years course, while the matriculants at the Medico-Chirurgical have decidedly increased because the fourth year has not yet been made compulsory.

THE CLIFF DWELLERS.—The Archæologic Museum of the University of Pennsylvania has been recently greatly enriched by the addition of the valuable Hazzard collection of remains of the cliff dwellers, a great portion of which was one of the most interesting features of the Chicago Exposition. The collection was formally thrown open November 9 by an address made by Mr. Frank Cushing, who has made a special study, while living among the Zunis, of the primitive races of this continent. Prof. E. D. Cope made a few comments upon the physical characteristics of the cliff dwellers, as illustrated by the perfectly preserved skeletons and mummies contained in the collection. The skulls were artificially flattened at the back, like those of many other Indian tribes. The teeth showed a high type of development, while the hyoid bones and tibias were of a lower type. There is nothing in their remains to separate these primitive people from other American Indians, all of whom probably originally were of Mongolian derivation. The collection of American antiquities in Philadelphia is claimed to be the finest in the world. A course of public lectures will be given during the winter by Mr. Cushing and Profs. D. G. Brinton and Cope, in the library building of the University of Pennsylvania.

DEATH FROM CARBOLIC ACID ACCIDENTALLY ADMINISTERED.—A child fifteen months of age, died last week, soon after the administration of a teaspoonful of medicine, and the mother's lips also were burned by kissing the child just after the medicine had been given. At the inquest it was found that the medicine was a very strong solution of carbolic acid, although the prescription called for only one drop of carbolic acid in a two-ounce mixture of peppermint water and plain water. The prescription was given at the dispensary of the Jefferson Medical College Hospital, and the evi-

dence before the coroner appeared to fix the responsibility upon the hospital druggist, who, the coroner intimated, had made the mistake of omitting the peppermint and dispensing equal parts of carbolic acid and water. It was a death from misadventure; but it brings up the question for serious consideration, whether or not the dispensing portion of the service at the out-patient departments of great city hospitals is always on a par with other branches in efficiency and reliability. It is probable that the courts will have occasion to pass judgment upon the question of liability for negligence or mistake by the dispensary druggist, especially if the latter be found not to be properly qualified for the duties of prescription clerk.

PHYSIOLOGIC EXPERIMENTATION IN THE CORONER'S OFFICE.—The coroner of Philadelphia recently rendered an opinion which claims a place in medical annals. A child 5 years of age, was bitten by a dog, alleged to be rabid, and a few weeks later was brought to the Pennsylvania Hospital with symptoms believed to be characteristic of hydrophobia. After a short illness of less than three days the case ended fatally and a diagnosis of hydrophobia was made. Subsequently, the coroner made an investigation, not because of any suspicion of violence or criminality in connection with the death, but apparently simply on general principles. By direction of the coroner, inoculation experiments were made, and as the rabbits survived and did not become rabid, the conclusion was adopted that the child did not have hydrophobia and at the public inquest the coroner accordingly revised the diagnosis of the physicians who had had charge of the case, and who had had an opportunity to study it clinically. Here is an instance of the dogmatism of the laboratory, about which clinicians have been warned by Professor Lepine, and of which they are likely to experience more in the future.

PHILADELPHIA HOME FOR INCURABLES.—A children's building has been added to the Philadelphia Home for Incurables, consisting of a main structure three stories high, having a two-story wing on each side, costing \$36,474. It is of red mottled brick, with red sandstone trimmings and slate roof, and is fireproof throughout. The main structure contains a reading room, matron's room, reception room and hall and sewing room on the first floor, diet kitchen and four rooms for special sickness on the second floor, and the nurses' and servants' quarters on the floor above. The west wing contains the dry rooms, dining rooms and school rooms, and in the east wing are the sleeping apartments, where each child may have a separate room.

STATE PHARMACEUTICAL EXAMINING BOARD.—Of the 172 persons examined in Philadelphia by the State Pharmaceutical Examining Board, but 27 succeeded in passing. Of these 16 received qualified assistants' certificates and 11 received registered pharmacists' certificates. In Pittsburg, 27 out of 108 applicants were passed. The next examination will be held in Philadelphia on January 18.

Washington Notes.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended November 9, is as follows: there was an increase of 5 over the previous week in the total number of deaths reported at the Health Department last week. While the mortality from the brain and heart diseases fell from 26 to 6, those from lung maladies increased from 20 to 37. Deaths from typhoid fever decreased from 17 in the preceding week to 8 in the past week. There were but 3 deaths from malarial fevers. The dangerous contagious and eruptive ailments continue in abeyance, there having been but 2 fatal cases of diphtheria in all. There were 97 births reported and 56 marriages. Of all the deaths 26 were in hospitals and but 2 from the coroner. The whole number of deaths was 121, of which 70 were of white persons and 51 colored.

ANNUAL REPORT OF COMMITTEE ON PUBLIC HEALTH.—At the meeting of the Board of Trade held on the 11th inst., the annual report of the Committee on Public Health was read and adopted. The following are the principal subjects of recommendation made with a view to remedying existing evils: 1. The extension of the system of sewerage and the completion and purification of the water supply, including the abolition of pumps and wells and the establishment of a proper system of sedimentation and filtration. 2. The enactment of an effective law regulating the sale and supply of milk. 3. The establishment of a bacteriologic laboratory in connection with the health department. 4. The revision and extension of the sanitary laws and regulations of the District, including the appointment of a committee of

five to prepare and formulate a code thereof for presentation to Congress. 5. The enactment of a law for compulsory vaccination and revaccination. 6. The enactment of a law to regulate the practice of medicine in the District of Columbia. The medical men on the Committee are: Dr. Samuel C. Busey, Chairman; Drs. G. L. Magruder and H. L. E. Johnson.

THE WOMAN'S CLINIC.—At the annual meeting of the contributors to the Woman's Clinic, held on the 5th inst., the Secretary reported that 3,165 patients had visited the clinic for treatment during the year. The following board of directors was elected for the ensuing year: Drs. D. S. Lamb, Ida J. Heiberger; Mrs. Mary F. Case, Miss Minnie E Heiberger, Drs. J. H. Bryan, S. M. Burnett, H. L. E. Johnson, Mary Parsons, D. W. Prentiss, Julia E. Smith, Abbe C. Tyler; Mrs. Cora Dufour, Mrs. Marian H. Anderson, Mrs. Emily L. Sherwood; Drs. H. C. Yarrow, Robert Reyburn, Mabel Cornish; Miss Satie Hyde, Mrs. Walter E. Burleigh, Drs. Sofie A. Nordhoff, Jessie Kappelar, Phebe R. Norris, Ada R. Thomas, Susan J. Squires and Adeline E. Portman. Mrs. Anderson was elected Vice-President; Dr. Lamb, Second Vice-President; Mrs. Mary F. Case, Secretary; and Miss Heiberger, Treasurer. The clinical staff is as follows: Drs. Heiberger, Smith, Kappelar, Cornish, Nordhoff, Dufour, Norris, Thomas, Portman and Squires.

ANNUAL REPORT OF THE SANITARY OFFICER OF THE DISTRICT.—The report of the sanitary officer shows that during the past year the whole number of persons furnished with transportation was 867, at an expenditure of \$1,776.55. Attention is called to the increase of the number of persons sent to the hospitals of the District, the record for the year being 3,559, an increase of 483 over the previous year. He renews his former recommendation looking to the establishment of an asylum or hospital for inebriates, where the treatment of such patients should be made compulsory.

MICROSCOPICAL SOCIETY BANQUET.—The twelfth anniversary of the Microscopical Society of Washington was appropriately celebrated on the 12th inst., by a banquet, which proved one of the most enjoyable affairs in the history of the organization. The President of the Society, Dr. Collins Marshall, presided, and Dr. C. T. Caldwell officiated as toast-maker. Toasts were responded to by Drs. Marshall, William H. Seaman, Robert Reyburn and J. Melvin Lamb.

CLINICAL SOCIETY MEETING.—The Clinical Society of the District of Columbia held its regular monthly meeting Monday evening at Columbia Hospital. There was a large attendance. Papers were read by Dr. Van Emdorf on "Hydrothenuidia," and Dr. Louis P. Smith on "Retroflexion of the Uterus." The papers were discussed by Drs. Barton, Barrie, Lewis, Vale, Smith, Van Emdorf, and others.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Society held on the 13th inst., Dr. Kober read a paper entitled "Impure Milk in Relation to Infantile Mortality." The paper was discussed by Dr. Geo. M. Sternberg, Surgeon-General U.S.A., Drs. de Schweinitz, Carr and others. The Southern Surgical and Gynecological Society attended as guests.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL SOCIETY.—The Southern Surgical and Gynecological Society held its eighth annual meeting during the present week. Dr. Samuel C. Busey President of the Medical Society of the District, delivered an address of welcome on behalf of the local medical men. The Washington Obstetrical and Gynecological Society entertained them at a banquet on the 12th inst., and Dr. Joseph Taber Johnson gave a reception and banquet at his residence on the 13th inst., after the meeting of the medical society, to which they had been invited. Through the courtesy of Mr. John T. Devine, proprietor of the Shoreham Hotel, the large banquet hall of the house was furnished gratuitously for the use of the society during their session. The society has decided to hold its next meeting at Nashville, the second Tuesday in next November, and elected officers for the ensuing year as follows: President, E. S. Lewis, New Orleans; Vice-Presidents, Joseph Taber Johnson, Washington, and Richard Douglas, Nashville; Secretary, W. E. B. Davis, Birmingham, Ala.; Treasurer, A. M. Cartledge, Louisville. Council, Geo. J. Engleman, Boston; Hunter McGuire, Richmond; W. D. Haggard, Nashville; Bedford Brown, Alexandria, and L. S. McMurtry, Louisville. Committee on Arrangements, W. D. Haggard, Nashville. Many new members were admitted to the Association, and a pleasant incident of the day was the receipt of a handsome gavel from Dr. H. Marion Sims of New York, in memory of his father. The gavel has a very unique history or origin. It was turned from one of the legs of an old operating table used for many years by J. Marion Sims. The next meeting will be held the second Tuesday in November, 1896.

DR. HENRY J. CRASSON'S MARRIAGE.—On the 12th inst., at St. Peter's Church, Dr. Henry J. Crasson was married to Miss Margaret Blaine, daughter of Mr. and Mrs. Robt. G. Blaine, and niece of the late Hon. James G. Blaine. Dr. Crasson was for some time one of the assistant physicians to the Central Dispensary and Emergency Hospital.

CIRCULAR TO MEDICAL EXAMINERS.—The Equitable Life Assurance Society of the United States has sent the following circular to its medical examiners:

Please take notice that on and after Nov. 15, 1895, the following scale of fees for medical examinations will go into effect, in substitution for formerly established rates. These will be uniform throughout the United States, the Canadian Provinces, and Newfoundland:

Case of application for \$3,000 insurance or under	\$3.00
Case of application for over \$3,000 but less than \$25,000	5.00
Case of application for \$25,000 or upward, short of \$50,000	7.50
Case of application for \$50,000 or upward	10.00

By order of the President,

EDWARD W. LAMBERT, M.D.,
Medical Director.

N. B.—Installment insurance is reckoned at its commuted value.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 9, 1895, to November 13, 1895.

Capt. Eugene L. Swift, Asst. Surgeon, leave of absence granted is extended one month, and he is authorized to go beyond sea. Major Louis W. Crampton, Surgeon, is granted leave of absence for three months, to take effect on or about Dec. 1, 1895.

APPOINTMENTS.

Thomas Jellis Kirkpatrick, Jr., and John Hamilton Stone, appointed Asst. Surgeons with the rank of First Lieut., to rank as such from Nov. 6, 1895, and ordered to report to the President of the Army Medical School for instruction.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 16, 1895.

Surgeon T. Owens, detached from Naval Station, Port Royal, S. C., and granted three months' leave. Surgeon J. R. Waggener, detached from the "Independence," and ordered to the Mare Island, Cal., Navy Yard. Surgeon George P. Bradley, detached from the Mare Island, Cal., Navy Yard, and ordered to the "Indiana." P. A. Surgeon George Rothganger, detached from naval hospital treatment, and ordered to the "Independence." Surgeon J. E. Gardner, ordered to Port Royal, S. C., Naval Station.

Change of Address.

Fletcher, Wm. W., from Susquehanna to West Carbondale, Pa.
Goode, Thos. F., from Buffalo Lithia Springs to Boynton, Va.; Gihon, A. L., from Washington, D. C., to United Service Club, 16 W. 31st Street, New York, N. Y.
Massey, G. Betton, from 212 S. 15th Street to 1636 Walnut Street, Philadelphia, Pa.; Moffitt, F. W., from 1269 93d Street, to 4257 Cottage Grove Avenue, Chicago, Ill.
Scholer, E. S., from 3 N. Clark Street to 1956 N. Halsted Street, Chicago, Ill.
Vincent, Dr., from La Porte, Ind., to 811-12 "The Arcade" Cleveland Ohio.
Westmoreland, W. F., from Anstett to Atlanta, Ga.

LETTERS RECEIVED.

Adams, D. S., Manchester, N. H.; Andrews, B. J., Burlington, Vt.; Allport, F., Minneapolis, Minn.; Ayres, H. B., Indianapolis, Ind.; Ammonol Chemical Co., New York, N. Y.; Ayer, N. W. & Son, (2) Philadelphia, Pa.; Alta Pharmacal Co., St. Louis, Mo.
Belt, E. O., Washington, D. C.; Babcock, I. G., Cumberland, Wis.; Brown, Edward J., Minneapolis, Minn.; Bryan, J. H., Washington, D. C.; Cutter, John A., New York, N. Y.; Collina, C. A., New York, N. Y.; Chapman, F. B., Middleton, Mass.
Delevan, D. B., New York, N. Y.
Fraser, E. C., Chicago, Ill.; Fletcher, Wm. W., W. Carbondale, Pa.
Globe Mfg. Co., Battle Creek, Mich.; Goode, Thos. F., Boynton, Va.; Gahagan, Dr. H. J., (2) Elgin, Ill.
Heath J. W., Schaefferstown, Pa.; Herrick, S. J., Everest, Kan.; Hou, A. W., Harrodsburg, Ind.; Hummel, A. L., Advertising Agency, New York, N. Y.; Horwitz, Orville, Philadelphia, Pa.
Irwin F., Washington, D. C.; Imperial Granum Co., New Haven, Conn.
Kinnaman, A. S., Cleveland, Ohio.
Lehn & Fink, New York, N. Y.; Longmans, Green & Co., New York City; Larkins, E. L., Terre Haute, Ind.; Lippincott, J. B., Company, Philadelphia, Pa.
Mitchell, Chas. L., Philadelphia, Pa.; McMaster, H. B., Waynesboro, Ga.; Miller, J. Martin, New York City; Metcalf, C. N., Indianapolis, Ind.; Moorman, H. C., Summerville, Tenn.; Morse Advertising Agency, Lyman D., New York City; Mellier Drug Co., St. Louis, Mo.; Maltine Mfg. Co., The, New York City; McBride, M. A., Leesville, Tex.; McCarty, C. E., Chicago; Mills, H. R., Port Huron, Mich.
Newman, Dr. Robert, New York City; Newman, H. P., Chicago.
Plummer, The R. N. Co., New York, N. Y.; Palladium The, Ann Arbor, Mich.; Publishers Collection Agency, Chicago Ill.; Paquin, The Paul Laboratories, St. Louis, Mo.; Parke, Davis & Co., Detroit, Mich.; Polk, R. L. & Co., Detroit, Mich.
Ridlon, John, Chicago, Ill.; Reichman, Max, Chicago, Ill.
Schieffelin & Co., New York, N. Y.; Stearns, F. & Co., Detroit, Mich.; Supervising Surgeon-General, Marine Hospital Service, Washington, D. C.; Smoley, J. G., Connorsville, Ind.; Schimmel, M. S., Baltimore, Md.; Shlensky, J., (2) Washington, D. C.; Schering & Glatz, New York, N. Y.; Tarrant & Co., New York, N. Y.; Tabb, W. R. & Co., New York City; Tuttle & Clark, Detroit, Mich.
Vincent, D., Cleveland, Ohio.
Willcox, E. S., Peoria, Ill.; Woodruff, J. O. & Co., New York, N. Y.
Zumo Pharmacal Co., St. Louis, Mo.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, NOVEMBER 30, 1895.

No. 22.

ORIGINAL ARTICLES.

HYPNOTISM.

ITS USES, ABUSES AND MEDICO-LEGAL RELATIONS.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WILLIAM LEE HOWARD, M.D.
BALTIMORE, MD.

It is with a grateful heart and thankful attitude that I address this Section on some of the aspects of hypnotism. After several years of study of this subject in the medical centers of Europe, I found the opportunities here rather inconvenient for anything more than unassisted investigation. Two years ago I found myself repeating the words Euripides put into the mouth of Medea:

"For when you bring new truths to men's minds
They deem you not wise but unpractical,
While those who on deep learning pride themselves
Are piqued, and you incur the general hate."

It is not necessary to say more, for science has proved too strong for prejudice.

I shall take up the subject by dividing it into four sections:

1. Theories and facts.
2. Its therapeutic uses.
3. Its abuses.
4. Its medico-legal relations.

The theory of hypnotism I shall touch but little upon, for we have been studying the phenomena for several years, and it is now time to take action on our conclusion of facts as far as we have them. As neurologists we have too long been studying the brain, not its functional product—the mind. The abuses of hypnotism call for some attention, as they must be shown and predicated before we can take up the juridic side of the case.

I do not intend to go into the discussion of the theories of the two schools of hypnotism, but I think we can, by looking at the subject from an elemental basis, get a better understanding of the foundation upon which these superstructural theories have been reared.

Whether we take the Charcot or Nancy school, the subject is the same to us from a therapeutic or medico-legal point of view. Charcot's school agree in regarding hypnotism as an induced neurosis closely allied to hysteria, and therefore pathologic, while the Nancy school refuse to see in hypnotism anything but a psychologic condition almost identical in its nature to natural sleep.

Charcot considered hypnosis a distinct entity marked by the presence of certain somatic phenomena while Bernheim denies that there are any technical phenomena characteristic of the condition, and refers everything to suggestion. Although a former pupil of Charcot, my investigations have led me to follow the teachings of Bernheim.

This idea of suggestion grasped in its full significance, compels us to alter somewhat our old idea of the *ego*. In fact, it is questionable if our ordinary conception of it is correct. We are accustomed to think of the ego or personality as something *in se ipso totus, teres atque rotundus*, a complete indivisible unity.

Recent studies in psychology seem to indicate that the unity of the human consciousness is not one of its functional attributes.

To quote Mr. Myers¹: "My organism is the real basis of my personality. I am still but a colony of cells, and the unconscious or unknowable, from which my thoughts or feelings draw their unity, is below my consciousness and not above it; it is my protoplasmic substructure, not my transcendental goal."

According to this, the self is not a separate entity independent of the organism in which it dwells, and its entity is really a product of its structure. So that it is not only consciousness of self but the quality of the particular self that depends on the relations, partly structural, partly relations of adjustment—between the cell or other units which compose the organism. Alter these relations and you alter the self. These alterations are brought about by suggestion, and this produces the phenomena seen in the various stages of hypnotism.

The general impression that hysterical persons are those chiefly amenable to hypnotism is an idea that I must dissent from. I have hypnotized patients in Iceland, Africa, China and various other parts of the globe, and have not found that the hysterical element was necessary. Furthermore, if only hysterical persons are susceptible we must modify and enlarge our conception of hysteria, or admit that 80 per cent. of men and women, and 95 per cent. of children are hysterical. For nearly all children are hypnotizable, and we rarely find hysteria before puberty. Dr. Schrenk-Notzing has recently published some international statistics contributed by fifteen observers in nine different countries, and these give 6 per cent. of failures in 8,705 cases. Wetterstrand of Stockholm, states that the hardest subjects he found to hypnotize were hysterical and nervous persons, especially neurasthenics. This has also been my experience. Dr. J. J. Bramwell of London,² states that he had succeeded in hypnotizing 88 per cent. of both sexes, of varying ages and social positions. The investigations of the Second International Congress of Experimental Psychology admitted the therapeutic advantage derived from hypnotic suggestion and the recognition of the important fact that the susceptibility to hypnotic control is not itself an indication of hysteria or of any morbid condition whatever in the subject.

THE THERAPEUTIC USES OF HYPNOTISM.

As regards the therapeutic uses of hypnotism we

¹ Human Personality, p. 639.

² Lancet, Nov. 4, 1893.

have been confronted by two divergent tendencies; the one leading to exaggeration the other leading men to disparage or ignore the subject. It is scarcely necessary to state that this latter attitude is assumed through a lack of scientific inquiry into the matter. These *quid nuncs* display a feat of exegetic audacity which would equal that of a Chinese general. I shall try and look at both sides calmly, without undue enthusiasm or prejudice. The few facts I shall offer for your consideration will be only those that have come under my observation the past year. The literature of the past five years on this subject is so pregnant and rich in facts, and so ponderous in its multiplicity of works, that you are all more or less familiar with the therapeutic uses and limitations of hypnotism to-day.

For insomnia I know of no remedy equal to hypnotism. Lately, considerable has been said about the use of hypnotism in dipsomania and alcoholism. I have found it of great value in these cases, and have been able to cure 85 per cent. of my patients. When I say cure, I mean those who have gone three years without returning to their old habits. I have had one relapse after three years complete abstinence, and one after three years and three months. It is useless to try and cure your patients unless you are fully convinced that they honestly desire to be cured. With the drug habit I have had about the same good result. Bushnell, Surgeon U. S. A., gives a list of eighteen cases. He says: "I have never failed to hypnotize a patient who sought treatment for alcoholism."³

The reason we get such good results in alcoholism and the drug habit is on account of that intellectual inertia consequent upon frequent stimulation, and it is a psychologic fact that a mind thus weakened is more susceptible of receiving and accepting suggestion than one in possession of more stable and mental vigor. This is only true where there has been no organic change in the brain tissues. Of course this treatment should go hand in hand with the modern hygienic methods now used in institutions throughout the country.

I will say here that I do not intend to give histories of cases, as my time is limited and I wish to cover the whole ground in a general way.

Hypnotism is of value in enuresis nocturna, masturbation in both sexes, acquired but not congenital sexual perversion. This is a distinction to which I particularly wish to call your attention.

In certain forms of hysteria which baffle all other methods of treatment, hypnotism is invaluable. Pope,⁴ reports a case of hysterical alexia cured by hypnotism. I have cured cases of hysterical contractures that had been the rounds of the hospitals. Daland also reports similar results.⁵ Dr. Eugene Reveilva⁶ reports a case of hysterical paraplegia cured by suggestion. I have had one case of paralysis agitans,⁷ in which the movements were arrested during suggestive sleep, thereby giving the patient much needed rest. Barretto Pisquer, Bahia, Brazil,⁸ gives several cases of hysteria cured by hypnotism. I think that we can lay down the rule that hypnotism will invariably remove hysterical symptoms if not hysteria itself. While these facts may appear contradictory to my

former statement that hysterical persons were the hardest subjects to hypnotize, you will remember that I did not say that they could not be hypnotized. They require greater persistence on the part of the operator, and your efforts will often prove fruitless. Mental excitement greatly militates against hypnosis.⁹ I have had many failures due to this condition.

In cases of epilepsy, I think that too much importance has been attached to suggestion and not enough to artificially induced sleep. Especially is this so in anemia and chlorosis. Berillon reports a cure of four out of twenty epileptics; in six other cases the attacks were greatly modified. In a young woman of 25 years, an aphasia of three years standing was completely cured. I am far from believing that persons with inveterate hystero-epileptic fits can be cured by anesthetizing hystero-genic zones or by stopping these sleeping periods by hypnotizing and suggesting at the same time. But since the outbreak of inveterate fits is preceded by a period more favorable to our therapeutic operations, the experiment of leading the disease into other channels during these periods seems to me worthy of trial. Wetterstrand is now keeping those patients in a prolonged sleep lasting several months. I believe here we are on the right track. You can suggest intervals of awakening and hunger. I kept one patient who was having five fits a day free from them for ten days, during which she was in an artificially induced sleep. I feel certain that I could have greatly benefited her if not cured her, had I been allowed to continue the sleep for several months. But church, meddling friends, and superstitious family were too strong for me.

Babanski,¹⁰ relates a case of left hemiplegia, with hemianesthesia dating from an attack of year before. The patient had a post-hemiplegic lateral tremor simulating insular sclerosis, contracture of the left leg and arm, and exaggerated reflexes. He suffered from dyspnea dependent on emphysema. Hypnotic suggestion caused a rapid cessation of the tremor, relaxation of the contractures, return of the common and painful sensations to the left side, return of the power to stand and walk without a stick and with very little dragging of the limb.

The amelioration of all the symptoms continued for two years, during which time the man was kept in the hospital and occasionally hypnotized. He died at the expiration of two years. The autopsy revealed foci of yellow softening in both hemispheres, upon the convexity of the left occipital, and in the right hemisphere immediately behind the posterior extremity of the optic thalamus. Almost all the posterior portion of the external segment of the corpus striatum was destroyed, and its cavity filled with fluid. The medulla, pons medulla, and cord were not implicated, nor was there any degeneration of the pyramidal tract.

Bernheim in commenting on this case, suggests the possibility of suggestion having reëstablished the conductivity of sensory impressions of other tracts in place of those destroyed, but Babanski considers that hypnotic suggestion simply affected the hysterical element of the case. The fact, however, remains that a man suffering from a grave organic disease of the brain was very greatly benefited by suggestion and enabled to walk long distances and feed himself for two years, after he had been unable to do so for more

³ Med. News, Phila., 1894, xiv, p. 337-348.

⁴ New Orleans Med. and Sur. Jour., 1894, n. s. xxi, 814-816.

⁵ University Med. Mag., April, 1893.

⁶ Jour. Med. de Paris, May, 1891.

⁷ Parkinson's disease.

⁸ Gaz. Med. da Bahia 1894-95 N. 97-105.

⁹ F. Jolly, Hypnotismus und Hysterie: eine Eroderung. Munchen Med. Wochenschrift, 1894, xli, 247.

¹⁰ Hypnotism et Hysterie, p. 41.

than a year. Several cases have been reported from Europe in which the symptoms of locomotor ataxia have been greatly warped by suggestion.

We are all familiar with the fact that local and complete anesthesia can be produced in hypnotic subjects, and minor as well as major operations done with greater facility and less danger than with chemical aids. That hypnotism will ever take the place of our present anesthetics is very doubtful, as this stage of mental suggestion can not always be effected at the time wanted; however, I have used it frequently in cases where I had the time to thoroughly develop the subject, and often in an emergency. I believe that we are doing an injustice in giving the anesthetics without first attempting to produce an anesthetic condition by hypnotic suggestion. In dentistry, for the extraction of teeth, I have used it several times at the request of the dentists. It is a safe, neat and very satisfactory method of painlessly extracting teeth. But the *zeno genesis* can only be produced by one who has the confidence which comes from experience.

Professor Hitzig¹¹ produced anesthesia in the whole forearm for painful scars, the effect of such suggestion done but once lasting several months. Prodromal headaches in certain cases can be relieved by hypnotic suggestion. In labor cases it is best to hypnotize your patient once or twice before labor begins. I prefer to begin several days before the expected occurrence, because when labor begins the condition of suggestibility decreases on account of other sensations intervening. A large number of observers, especially Schrenck-Notzing, report successful cases of confinement by hypnotic suggestion. The advantages of hypnosis in labor are the removal of consciousness of pain, regulation of position of limbs, body and attitude, and increase or diminution of uterine contraction by action of voluntary muscles under suggestion.

In persistent hiccough that sometimes baffles all other treatment, I advise you to try hypnotism. In a case of four days' persistent hiccoughing I gave immediate relief. Dr. Fitzgerald, of the City Hospital, St. Louis, had a similar result in a case of an old man who had been hiccoughing for forty-eight hours and who was in a very low condition.

In a large number of cases it is not necessary to produce complete hypnosis to get satisfactory therapeutic results. If you have hypnotized the patient several times; if even he has only been in a state of lucid lethargy, he will often take suggestions satisfactorily in a waking state. Deep sleep is not necessary for suggestions to take effect. There are also persons so amenable to suggestion that hypnosis is unnecessary; this is especially the case with children. In other persons, suggestions must be adapted to the condition of the patient; to his mental individuality, and to the special symptoms to be removed.

I have been unable to see any decided beneficial effects in the hypnotization of the general insane. In fact, it is almost an impossibility to endorm these cases. Idiots particularly, are almost invariably incapable of being brought to that condition of mental attention which is necessary to produce a hypnotic state. In those children who are morally perverted by environment and acquirement, mental suggestion is the proper treatment. In fact, in these cases we have in hypnotism a basis for a mental and moral

orthopedia. The only authority who credits hypnotism as of value in the treatment of the insane is August Voisin; but as his statistics only show 10 per cent. of cases benefited, it is scarcely worth placing much confidence in this therapeutic method. Dr. George M. Robinson, of the Royal Edinburgh Insane Asylum, has used it with success in insomnia, as a sedative in excitement, as a substitute for restraint, and to dispel fleeting delusional states and the minor psychoses.

Therapeutically, suggestion is of value in evolving isolated disturbances in the organ of mind, the cerebral cortex to be acted upon, apart from the symptoms of disease which may be associated with them.

THE ABUSES AND DANGERS OF HYPNOTISM.

The first danger that I wish to call your attention to, is one that directly interests ourselves. That is, in receiving statements of hypnotic subjects we should constantly bear in mind the great risk of conscious and unconscious deception. We must have some diagnostic data to rely upon to show the paralyses produced by hypnotic suggestion. These facts must be known by the legal as well as the medical profession. I give you these facts as laid down by P. Richer and Gilles de la Tourette. Complete laxity of limbs, considerable exaggeration of the tendon reflexes, spinal trepidation, loss of muscular sense, exaggeration and modification of the muscular contraction provoked by the galvanic current, and vasomotor troubles. I have generally found a fibrillary motion of the eyelids. Jolly¹² gives three cases of mental derangement treated by hypnotism whose conditions were made temporarily worse by the treatment; that is, they all showed symptoms of true hysteria which they had not before. I have had one case that I feel certain was mentally injured by hypnotism; but it was the manner in which he was treated rather than the effects of hypnotism *per se*. He was a subject that was like a piece of clay in my hands and a case that taught me many a valuable lesson. I sent him to steal Dr. Brinton's watch. This he did most adroitly. I brought him out of the hypnotic state, when he was accused by Dr. Brinton of having his watch. When the watch was found upon him the shock was so great that he immediately went into a cataleptic condition. With great difficulty I brought him out of it. These fits continued almost every hour for several days until I was enabled to hypnotize him and make the post-hypnotic suggestion that he would forget all that had happened. I have never hypnotized persons for experiment since, without giving them a post-hypnotic suggestion. I claim that the injurious effects of hypnotism depend upon the nature of the suggestion; that we are enabled to benefit or injure the mind according to the cortical centers we inhibit or stimulate. I will read you a letter I received a few days ago:

NEW YORK, March 26, 1895.

Dear Sir:—About six weeks ago I was partially hypnotized by a person from whom I was taking lessons. Since that time I have suffered from an oppressive feeling of weight on my brain, and such drowsiness and loss of interest in things about me that I am forced to think that this unusual condition was produced by the hypnotist, especially as I first felt it immediately after the act. Please let me know whether I am probably right in my opinion as to the cause of my suffering, and give me the address of some reputable physician here, competent to diagnose my case and afford me relief.

Yours, etc.,

¹¹ Brain, 1888.

¹² Arch. für Psychiatrie, XXV, p. 3.

A. Tuckey¹³ mentions a case of complete cessation of respiration by hypnotic suggestion. Recourse was had to artificial respiration. Heidenhain¹⁴ believes that a healthy person might be placed in jeopardy by continued suggestion to cease breathing. I have frequently brought the respiration down to eight a minute, and run the heart beats up to 190. I only ceased the experiment for fear of disastrous results. One could find no easier way of committing murder. The cause of death could not be detected.

We have one well authenticated death by hypnotic suggestion. Ella von Salmon died under circumstances pointing strongly to hypnotism as the chief if not the sole lethal agency in her case.¹⁵

The autopsy on this case was conducted in the Pathologic Institute at Buda-Pesth in the presence of Dr. Jozas and several other physicians. The brain exhibited a high degree of anemia and consecutive malnutrition, with indications of edema, otherwise there was no abnormality. Dr. Jozas considers the cause of death, acute anemia of the brain, incident to the hypnotic state, with syncope and heart failure. The experiment with her was of a startling and highly sensational nature. While in the hallucinatory state she saw by suggestion a diseased lung, and gave a long description of the pathologic condition in an excited and agitated manner. The final question of the operator had an intense emotional effect on her, and caused her collapse. She did not die from auto- or imparted suggestion, causes which might prove fatal under certain circumstances. In commenting on this case Kraft-Ebbing says: "The question of the cause of death in this case probably permits this answer. The unskillful use of hypnotism by a layman and the unusually violent cerebral excitement stand as the causes of death." This case teaches us that the laity should not practice hypnotism. This naturally brings us to the consideration of the medico-legal aspects of hypnotism.

THE MEDICO-LEGAL ASPECTS OF HYPNOTISM.

We now come to the juridic aspect, and this opens such broad possibilities, such intricate problems, and in our present state of knowledge of the subject, such a bewildering maze of contradictions, opportunities, and incongruities that I approach the matter with hesitancy. To even approach the threshold of this side of hypnotism with as few words as possible is no easy task. However, I will attempt in five minutes to give you the kernel of my thoughts and study on the matter.

I think that I can say without the fear of contradiction that we all agree that laws should be enacted in this country regulating the practice of hypnotism. Such laws, and stringent ones too, exist to-day in most civilized communities. All public demonstrations of hypnotism should be suppressed by legal action, and the courts take cognizance of citizens being subjugated by any unqualified experimenter, as it does of the unlawful practice of drug prescribing or surgical operations by unqualified and unlicensed persons. The trail of hysteria, auto-hypnotism and neurotic eruptions that is left in the towns visited by the traveling mesmerist can only be understood by one watching the route of these pseudo-scientific men. This was well illustrated in the Briggs-Picken case at

Eau Claire this winter. Two young girls who had been subjects of a traveling hypnotizer were finally wrought up to such a condition of hysterical auto-hypnosis as to accuse Dr. Picken of seduction under hypnotic control. Judge Wm. F. Bailey very justly decided to get some information upon hypnotism before allowing the plea of hypnotism to be entered. The case being laid before me, I soon satisfied myself that there was no basis upon which to enter such a plea. I concluded that the simulation was objective. That the case was one of auto-suggestive self-deception. The wanton and unscientific hypnotic suggestions which had been given them for several days produced in these girls a condition in which they gave statements of erotic auto-suggestion, delusion of memory, delusion of sight, and gaps in their life's history.

In the Anderson-McDonald case just decided by the Supreme Court of Kansas, wherein the hypnotized or automatic murderer was acquitted and the hypnotizer sentenced to death, we had the first case of the kind in this country, but you are all familiar with several cases of the kind decided by the courts in Europe. One error seems universally prevalent among both the laymen and the profession who have criticised this decision. Because the hypnotizer was not present when the act was committed, the opinion is expressed that the person committing the act was not hypnotized. This is a grave error, and the court should be made familiar with the greatest danger hypnotism presents. I refer to the post-hypnotic condition. By post-hypnotic condition I refer to the appearance of a hallucination at a given day and hour or the performance of a suggested action after a certain interval of time, during which interval the subject is in his normal mental condition. This is the only scientific explanation of the idea of transference of suggestion through space. There is no such phenomenon known to the accurate psychic observer. There must be verbal or ocular suggestion, as sending a note to the subject which commands him to perform certain specific acts. In those cases of murder where hypnotism is proven, and the hypnotizer is absent when the act is committed, this post-hypnotic condition must be seriously considered. These post-hypnotic suggestions are given when the subject is in a state of complete hypnosis, but he will after an interval of time, during which he is in his normal state, carry out the suggestions which have been given him, totally unable to explain his reasons for so doing, and carrying them out in all gradients from credulity to extreme hallucinations, all depending upon the purport of the suggestion. The recrudescence will occur several weeks after the suggestions have been given.

That crime can be committed through hypnotic suggestion, I am fully convinced. I do not base my conviction on the results of the well-known laboratory experiments but upon more practical and satisfactory evidence.¹⁶

Under certain circumstances there is no reason why the court can not require an examination of the accused and witnesses by qualified hypnotists. *Salus populi suprema est lex.* Evidence thus obtained, however, should be used only as indicating where legally usable and valid evidence might be obtained, and not itself legally usable and valid. Such cases should if possible be tried before a judge not a jury. This is possible in the countries in Europe where the laws

¹³ Brain, vol. XIV.

¹⁴ See Loos, Otto: Der Hypnotismus und die suggestion in gerichtlich-Medicinische Beleuchtung.

¹⁵ See Lovrich, J.: Tod während der Hypnose. Pest. Med. and Chur. Presse Buda-Pesth, 1894, XXX, 1016, 1018.

¹⁶ See N. Y. Med. Jour., March 9, 1895.

differ radically in some respects from those extant here.

Hypnotism is a justifiable inquisitorial agent for finding clues. In Indianapolis, last January, Frank Pierce and George Schoppe were both arrested and convicted on evidence given by young Schoppe while in a state of hypnotism. Dr. Gardener, of Napa California Insane Asylum, was called into court last November to hypnotize the murderer Livernash, and succeeded in getting the truth from him. I might continue by quoting a large number of similar cases in Europe, but these are sufficient for my case.

The law in Holland allows the subjection of the accused to the process of hypnotization to obtain evidence, but such evidence thus obtained can not be made use of unless otherwise corroborated.¹⁷

In discussing the question from the standpoint of criminal law we are confronted by two great questions: 1, the responsibility of the hypnotizer; 2, the responsibility of the hypnotized.

To the first question the answer is very simple. The hypnotizer occupies a position akin to that of an accessory before the fact, who, under the common law of England is equally guilty with, and is punished as a principal; but in the case of a crime committed by one under hypnotic suggestion, the guilt of the hypnotizer is increased. In the case of principal and accessory, there are two wills acting in unison; but in the other, the will of the hypnotizer stands alone in the guilt, and if the crime was murder, his position is precisely that of one who lets loose a wild animal upon his victim, knowing that the nature of the animal is such that he will surely kill.

From what I have said on the first question, it follows as a corollary to the proposition that the second question is answered by saying that the responsibility of the hypnotized is no greater than that of one who is *non compos mentis*; but this broad generalization requires to be somewhat qualified, and in this connection I desire to note a dissent from Albert Hall in his sweeping condemnation of the view of Desjardins, "that a person who commits a crime by post-hypnotic suggestion is punishable, because he might have foreseen the possibility of such suggestion."

This language is, from a legal standpoint, objectionable, in that it is vague and liable to misconstruction, but with certain qualifications it can, I think, be fairly indorsed. If the party hypnotized knew previously that the hypnotizer had this power and was a man of criminal habits and inclinations, and that he himself was subject to hypnotic influence, and yet, while in full possession of his will, he placed himself in such a position as to be within the scope of hypnotic influence, I am strongly of opinion that a certain degree of legal responsibility attaches to him for any crime he may commit, either under the influence of hypnotic or post-hypnotic suggestion, though to what extent he should be punished I am not prepared to say; but his position might be fairly held somewhat analogous to that of an engineer by whose carelessness a passenger was killed—the absence of criminal intent being the same in either case. If the one hypnotized had caused the criminal act to be suggested to him, the guilt of both parties would be equal.

Now, having fixed the status of the hypnotizer and

hypnotized before the criminal law as to their respective responsibilities, we come to what I regard as the most difficult problem to solve: how is it to be demonstrated that a given crime was committed by a prisoner while in a state of hypnosis? Such claims are now frequently being brought before our courts. Such a defense may rightly be interposed, and while evidence might properly be introduced in a homicidal case to show that the prisoner had no motive to kill the deceased, but that A had such a motive, and that A possessed the hypnotic power, and that the prisoner was subject to hypnotic influence, and while such evidence might raise in the minds of the jury such reasonable doubt that they would be forced to acquit the prisoner; yet, when the picture is reversed, and we see A placed at the bar, the prosecution is beset with such difficulties under the rules of evidence that I do not consider that it would be competent for it to prove the responsibility of A, by showing that he had exercised the hypnotic power over B at other times, any more than it would be competent for it to prove the guilt of a prisoner by showing that he had been guilty of similar offenses at other times, which evidence is always inadmissible except in rebuttal, where the defense has offered in chief evidence tending to show the previous good character of the accused; and while such evidence would undoubtedly tend to carry moral conviction, it would nevertheless be legally inadmissible. The law deals, particularly in its criminal jurisdiction, with facts, not probabilities, and the evidence must be confined to showing that in committing the crime the one striking the fatal blow was acting under either hypnotic or post-hypnotic suggestion, and that the prisoner was the actual hypnotizer, and, ergo, responsible.

Another point which occurs to me is the difficulty which might well arise from the trouble in getting the person hypnotized to testify in the presence of the prisoner. Might he not, by the exercise of his power over the witness, prevent him from testifying, or render his testimony worthless? Yet it would not be possible to remove the prisoner and then examine the witness, for by the inexorable rule of the common law, every man is entitled to be confronted by the witnesses against him, and no trial can go on in the absence of the prisoner, so that if the prisoner escapes during the trial of the cause, the trial must stop—the common law knowing nothing of any such proceeding as a trial in contumation.

It is evident that some radical changes must be made in our criminal procedure in cases where hypnotism is alleged. I think a point has been reached where scientific investigation, traveling on well-defined and incised lines, has brought out facts that now allow some regulation of hypnotism by a change of laws. The future of the subject should now be confined to those whose training and predilections best fit them to continue research, and properly instruct physician and student. Such prerequisites are absolutely necessary to place the phenomena on a dignified platform with nerve physiology. Medical schools should be able to furnish instruction to their students in this rapidly developing branch of medicine; for, as Kraft-Ebbing says: "Hypnotism as a biologic phenomenon of nature offers symptoms emphatically true, clear and objective, the proof of which is decisive."

¹⁷ Crocq fils, L'hypnotisme et le crime. Conférences au jeune barreau de Bruxelles, 1894, H. Lermertin.

DUPLEX PERSONALITY—ITS RELATION TO HYPNOTISM AND TO LUCIDITY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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After a hundred years of obloquy, hypnotism, with some of its most important phenomena, stands to-day an accepted fact. Telepathy may be looked upon with suspicion; clairvoyance may be suffering in reputation from contact with charlatanry, but the simple hypnotic state with its conditions of lethargy, catalepsy and somnambulism, has passed from the region of doubt and hypothesis to that of a fact in mental science. It is comparatively a newcomer in the scientific world. As a wanderer—an Ishmaelite of unrecognized pedigree and doubtful reputation, it has long been heard of, but no one felt bound, and few felt inclined to make its acquaintance; but now with godfathers and sponsors of the highest respectability in the scientific world, it stands upon its rights and demands place and consideration. It is no pigmy nor weakling, this newcomer; it has thriven and grown lusty on thorns and stripes, and now it stands sturdily and unabashed in the presence of the representatives of wisdom and with dignity sets forth its claims.

And first, with slight respect for its modern sponsors, it claims for itself an honorable lineage; so ancient that its record is found in the very earliest literature and upon the earliest monuments. It counseled kings, instructed the wise, swayed the fortunes of armies, enterprises and empires thousands of years before modern science was born. Its origin and offices were then reckoned as divine; and its characteristic condition was named the "Sacred Sleep," in which the gods communed with mortals.

Admitted as a legitimate member, to the brotherhood of science, its claims to consideration are both practical and philosophical. As a therapeutic agent, as a hypnotic and anesthetic, as a stimulant to weakened or diseased organs or functions, as a reclamer and deterrent from inebriety and crime, as a corrector of the wayward, a spur and educator to the feeble intellect and a dispeller of clouds from the obscured and wandering mind, no other single agent at our command can be compared with it. On the other hand, from the higher or philosophical aspect, it is the key to many mysterious, and, by the old psychology, inexplicable conditions or functions of the mind. Chief among these unusual states are *double or multiplex personality* and *lucidity or clairvoyance*, and it is to these conditions that I would especially invite your attention.

Not until within the past decade has the subject of duplex or multiplex personality been intelligently examined. Indeed, the idea even, of such a condition in any definite form is of very recent date. The philosopher Reid, a hundred years ago, wrote as follows: "My thoughts and actions and feelings change every moment; they have no continued but a successive existence; but that self, or I, to which they belong, is permanent. The identity of a person is perfect; it admits of no degrees and is not divisible into parts;" and while this statement may still express the general consensus of mankind upon the subject, and may in a certain sense be

well founded, still certain facts have been observed since that philosopher wrote, which bear strongly upon the subject and are entirely rebellious and refractory to the law which he has enunciated.

The case of Felida N., reported by Dr. Azam of Bordeaux, is one of the earliest to attract the serious attention of students. It is classic upon the subject, and may be briefly stated as follows: As a child she was sickly, moody and hysterical. At the age of 14 years, after a prolonged attack of an epileptiform character, she emerged into a new and entirely unusual condition. Her general appearance was changed, and she talked and acted in a manner quite different from her usual self. These attacks were repeated and became frequent; and the condition lasted for hours and even days together. In her usual state she had no recollection and no knowledge of her second condition or what occurred in it, and the whole time spent in that condition was to her a blank. On the other hand, all the different occasions when she had been in this second condition were linked together, constituting a distinct chain of memories, and a personality just as consciously distinct and conspicuous as her original self.

The two personalities were entirely different in character and disposition; the original one being sickly, indolent and melancholy; while the new one was in good health, cheerful and industrious, perfectly sane and in harmony with her environments.

The second self at length came to occupy the greater portion of the time and to consider herself the chief personality. She married, brought up children and carried on the little business of a shop, all in an efficient and exemplary manner. She knew the original self, but at first not as in any way connected with herself, but simply as another person, and indeed one whom she disliked and dreaded. Later she became acquainted with the peculiar relations which existed, and letters passed between the two personalities relating to their common interests, just as they might pass between two separate individuals. This condition existed many years, and so far as I know still exists.

A second case is that of the Rev. Ansel Bourne of Rhode Island, an evangelist and farmer. He left his home in Rhode Island Jan. 17, 1887, and after transacting some business in Providence he went to Boston, then to New York, then to Philadelphia and finally to Norristown, Pennsylvania, where he opened a store for the sale of confectionery, stationery and other small articles.

In this business he was known as A. J. Brown. He lived in a room at the back of the store; cooking, eating and sleeping there. He went back and forth to Philadelphia for goods to keep up his stock, and conducted his business as if he were accustomed to it. On Sunday, March 13, he went to church and at night went to bed as usual. On Monday, about 5 o'clock in the morning, he awoke and found himself in what seemed to him to be an entirely new and strange place. He could not imagine how he came to be there, but thought he must have broken into the place in his sleep. He waited impatiently for two hours, all the time fearing arrest, and then began to explore his surroundings. He went out into the hall and seeing a door he knocked and was answered by his landlord who accosted him familiarly with, "Good morning, Mr. Brown." "Where am I?" he replied; "My name is not Brown." He declared that he knew nothing of Norristown nor of the stationery business; that he was in Providence on January 17, which he supposed was the day previous, and saw the Adams Express wagons on Dorrance Street; and since that time he had no idea what had transpired. The landlord thought he had suddenly become insane and he called a physician. To the physician he said his name was Ansel Bourne and that he lived in Rhode Island; that the people in whose house he found himself declared that he had been living with them six weeks; for his part, he had never seen one of them until this morning.

His friends were notified; they came on and settled his affairs, and A. J. Brown went back to Rhode Island and resumed his occupation there as Ansel Bourne, but of A. J. Brown, of his journey to Norristown, and of the business which he carried on there, he had not the slightest knowledge.

Dr. Richard Hodgson, Secretary of the Society for Psychological Research, and Professor James of Harvard College, now became interested in the case; they went to see Ansel Bourne and learned the particulars of his strange experience; but of the journey from Providence to Norristown no infor-

mation whatever could be obtained. At length Ansel Bourne was put into the hypnotic condition, when he was again A. J. Brown. He then remembered all about his business at Norristown, and described minutely the journey from Providence to Boston, New York, Philadelphia, and then to Norristown, giving the names of the hotels at which he stopped and the people whom he met—all of which was subsequently carefully verified. He thought he had met Ansel Bourne, but had never known him intimately; and when introduced to the wife of Ansel Bourne, while he thought possibly he might have met her, he very strongly repudiated the idea that she was or ever had been his wife. On being awakened from the hypnotic sleep he was again Ansel Bourne with all his usual feelings, opinions and affections, but had not the slightest knowledge of A. J. Brown, nor of the business he carried on at Norristown; and certainly of any good or evil deed which A. J. Brown might have done, he, Ansel Bourne, was absolutely ignorant, and not in any manner to be held responsible.

I have myself reported two cases of double or multiplex personality. One is that of Alma Z. in the *Journal of Nervous and Mental Disease* for September, 1893, the other that of M. M., read before the New York Academy of Medicine Oct. 12, 1888, and published in the *Journal of the London Society for Psychical Research* for December, 1894. An outline of the former case is as follows:

Alma Z. was an unusually healthy and intellectual girl, a strong and attractive character, a leading spirit in whatever she undertook, whether in study, sport or society. From overwork in school, and overtaxed strength in a case of sickness at home, her health was completely broken down and after two years of great suffering suddenly a second personality appeared. In a peculiar child-like and Indian-like dialect she announced herself as "Twoey," and that she had come to help "Number One" in her suffering. The condition of "Number One" was at this time most deplorable; there was great pain, extreme debility, frequent attacks of syncope, insomnia, and a mercurial stomatitis which had been kept up for months by way of medical treatment and which rendered it nearly impossible to take nourishment in any form. "Twoey" was vivacious and cheerful, full of quaint and witty talk, never lost consciousness, and could take abundant nourishment which she declared she *must* do for the sake of "Number One." Her talk was most quaint and fascinating, but without a trace of the acquired knowledge of the primary personality. She gave frequent evidence of supranormal intelligence regarding events transpiring in the neighborhood. It was at this time that the case came under my observation and has remained so for the past ten years. Four years later under depressing circumstances, a third personality made its appearance and announced itself as "The Boy." This personality was entirely distinct and different from either of the others. It remained the chief alternating personality for four years, when "Twoey" again returned.

All these personalities, though absolutely different and characteristic were delightful each in its own way, and "Twoey" especially, was and still is, the delight of the friends who are permitted to know her, whenever she makes her appearance; and this is always at times of unusual fatigue, mental excitement or prostration; then she comes and remains days at a time. The original self retains her superiority when she is present and the others are always perfectly devoted to her interest and comfort. "Number One" has no personal knowledge of either of the other personalities but she knows them well, and especially "Twoey" from the report of others and from characteristic letters which are often received from her, and "Number One" greatly enjoys the spiky, witty and often useful messages which come to her through these letters and the report of friends.

Here are three cases in which a second personality—perfectly sane, thoroughly practical and perfectly in touch and harmony with its surroundings, came to the surface, so to speak, and assumed absolute control of the physical organization for long periods of time together. During the stay of the second personality the primary or original self was entirely blotted out, and the time so occupied was a blank. In neither of the cases described had the primary

self any knowledge of the second personality, except from the report of others or letters from the second self, left where they could be found on the return of the primary self to consciousness. The second personality on the other hand, in each case, knew of the primary self, but only as another person—never as forming a part of, or in any way belonging to their own personalities. In the case of both Félicité X. and Alma Z., there was always immediate and marked improvement in the physical condition when the second personality made its appearance. Several other well authenticated cases are on record showing the same or a corresponding series of phenomena.

These phenomena are altogether too marked and uniform not to have a *meaning*, and not to be influenced by some common law or bond; they are no psychologic comets wandering off into space, or in orbits which it is impossible to determine; they must belong to some system, governed by laws which it is possible to study and determine; and it is important to examine closely the psychologic firmament and study the phenomena there discoverable in order to gain what light and aid we may in determining the law by which they are all governed. The first series of phenomena presenting analogies with those we have already examined is that connected with somnambulism; and here the analogies are most striking. As in the cases above described so in ordinary somnambulism, first, the primary consciousness is blotted out—in sleep; second, another consciousness or personality takes control of the physical organization. Third, the different occasions upon which the somnambulist walks or performs his physical or mental work are linked together in one common chain of memories—that which he thinks and does to-night is generally a continuation of the thoughts, scenes and events of last night or the last attack of somnambulism—altogether constituting the action of a personality just as consciously distinct as the personalities already described, only of short duration. Evidently here is another planet of the same system, revolving in a similar orbit and governed by the same central influence.

Looking again, we come upon the interesting and now well-known case of Madame B., observed by M. Pierre Janet, of Havre, and Dr. Gibert, also a leading physician of the same city, and reported in the *Revue Philosophique* for March, 1888. It presents a remarkable instance of distinct personalities brought into action by means of hypnotism. A brief resumé seems necessary:

In her ordinary state Madame B. is a stolid, ignorant, but substantial and honest French peasant woman about 45 years of age—very modest and retiring, and without the slightest desire for notoriety. In this ordinary state M. Janet calls her Léonie. Hypnotized, Léonie is at once changed into a youthful, vivacious, mischief-loving and rather noisy personality who considers herself on familiar terms with the doctors, banters and jokes with them, and whom M. Janet names Léontine. Later, and by further hypnotization and a deeper trance, there appears a sedate personality—intellectually much superior to Léonie and much more dignified and sensible than the vivacious Léontine—and this third personality M. Janet calls Léonore.

Madame B., the original or primary self, knows nothing whatever of either Léontine or Léonore, and the time they occupy is to her a blank. Léontine, however, knows Léonie, the original Madame B., very well and is anxious not to be confounded with her. She always calls her "the other one," and laughs at her stupidity. She says, "That good woman is not I. She is too stupid." Léonore, the third personality, knows both Léonie and Léontine, and is equally anxious not to be mistaken for either of them. Speaking to

M. Janet of Léontine, she says: "You see well enough that I am not that prattler, that madcap; we do not resemble each other in the least."

Madame B. is married, but Léontine is not; but at her accouchement Madame B. was hypnotized, and so Léontine was present; consequently Léontine has two children of whom she is very fond, and she would be very much hurt if her right of motherhood were questioned.

It is evident that we have here still another planet in our system, moving in a similar orbit and guided by the same central influence as those already examined. What is this central idea which dominates the phenomena that we have been considering?

We find a certain definite series of phenomena presenting themselves under three distinct conditions:

1. A change from the ordinary or primary condition to a second and entirely different condition, brought about by illness or other physical causes.

2. The same change of condition occurring in ordinary sleep and known as sleep walking or somnambulism.

3. The same changes brought about experimentally by means of hypnotism—as in the case of Madame B., and also that of Ansel Bourne.

Of each of these three conditions, under which this change occurs, I have had well marked examples under my own observation, and I have carefully examined the literature of other reported cases, and they all present the same essential characteristics. The cases are now too numerous and the phenomena exhibited are too distinct and in too perfect agreement to allow of reasonable doubt regarding the facts themselves, or of their *identity* under all these different circumstances. The phenomena which are present in each case are such as to indicate the appearance of an entirely new and independent personality. The thoughts, actions, feelings, opinions and even the facial expression and essential character of the second personality are utterly different from those of the primary self. Such a marked change occurred in the case of Félicité X., of Ansel Bourne, and Alma Z.; it also occurs in many cases of somnambulism and also when the change is brought about by hypnotism. The statement of all these second personalities themselves so far as it goes, corroborates the same inference. The primary personality knows nothing of the second or succeeding ones. The second personality in every case declares its absolute independence, is anxious not to be confounded with the primary self, and gives good and substantial reasons for that desire.

Again, the submerged second personality sometimes shows its power to act independently, while the primary self is also in full and conscious activity. This power was shown in the case of Alma Z. and also in M. Janet's subject, Madame B.

Such are the facts. What is the theory which best coördinates them?

I am fully aware of the infinite scorn with which the school of physiologic psychologists look upon experimental psychology, and upon any theory in psychology which is not based in physiology; but when Carpenter, the apostle of that school, could offer no better theory to explain a coherent message automatically spoken or written, than "unconscious cerebration" and "unconscious muscular action," and when Wundt, its latest expositor, teaches that the usual cause of dreams is indigestion, that sleep-walking like dreaming "has no mystery about it," that "the popular belief in premonitions by dreams we need not stop to consider," and that "such super-

stitions as telepathy and clairvoyance are not even open questions;" we know that we are seeking explanations from men who accept or reject facts according to the influence they may have upon their own theories, and that they are useless as guides in this region because they have never themselves traversed it.

A theory is only a view taken by the mind in its efforts at an explanation; and it is valuable only as it coördinates and brings into a harmonious system the facts under consideration. It is evident that no theory of "unconscious cerebration" can cover the facts in the case of Ansel Bourne, where a perfectly conscious personality, unknown to Ansel Bourne, for six weeks carried on a business with which he, Ansel Bourne, was totally unacquainted, and carried it on in a perfectly sane, consistent and business-like manner. The facts will not come into line nor harmony under any such theory. The theory of an entirely foreign personality carries us far afield and we do not find any necessity for accepting it, even allowing it to be sufficient. Of the two theories we must choose the one most reasonable and in best accord with already known facts.

The theory of a subliminal self or double personality covers and includes not only all the facts which we have examined, but many others equally inexplicable by the old psychology.

Accepting then, provisionally at least, the theory of a subliminal self, without discussing the various questions which might arise regarding its origin, constitution, and its degree of independence of the primary personality—matters which alone would require a volume, let us glance for a moment at other ways in which it is manifested and consider any new or enlarged faculties which it may possess.

Somnambulism has already been referred to as a condition in which the subliminal self is the ruling personality and in which the body acts under the control of the subliminal intelligence; but the subliminal self is also often present in sleep when the body is passive, and in that condition we have *dreams*.

This is not the time nor place to discuss the general subject of dreams, intensely interesting as that subject is, but we are seeking further conditions and instances in which there is evidently mental action which is shut off from the primary intelligence and corresponds to the conditions already examined. Such a condition is, sometimes at least, presented in ordinary sleep and the dreams which accompany it. Allow me to describe a case under my own observation:

L. M., 35 years old, unmarried, has been my patient for the past fifteen years and has been a somnambulist from childhood. She is also psychometric, possessing the faculty of perceiving the character and surroundings of those with whom she comes in contact; also when entering a room where persons are sick, she is strongly impressed regarding the result of the sickness. These impressions do not come at her desire, but absolutely independent of it, and often in direct opposition to it; sometimes they are extremely vivid, amounting to visual perceptions, and then they seldom fail of being correct. She has always considered this faculty a great nuisance, and whenever she has made known these impressions she has been ridiculed by her family. Her dreams are equally vivid, true and sometimes prophetic. The more vivid ones she does not call dreams, but says: "When I *dream*, I *dream*, and when I *see*, I *see*." The following is one of her vivid dreams:

She had a friend in one of the principal towns of the Rocky Mountains—a region which she had never visited, and of this man's surroundings she knew absolutely nothing.

One night she dreamed of, or as she expresses it *saw* this man in a room in the town where she knew he was living. With him was another person of very marked appearance whom she minutely described. She also described the room, its furniture, the bed, the matting upon the floor, the situation of the two people and the conversation. He was saying to his companion: "I am going to New York for the purpose of influencing capitalists to invest in my scheme of irrigation." His companion ridiculed the idea. He persisted in the declaration of his plan and intentions.

Three weeks later, early one morning, she dreamed she saw this man coming up the street in New York leading to her house, and saw her father go forward to meet him. She immediately awoke with the impression strongly upon her, went to the window, threw open the blinds and there was this man coming up the street, having just left the train from the West, and her father was going forward to meet him. He came into the house. She related to him her vision, to the most minute particulars of time and circumstances—some of which were not agreeable for him to hear. He was thunderstruck—declared she must have been present, as no one not actually present could have given the particulars which she described—and he advised her, as she expressed it, to "go into the business."

This person has been known to me for more than fifteen years. Her whole life has been one of industry, absolute truth and self-sacrifice. She is efficient and practical to a remarkable degree, and absolutely free from romance or flightiness.

Wundt declares that cases where somnambulists are alleged to have done mental work in their sleep beyond their powers when awake is simply a fiction, and that no such cases have been reported by "competent observers." This woman was a costumer, and has been employed by several leading firms in New York in that capacity. She affirms that on several occasions, when planning a costume, she has been utterly unable to carry out her idea in detail and has been obliged reluctantly to abandon it; when at night, in sleep, she has seen the whole idea perfected in every detail, and so vividly that she was able to carry it out with perfect accuracy the following day.

Instances are numerous where the dream was of some particular event which was really transpiring at the very time of the occurrence of the dream. Those most marked and interesting occur during times of excitement and danger, and the dreamers are quite likely to be children, or those to whom the events dreamed of were unfamiliar.

Many such cases have occurred in England during her wars with India. The following have been thoroughly examined by the Society for Psychical Research. The first occurred during the siege of Lucknow.

A girl 13 years old, had a brother in the East India Company's service in a regiment of infantry. One night she dreamed that she saw her brother riding with other officers at the head of a *mounted* regiment. It was not in battle but on a march. She saw her brother suddenly fall from his horse, shot down and mortally wounded. She described the place, the buildings in sight and the people around him. It was all written down at the time by her aunt who had the care of her. Five years later the officer who was at his side when he fell, visited the family and, at the request of the aunt, related all the circumstances connected with the brother's death, which corresponded in every particular with the record of the dream.

A lady whose husband was engaged at the siege of Moultan, one morning, in a condition of reverie between sleeping and waking, saw him fall desperately wounded; she saw the circumstances connected with removing him from the field, which were peculiar on account of delay, and saw him take a ring from his finger and give it to a brother officer, saying: "Take this ring and give it to my wife." The whole scene was in reality being enacted exactly as she saw it, and at that very moment, 200 miles away.

Another child, 8 or 9 years of age, not asleep but playing with other children in the grounds of the officers' quarters

in England, saw her father, who was in India, lying under a tree, bleeding and dying from a wound in his head. She described his position, appearance and the location of the wound—was fearfully agitated, and wondered that the other children did not see it. Her father was actually at that moment dying in India and under exactly the circumstances which she described.

I give these examples of the action of the subliminal self in ordinary sleep, in reverie, and in sudden vision while in the waking state. The almost indefinite multiplication of parallel cases which have been abundantly verified would be easy, did time permit. They all fall into line with the cases already presented, with the addition of certain perceptive faculties or powers exhibited by the second personality, not possessed by the primary one. A hasty survey of these added powers of perception is necessary to our subject.

Clairvoyance is still looked upon with suspicion by those who are anxious to maintain a reputation for scientific orthodoxy; and it is so looked upon because there is no method recognized by science for accounting for it. The only vision known to science is that obtained by means of the physical eye; all other alleged visual perceptions are set down as illusions and figments of the imagination; and when they correspond to actual events they are explained by pronouncing them "coincidences." Taken as a phenomenon, apart from any theory as to its production, no fact is better established in the minds of those who have had opportunities to observe, than the fact of clairvoyance. Those who have never witnessed it have a right to doubt; but the testimony of those who *have*, should be respected. It is at least bad taste—it is worse—it is bad *method* to impugn either the honesty or capacity of those who have witnessed a fact, especially when the observers are educated and trained in proper methods of observation.

The argument for clairvoyance is threefold. There is: 1, the anthropologic argument which points out the singular fact that alleged instances of it occur and have occurred among every people of which we have any knowledge, no matter how different in degree of development, environments, climate, comfort, nor how widely separated in locality. 2, there is the historical argument which shows that in the literature of every nation which has a literature, from the dawn of letters to the present time, accounts of clairvoyance are found. 3, there is the argument from personal evidence; educated clear-headed men who have had special opportunities to observe this fact, and whose testimony on any ordinary subject would be received, declare that they have seen instances of it; and hundreds of cases on that sort of evidence are on record. Important and full of interest as they are, the anthropologic and historical arguments must be omitted in this hasty examination and only those from personal evidence will be briefly presented.

The *Société de Psychologie Physiologique* was organized in Paris in 1885, and was for several years presided over by Charcot. Its bulletins were published in the *Revue Philosophique*. Dr. Dufay, of Blois, during this time presented to this society two separate reports on clairvoyance, which had come under his own observation—one related to his experience with Marie, a servant and hypnotic subject of Dr. Girault, another prominent physician of the same city. In one instance when hypnotized, she suddenly stopped in some sprightly conversation in which she was engaged, burst into tears and became so weak that she had to

be supported; and when asked what troubled her she replied that she saw the son of a near neighbor, and a friend of hers, then serving in the Crimea, and that he was dead—that he had just drawn his last breath. When news arrived, it was that this young man had died exactly at the time Marie had seen him. On another occasion she read the contents of a letter which Dr. Dufay had just received from a military friend in Algiers, and had not yet opened. Then at the earnest request of her hypnotizer she went, in her second personality to Algiers, described the correspondent, said he was ill, described his disease and described his surroundings; all of which on opening the letter were found to be perfectly correct.

Dr. Alfred Backman of Kalmar, Sweden, has been fortunate in finding several clairvoyants among his patients. Results obtained with two of these are given in the proceedings of the Society for Psychical Research. While in the hypnotic state, either one could go far away, wherever directed, and describe scenes and events of which she could have no knowledge—some of which were known to the hypnotizer and some were an entire surprise to him—all of which, however, proved to be perfectly correct.

Richet has given many interesting experiments conducted by himself, and Mrs. Sidgwick of the Society for Psychical Research, has published a large collection of carefully sifted and verified cases.

I have, myself, during the past year found a very excellent subject whom I will call A, whom I first hypnotized on account of illness, but who afterward proved to have psychic perception and clairvoyant powers of a remarkable character. Once while in the hypnotic condition, I asked her if she could go away and see what was transpiring in other places, as for instance at her own home. She replied that she would try. I then told her to go to her home—in a small town 300 miles away and quite unknown to me—and see who was in the house and what they were doing. After a minute of perfect silence she said: "I am there." "Go in," I said, "and tell me what you find." She said: "There is no one at home but my mother. She is sitting in the dining room by a window; there is a screen in the window which was not there when I left home. My mother is sewing." "What sort of sewing is it?" I asked. "It is a waist for D," (her little brother). I wrote down every detail of her description, and then awoke her. She had no recollection of anything which had transpired. I then showed her the notes I had made of her visit to her home, and desired her to write at once to her mother and ask who was in the house at 4 o'clock this same afternoon, where she was, and what she was doing. The answer came, describing everything exactly as set down in my notes.

On another occasion when I made my visit, it happened to be the day of the races occurring at a well-known track some ten miles away, and members of the household where she was residing had gone to witness them. Neither she nor I had ever attended these races—we knew nothing of the appearance of the place, of the events that were expected nor even of the ordinary routine of the sport. She was put into the deep hypnotic sleep, and thinking it a good opportunity to test her clairvoyance, I requested her to go to the grounds and I carefully directed her on her journey. Once within the inclosure she described the bright and cheerful appearance—the pavilion, the judge's stand and the position of persons whom she

knew. She said there was no race at the time; but that boys were going around among the spectators and getting money; that the people seemed excited, that they stood up and held out money, and beckoned to the boys to come—but she did not know what it meant. I suggested that perhaps they were betting. She seemed to look carefully and then said: "That is just what they are doing." She then described the race which followed, was much excited, and told who of the persons she knew were winners. I then said: "You will remember all this and be able to tell M, when she comes home."

It was found that everything had transpired as she had described. One of the races had for some cause been a failure; all bets were cancelled and new bets were made, which caused the excitement which she had witnessed. She surprised those who were present by the accuracy of her description, both of the place and the events.

I once asked her: "Who is it that goes away ten, twenty or three hundred miles and sees what is transpiring there—is it A?" "No," she replied laughingly, "A is here sick in bed; she can't go; it is I who go." "Well, are not you A?" "No." "But do you not belong to A in some way? Are you A's double?" She replied eagerly: "Yes, that is just what it is."

I once asked her how she traveled on these journeys. "I go so fast," she said, "and I see everything below me. It is perfectly lovely." Once she said: "I am passing through a shower; you will have it presently." The sun was shining brightly at the time; five minutes later came a cloud, a dash of rain lasting a minute or two, and then sunshine again.

There can hardly be a doubt regarding the fact of supranormal visual perception of some sort in the numerous cases reported by the observers whom I have mentioned. There certainly can be no doubt but that the scenes and events minutely and correctly described by some of these persons were entirely beyond the reach of vision by means of the physical organ of sight. We must either exclude the facts, or else accept some method of visual perception other than that of normal sight.

Some, usually those least acquainted with the subject exclude the facts; some, usually those having a competent knowledge of the facts find it impossible to exclude them. Those in the latter class endeavor to explain the facts by various methods. Telepathy, a psychic medium, a sixth sense, or some magnetic agency are all invoked for this purpose; but all these theories are themselves hypothetical and unproven, and they are called into existence only for this one special service. They are all like the cycles and epicycles of the old astronomy—clumsy and unsatisfactory.

To see at a distance of 300 or 3,000 miles, through closed walls or at the bottom of deep rivers requires a *personality*—one with perceptive faculties capable of acting under the given circumstances, and able to report what it sees. The primary or ordinary personality is not so endowed—its powers of locomotion and of vision are both limited.

The subliminal self can, as we have seen, under circumstances at least, act independently of the physical organs, can traverse great distances in a short space of time, can see under circumstances in which ordinary vision is impossible, and what it sees, it is able to report—or impress upon the perceptive organs of the primary self. All this has in many instances

been actually observed, in somnambulism, in dreams and in the hypnotic sleep.

Accepting this subliminal self with its added perceptive powers, brought into activity, sometimes spontaneously and sometimes by the aid of hypnotism, we are furnished with the key, not only to every form of intelligible automatism—automatic writing, trance speaking, hallucinations of hearing (such as were experienced by Socrates, St. Paul and Joan of Arc), phantasms and apparitions—but also to nearly the whole range of accredited phenomena pertaining to spiritualism, without trespassing at all upon the domain of supernaturalism.

These, then, are our conclusions:

That there *does exist*, probably in each one of us, a *subliminal self* or *second personality*, which is able to act at great distances from the physical body, and which is endowed with perceptive powers far exceeding those of the primary self.

That clairvoyance is an attribute of the subliminal self; and in that view is perfectly reasonable, natural, and a proper subject for scientific study.

That hypnotism is a means of experimentally bringing this subliminal self into action.

It is in no spirit of dogmatism, however, that I bring forward these facts and theories; but sufficient facts have now been accumulated from many trustworthy sources, to make it desirable that intelligent thought should be bestowed upon them; and it is with the hope that greater definiteness may be attained in this work—so important as it seems to me, to men in our profession—that I have ventured to draw your attention to this subject.

HYPNOTISM IN THE MANAGEMENT OF INEBRIETY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY T. D. CROTHERS, M.D.

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The impression that the continuous use of alcohol is followed by hyperesthesia and increased sensitiveness and susceptibility to the surroundings is not true, only in exceptional cases. All inebriates who use alcohol, opium, or other narcotic drugs, have diminished susceptibility and impaired sensory activities, extending from slight defects to general paralysis, not only of the functional but organic activities, and extending to the entire organism.

The inebriate is a neurotic, and irrespective of all first causes suffers from starvation and poisoning. The power of control, of reason and discernment, is defective, and beyond all outside influences is swayed by the unknown impulses of a degenerate and defective organism. The power of a dominant idea lasts only as long as it is not in sharp conflict with the morbid impulses of degenerative process.

The neuroses of inebriety is practically paralysis, not of one part of the body, but of the entire organism. If the hypnotic state is pathologic, and the three special phases, lethargy, catalepsy and somnambulism, are common symptoms, it is clearly possible that the narcotic effects of these drugs may favor these conditions. But in reality the lethargy and catalepsy from poisons introduced from without, and formed within the body, are controlled by conditions that are largely unknown and unforeseen. From inference it seems clear that any defect or disease of

the nervous system in which the excessive use of drugs is a symptom, follows a different line of degeneration from that called hypnosis. In one case, general organic degeneration exists; in the other, the power of control is broken up, and follows suggestions from without. Of course no state of poisoning from any of the drugs used in inebriety will permit the power of hypnotic influence to dominate the acts or conduct of the case. When the poisonous effects of the drug have passed away, then the unstable nerve centers will respond to external influences in various degrees.

If hypnotism is a physiologic state resembling sleep, and not an abnormal condition—only a peculiar susceptibility to certain external influences—it would seem that the inebriate seldom would, if ever, be affected by it. The observed facts vary widely, and are not sufficiently clear or well-attested to form the basis of any authoritative conclusions. The few observers in this special field have not found the same conditions even in the same cases; and at different time widely varying degrees of susceptibility have been noticed. On the cessation of the drink paroxysms or when from any cause the person abstains from drink, the reaction is followed by a period of psychical weakness. In some cases intense melancholy, or hyperesthetic sensitiveness, and fears of their condition, are fertile fields for hypnotic influence.

At this time, there is a degree of prostration and absence of assertive will-power, with strong tendencies to depend on any influences which will afford help. Good illustrations are seen in temperance revivals, where at the command of the enthusiastic orator they go forward and sign pledges, make prayers, recite experiences and assert positive changes of life and character. These are hypnotic phenomena along coarser lines, and their potency is apparent in the very small number of cases that are permanently benefited. In these cases the impression of a dominant idea has become so fixed as to overcome all other tendencies to use spirits again. Personal counsel, advice, threats and appeals are followed by the same obliteration of the drink symptom in an equally small number of cases.

The inference is that at this period in the progress of inebriety, hypnotism skillfully applied may have a marked value. Experience differs widely, and the power of a controlling influence one day is lost the next; and the idea that seems so strongly held at one time disappears later. The case which appears to be controlled by the operator, suddenly breaks away and the theories are disproven. There seems to be a struggle between the morbid impulses of a degenerating brain and organism, and the power of suggestive thought. The latter appears to be both physiologic and pathologic. Physiologic when the brain naturally turns for guidance and direction to others, and readily accepts statements of facts which are presented in an emphatic way; and pathologic when suffering from adverse conditions and seeks relief in the promises and suggestion of others. The power of hypnotism in the reactionary state of inebriety is apparent in many ways, although not explained or understood, and the permanency of this control is still more obscure. The same power in cases who are away from this period, and are termed restored, used to prevent them from taking spirits again, is equally obscure. In one instance this power gave the inebriate a special repugnance to drink in

a certain old circle of friends, but did not stop him from drinking alone. In another case, he claimed he could not drink in his native city, but drank in a distant town. The power of suggestion that one can not drink again, may hold intact for an unknown period, but its permanency depends on the degree of physical vigor and health, and other influences. This is illustrated in the gold cure specifics. The profound impression made on the organism by narcotic drugs, is strengthened by the hypnotic force of a dominant idea; spirits can not be taken again. This in a certain number of cases is real, as long as the person gives unusual care to his physical condition. If curiosity tempts him to test this statement, the delusion is quickly exposed.

It appears clear that hypnotism is a power in the treatment of inebriety, but its application is limited to cases not under the influence of spirits or drugs. It is not clear that these cases can be so positively controlled, or that command or suggestion will last as long as in other cases. Evidently clearer and more exact studies are necessary on this topic.

Profound hypnosis that is continued from time to time on inebriates varies widely in its action. Some persons assert that its influence is permanent, others say it depends on the presence or proximity of the operator. It is natural to expect that a knowledge of the presence of the operator, and a repetition of the power of control would finally become dominant, to the extent of superseding all other morbid impulses, and in this a cure could be said to follow. It would be a question, whether the susceptibility to hypnotic influence, frequently repeated, is a pathologic condition resembling that which follows the degeneration caused by spirits.

In a case mentioned by Dr. Kerr, in the free intervals from drink in a paroxysmal inebriate, hypnotism was sought and enjoyed. The man was hypnotized often, and the idea that he could not drink, impressed on his mind. He was used to show the power of hypnotism on many public occasions. This was kept up for a long time, until the operator moved away, when the man relapsed. This illustrated the fact observed in other circles, that the frequent hypnotic action will take the place of spirits, and is a condition that is akin to intoxication, and in some cases may be agreeable to the person. I have frequently been conscious of a personal hypnotic influence over certain cases of inebriety which was effectual in restraining them from drink at the time. In all institutions a certain small number of cases never drink in and about the building, irrespective of all conditions. Such cases come and go without restriction, but when away from the institution and its influences, relapse at once. It would appear that both managers and the institutions exercise a hypnotic power which enables the person to keep from drink. The same principle explains the power of faith and prayer asylums, where a dominant idea is urged with great intensity and impulsiveness, and for the time being is made to absorb all other thoughts. In this way the morbid drink impulse is overcome by a class of different ideas, which for the time break up every other thought. This condition has reactions, and the men who are most emotional and absorbed by the suggestions of help and salvation, unbend in private, displaying very opposite traits. This is evidence that the power is hypnotic and depends largely on the operator and the surroundings. It will be ac-

cepted as a fact that inebriates are less susceptible to hypnotic influence, and such influence is more transient and uncertain in its duration. Yet this is a power of great therapeutic value in an institution where it can be repeated and made continuous, and where the surroundings are under the control of the operator. To apply it practically it may not be necessary to at once dominate the will of the patient and overwhelm his personality, in abject submission to another's will, only in certain cases. But in all cases the dominance and continuous pressure of suggestion are the essentials. Suggestions that can be carried out and enforced by conditions of surroundings.

By studying these influences on susceptible cases, and forcing their recognition suddenly or slowly, a power of control is built up of practical value. A certain number of inebriates are most clearly held under restraint by the hypnotic influence of certain persons closely associated with them. The death or removal of these persons is followed by a breaking out of the drink impulse.

The special question to be answered is this: have we in hypnotism a therapeutic power of sufficient general application, in the treatment of inebriety and drug narcotics, to demand a technical knowledge of its application and use? It appears that we have. Irrespective of all theories of either the pathologic and physiologic action of this force, its power over the brain centers is assured and demonstrable. As an anesthetic, its application in many cases has attracted great attention, but how far it can be used to control unstable and psychical diseased brain centers is not well understood. It would seem that from the evidence so far, its power in the treatment of inebriety should be utilized in all cases. The operator should first become familiar with the technique, and the general principles of its application, and then put it to practical use and test, the same as any other therapeutic agent.

So far, it would seem the best results may be expected in an institution where the operator can command the surroundings and conditions of the patient. The complexity of all cases of inebriety would most naturally increase the difficulties in the treatment, especially in the application of psychic remedies, and favorable results are not to be expected in the same proportion or degree as that which follows other means. The fact that a few cases are greatly benefited is the strongest encouragement for its more extended use.

In a summary of what appears to be the sound conclusions of the present knowledge of this agent in inebriety, the following may be stated:

1. The inebriate is a neurotic, and not a good subject when under the influence of spirits and drugs for hypnotism.
2. After the withdrawal of the drugs, a period of marked instability seems most favorable for suggestions. This will be transient unless followed up with persistence.
3. Experience points to the wide extended influence of hypnotism in inebriety, although not known as such, in the psychic forces of public meetings, and the power of dominant ideas impressed with emphasis on the mind.
4. Clinical experience furnishes many facts which seem to prove that in certain cases its value is very marked, also promising from more exact studies greater results.

5. Evidently, hypnotism is yet to be studied and tested by the same methods applied to all therapeutic agents. So far, its value in inebriety is established, to what extent and how far it can be used are to be settled by future observers.

PSYCHO-PHYSICS OF SLEEP—NATURAL AND INDUCED.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY W. XAVIER SUDDUTH, M.A., M.D.

CHICAGO.

In order that we may more closely follow the line of thought, to succeed let us briefly recite the phenomena of natural sleep.

Sleep is preceded by a feeling of drowsiness accompanied by a general feeling of heaviness and intellectual dullness. There is also a feeling of weariness of the eyes and a tendency to drooping if not actual dropping of the eyelids. The head nods and the individual rouses and yawns and if he is in a sitting posture he seeks a position more comfortable for repose. If the person is in a reclining position, various groups of muscles may at this stage of semi-consciousness present the phenomena of spasmodic contraction; the drooping head is raised with a jerk and the contracted limbs are straightened and the whole body assumes a position of complete relaxation.

The sensory organs, barring that of touch, are still active,—the sense of hearing being quickened if anything. The eyes close and one after another the senses become inactive and the intellectual faculties become clouded. The objective mind, no longer in contact with its surroundings, ceases to operate, the subjective mind has full sway and the logical association of ideas comes to an end. The sleeper is in dreamland and is no longer astonished at the vagaries of memory or imagination.

The number of respirations drops from eighteen to twelve or fourteen per minute, and changes to a costal character, and the quantity of air drawn into the lungs is materially reduced by reason of the diminished action of the diaphragm.

The temperature is reduced quite markedly and many persons suffer from coldness of the extremities during sleep, due to lowered heart action.

The powers of volition next cease and the sleeper is, to all intents and purposes, for the time being paralyzed. There are, however, degrees in the profundity of sleep. Only the few are entirely oblivious to their surroundings. Most healthy people are what are called, light sleepers,—sleep with one eye open, as it were, and even with the soundest sleeper the duration of profound sleep is brief, not extending over two hours at the farthest.

Few persons are capable witnesses upon this subject, simply because it is not their custom to take observations on the phenomena of sleep—they do not lie awake to see.

The period of sleep depends upon the individual and his surroundings and needs. As we pass through dreamland in going to sleep, so does it form the portal to the waking state. Our memory of these hallucinations is vivid or otherwise as we dwell upon them. Most healthy persons allow them only a passing thought and pass them by. This is an utilitarian age and the dreamer has considerable difficulty in finding an audience. "Never tell your dreams

until after breakfast" is an old adage that if followed is fatal to dreams, so evanescent are they.

A recent writer, Lyman, says: "Sleep may be defined, in general terms as that state of the central nervous system in which the higher centers are, to a great extent, in a condition of physiologic quiescence, with all the consequences thereby implied." There has been much discussion as to whether sleep is a cerebral anemia pure and simple, or whether its whole nature is expressed in the term "ganglionic exhaustion." The same author says "there are others, who, while recognizing in experimental results undeniable proofs of the anemic condition of the brain during sleep, still persist in perceiving only one of the collateral and unimportant effects of ganglionic exhaustion. To corroborate this most gratuitous assumption of the unimportance of the position which anemia occupies among the causative factors of sleep, they have cited the observation that gourmands frequently sleep after an enormous meal, their red and swollen features meanwhile bearing ample witness to the condition of cerebral hyperemia." The flushed face, however, is no sure criterion of cerebral congestion. Dyspneic blood stimulates the vasodilator nerves as well as the vasomotor nerves, and as a consequence the cutaneous system may be flushed while the internal organs are anemic, by reason of the contraction set up by the stimulation of the vasomotor center. They forget also that there is a vast difference between a condition of partial stupor engendered by such causes and the physiologic sleep which the laborer enjoys after a day of toil.

Webster says: "It is a natural and healthy, but temporary and periodical suspension of the function of the organs of sense, as well of those of the voluntary and rational soul; that state of the animal in which the senses are more or less affected by external objects and fancy or fantasy only is active."

Our definition for sleep would be something as follows: sleep is a condition of restful repose during which there is complete relaxation of the muscular system with lowered heart action, accompanied by recuperation of vital, nervous and other bodily forces.

Lyman also holds that the term sleep, when employed to designate more particularly a condition of rest of the central nervous system is closely allied to that which prevails during activity in certain tissues which are subject to periodical exacerbation and diminution of function; as, for example, the glands. The temperature in these structures is found to be much lower during rest than during functional activity. It has also been observed that the temperature of muscles is higher during activity than during rest. Now, a rise in temperature among other things, means the conveyance of an increased amount of oxygen to the tissues within a given length of time, or, in other words, a condition of physiologic hyperemia. "Inversely, rest takes place in the tissues as a consequence of reduced oxygenation and interplasmatic exhaustion." "That ebb and flow of brain activity (and of the cerebral circulation in consequence) transpire under normal circumstances like other similar manifestations of organic life, in synchronous harmony with the rising and the setting of the sun is proved by the fact that sleep during day time, after a night of activity, is not, and never can be made to be as refreshing as that indulged in after sunset."

Just what influence the diurnal motion of the earth

has to do with the interganglionic ebb and flow of the vital forces, I am unprepared at this time to say, but that more credit has been given to this force in the past than should be, seems likely in the light of our present knowledge of physiologic chemistry. That sleep is, in a large per cent. of cases, the result of "interganglionic exhaustion and cerebral anemia" combined, I am free to admit, but no one who has made much of a study of the phenomena of sleep in the healthy state and especially in children but will admit that there are other elements than these that produce sound refreshing sleep, and *that* in the day time also.

Sleep is the natural state of rest for the tired physical or mental organism, but why do infants, animals and men that are not actively engaged sleep? They do not need sleep from the same cause as their more industrious brothers. No; another line of causative phenomena must be introduced to account for sleep in a large per cent. of cases and that, according to my way of thinking, is found in suggestion.

Let us take a familiar example to be found in the habits of the common barnyard fowl. They go to roost and rise with the setting and rising of the sun. That this is a matter of habit is shown by the fact that they go to roost whenever an eclipse of sun occurs, no matter what the time of day. There are several ways of explaining this habit. In the first place, not having any means of producing light they find their occupation gone with the setting of the sun and they have nothing to do but to retire; then again, their enemies are night prowlers and the fowl find their greatest safety in retirement. These experiences have fixed the habit until it has become a second nature with them and all the feathered tribe. Pet canaries, however, have to be covered in order to protect them from the light and induce sleep.

If the theory of solar control of vital forces were the correct one, why do not all animals sleep at night and not, as is the case with many of them, make that their period of greatest activity? It would appear that the most vigilant and active forms of animal life, in its native state, turn night into day. It would therefore seem that habit and necessity are the principal factors in determining the time when nature shall take repose. The night prowlers and day sleepers among the brutes seem to flourish in proportion as their nocturnal vigilance is successful, their forced day naps to the contrary notwithstanding.

In order to understand how the habit of retiring with the sun or shortly thereafter came to be formed by modern man, it is only necessary to go back in history to more primitive man before he had any means of producing light and credit the same conditions that send the feathered tribe to its roost, to-day, with driving him to his cave and to sleep. One-half or more of his time was then spent in enforced retirement and sleep, but with the advent of artificial light the wakeful period has been lengthened until now the average city man spends less than one-third and even as little as one-fourth of his time in bed and yet seems to get along all right.

If he suffers from insomnia it is not from loss of sleep, as is popularly understood by many, but by a disordered nervous system that prevents sleep. Who ever heard of a case of insomnia in an otherwise healthy child or adult either, for that matter, that could not be explained on the ground of a disordered mental or physical system?

The idea that brain rest can only be obtained during profound sleep is wholly erroneous. It is not essential that a person should lose consciousness in order to rest, and although complete relaxation is essential, it may be obtained in the waking state, and is now taught in all our schools in connection with physical culture exercises.

The facts in the case are that most people sleep too much. Some of our most noted men have been very light sleepers. History tells us that Napoleon needed very little sleep. He could catch a ten minute nap in the presence of kings or princes, or in the saddle whenever he needed it and willed so to do. The wizard of Menlo Park works days at a time and revives his strength by "cat naps" and says, judging by his own experience: "No healthy person requires more than two hours sleep a day, and that there is no excuse for people not utilizing twenty out of twenty-four hours for study or work of some kind." All of which I firmly believe. A few minutes sleep at the right time, that is, when one begins to feel weary, is worth hours when one is completely exhausted.

The benefit derived is not alone from the sleep, but the relaxation that takes place and the lowering of the frequency of the heart's beats. A man's span of life is not measured by the tick of a clock but by the beat of his heart. Anything, then, that will keep down the tension of the vascular system to normal, will, everything else being equal, tend to lengthen his days. During sleep the rapidity of the heart's action is appreciably modified. This is due in some degree to the position assumed. There should be a difference of ten beats per minute between an erect and recumbent position in a healthy person and even more in nervous irritable people.

In children there is a marked difference between the waking and sleeping state. Trousseau examined a number of children and found the waking pulsation 140 sleeping 121; not only this, but the frequency of the respirations is considerably diminished and oxygenation and tissue changes take place less rapidly and consequently nutritive processes are reduced, especially in the brain, unless unconscious cerebration or dreaming is carried on during sleep.

It has, for many years, been generally admitted among scientific observers that there is diminished blood supply or a condition of anemia of the brain during sleep. It has long been observed that the fontanelles in infants are depressed during sleep but pressed open when awakened. Arthur L. Durham (1860) demonstrated the marked contrast between the aspect of the brain during functional activity and the repose of sleep.

Dr. W. A. Hammond asserted from observations made on dogs and rabbits in 1869 that, "in every instance the pressure was lessened during sleep and increased during wakefulness." It remained for Dr. Fleming to demonstrate the practical value of the knowledge of the anemic condition of the brain during sleep by producing sleep on several occasions by compressing the blood supply of the carotids. These experiments were repeated by Dr. J. L. Corning in 1882 who added the further thought, "that when anemia, within certain limits, is brought about through the operation of physiologic law or by means of artificial appliances, compression of the carotids, its effects, as a concomitant physiologic factor in the production of sleep, will be directly in the ratio of

the interganglionic exhaustion." He based his opinion on the fact that favorable results from compression are more easily produced in the evening than in the morning.

It has been cited that the presence of the pneumogastric nerve in the sheath of the carotid militated against the exclusiveness of the theory of cerebral anemia as the cause of sleep. I can not see how this in any way interferes, as compression of the nerve would indirectly produce brain anemia by lowering the heart's action and only add to the condition directly produced by compression of the carotids.

To the idea presented by Dr. Corning, I desire to add the further thought of "suggestion," as an active agent and advocate a *sleep center* governed by the vasomotor center controlling the blood supply of the brain and located in the medulla oblongata at a point extending from the floor of that body to within 4 or 5 mm. of the columnus scriptorius. *Stimulation* of this center causes contraction of all the arteries and consequently rise in blood pressure while inhibition, *paralysis* of this region, causes dilation of the arterial system and marked decrease of blood pressure. Fixation of the attention of an individual acquainted with the anatomy of the part upon the multipolar nerve cells, the vasodilator cells, situated in his own medulla oblongata with a view of stimulating their action results in lowering the pulse rate very markedly and if, at the same time, the individual is made aware of the fact that such action will result in producing anemia of the medulla and further reduce the blood supply to the cerebrum and thus produce sleep, he will be affected just in proportion as he has faith in the theory and power of concentration of his mind upon the object desired.

It is thus that sleep by auto-suggestion is produced. But it may be said that sleep so produced is not true sleep but an hypnagogic state. We will not quarrel with this statement, but freely accept it, and claim there is no difference between hypnosis and true sleep, except in the manner of its induction and perhaps some variation in the order in which the phenomena are produced.

In this position we are fully indorsed by Newbold and James. In a recent article on the hypnotic state Professor Newbold says: "Hypnosis is, in a sense a normal state artificially prolonged." And further it would perhaps be too much to say with Mr. Wm. James of Harvard, that, "we all pass through the hypnotic state every night while going to sleep. Yet the changes which take place in the hypnosis probably do not essentially differ from those of normal sleep."

Accepting the two divisions of sleep, exhaustion and habit, made in this article, we would distinguish between the sleep of fatigue and the hypnotic condition as to the phenomena of invasion, but as for the sleep of childhood and even adult life that comes as the result of habit, and I see no difference in phenomena or subsequent effects; both are normal.

Professor Bernheim holds that "there is no fundamental difference between spontaneous and induced sleep." Thomas J. Hudson in "The Law of Psychic Phenomena" says: "There is nothing to differentiate hypnotic sleep from natural sleep." There are, in fact, many analogies between the phenomena of normal sleep and that of hypnotism." M. Liebault (Bernheim's "Suggestive Therapeutics") has very wisely established the fact that "the spontaneous

sleep is in relationship with himself alone; the idea which occupies his mind just before going to sleep, the impressions which the sensitive and sensorial nerves of the periphery continue to transmit to the brain, and the stimuli coming from the viscera, become the point of departure for incoherent images and impressions which constitute dreams. "Have," says he, "those who deny, the psychic phenomena of hypnotism, or who only admit them in cases of diseased nervous systems, ever reflected upon what occurs in normal sleep, in which the best balanced mind is carried by the current in which the faculties are disassociated, in which the most singular ideas and fantastic conceptions obtrude? * * * * *

"In order to fully understand the phenomena of sleep, it is essential to accept the theory of the 'duality of man's mind.'" "The broad idea that man is endowed with a dual mental organization is far from being new." "Indeed it may be safely assumed that the conception of this fundamental truth was more or less clearly defined in the minds of all ancient philosophers."

It might not be unprofitable, had we the time, in this connection to inquire as to how far it would be possible by auto-suggestion to control our dreams and thus obviate the discomforts incident to unpleasant hallucinations. It is sufficient for our present purposes, however, to establish the proposition that the subjective mind is controllable by the power of suggestion during natural sleep and thus show the analogy between spontaneous and induced sleep in this important and particular point.

There are many other points of similarity some of which it might be profitable to indicate at this time. In the first place, recollection of what has occurred during both spontaneous and induced sleep is in an inverse ratio to the depth of the sleep. If the sleep is light, then the subject has a more or less vivid recollection of what has passed when awakened, especially if he is questioned before other impressions take their place. But profound sleep is dreamless, at least so far as the memory of the sleeper is concerned, although reasoning from analogy, a condition of absolutely dreamless sleep is very doubtful.

I think it is safer to say that the subjective mind is ever active and that the reason we are not, at all times, conscious of its continued activity is because of the preoccupied condition of the objective mind. Unconscious cerebration is undoubtedly going on in our brain all the time and it is only when it takes a practical turn that we recognize it.

Our dreams are often incoherent and absurd, induced by our semi-conscious condition in which our objective minds obtain through our partially paralyzed senses only imperfect impressions of our surroundings, and even these distorted impressions are subject to modification by our bodily condition at the time.

We have incidentally referred to telepathic impressions introduced during natural or induced sleep by means of which any desired mental state may be induced at will—these conditions are held by some to be of a pathologic nature, but from long observation I am positively convinced that they are harmless unless carried to the extreme, and, as any good thing may be, abused.

Every time a nurse puts a child to sleep by rocking or singing to it, she hypnotizes it and suggests pleasant dreams, and the child thrives upon its treat-

ment. Men are only grown up children and are amenable to similar treatment and with like beneficial results when judiciously applied. What can be more pleasant to a person who has been suffering from insomnia, with its bad dreams, than to have some one who is versed in the science come in and say: "Sleep and dream not," and have faith to believe and sleep peacefully through the entire night? Such is being done constantly in these latter days and we venture to predict that the future has a more rational line of treatment for disorders of the nervous system than opiates, in hypnotic suggestion which produces normal sleep when applied with that end in view.

We have, in the past, associated experimentation and display with the hypnotic state, but we are now entering upon the era of its application and the first and easiest mode of applying it is in the treatment of sleeplessness.

100 State Street.

DISCUSSION ON PAPERS READ BY DRS. HOWARD, MASON, CROTHERS AND SUDDUTH.

DR. J. H. HIBBERD, of Indiana—In my judgment the matter of hypnotism is one of great interest in the present state of evolution in the medical mind, in the large field of neurotic disturbances. I think that upon a thorough examination of this question it will turn out to be a greatly misunderstood abnormal manifestation of nervous disturbance. I do not suppose that any one in the world can be hypnotized who is not willing to be. I take it for granted that there must be an abeyance of the exercise of will power when one consents to be hypnotized. I agree with Dr. Patrick when he says that there is no such thing as hypnotism at a distance. I do not believe, when a subject comes under the hypnotic influence, that the operator has any other influence over him than that of suggestion. The hypnotic condition amounts to an unusual condition of certain parts of the nervous system, of some of the normal senses, and the subject goes off into a condition of catalepsy, trance, and finally somnambulism. It seems to me, from investigations that have been made, that this is the natural order in which this condition comes about, but by virtue of frequent use and a thorough knowledge of the process that is going on, the subject arrives at the condition of trance and by "cutting across lots" he rapidly comes into the state of simple suggestion. A larger proportion of the people of the world and no small segment of the medical profession are accepting the statements that hypnotism is due to some psychic force that comes to the operator from the subject. This, I believe, never takes place, for it is merely a matter of suggestion. The suggestion may come directly from the operator, it may come from the surrounding circumstances, it may come by auto-suggestion. There are two ways of arriving at the truth. The better way, the scientific way, is by pursuing an investigation and arriving at facts by actual demonstration. Results obtained in this way are never absolute but are conditional. They are true until other facts are elicited, compared and analyzed and made into a new order of things which is for that time the scientific state. Another way, which may be called the philosophic method, is that in which an inquirer takes up the results that have been obtained by a large number of other people, compares, examines and analyzes them, and after excluding those facts which have no importance to his subject and those things which have been shown to be false, he finds a certain number of facts that are of very great importance and then he arrives at a result which is sometimes correct but is more frequently incorrect. By taking, in this philosophic way, the facts as they may be found scattered over the world, and putting them together, there comes to me a conclusion which seems to be worthy of being entertained and accorded further investigation. It is this: to regard the mind as a compound organ, certain parts of which may be in active operation and all the rest remaining in abeyance and producing no results. A soldier in battle earnestly engaged in the pursuit of an enemy, may be shot while in that condition and has no knowledge of it until he falls from loss of blood or from the wound of some nerve. This is simply an instance of the intense activity of one department of

his mind which ignores the activity of all other parts of his mind. If we keep this fact in our minds, we take away a large factor in the mystery of hypnotism.

DR. A. E. STERNE, of Indianapolis—It seems to me that the condition of hypnosis does not depend upon the hypnotizer, but upon the hypnotized altogether. I believe that any man can hypnotize if the subject can be hypnotized. There is and can be no vital force involved. I think that hypnotism is yet in its infancy. From the experience I have had with this "power" I believe it to be as much, if not more, a power for evil than a power for good. I have given up the use of hypnotism as a therapeutic agent and only use it for diagnostic purposes, when I use it at all. I believe that every time a patient is placed under the influence of hypnotism, you weaken an organism already weakened. In the Charity Hospital in Berlin, we worked for a long time under the instruction of Professor Jolly, and it was noticed that in almost the majority of subjects placed under this influence very deleterious conditions arose afterward. That the school of Nancy, led by Bernheim, goes too far, most physicians, I think, are inclined to believe. I believe we follow more the school of Charcot, and that we should discourage such ideas, although we can not exactly deny them, coming from the source they do. If we do not discourage the ideas advanced by Bernheim we go into a territory that is not distinctly medical; we go into jurisprudence and the possibilities of excusing from acts of criminality, people who have committed crime in the hypnotic state. I do not believe that a person of good moral principles will do a crime in the state of hypnosis, and if a person does do a crime under this influence, I believe he is just as much a criminal as if he was not under the influence of the second person. This is a question that it behooves the medical profession to take a stand upon. It is a story of life and death very often, as we have recently seen. There is an element of fraud in all hypnotism; it lies in the person hypnotized. I have many a time put a blunt instrument in the hands of a good girl and she would make plunge with it if told to do so, but when I put a knife in her hand she would not make use of it when directed to do so.

DR. G. J. PRESTON, of Baltimore—In regard to the question which the last speaker has touched upon, I think it is one which involves very great issues. The fact that it has been set up a number of times in murder cases or criminal cases as an excuse, makes the question one of such importance that we can not disregard it. I do not altogether agree with Dr. Sterne, for I believe that a person thoroughly under the influence of hypnotism will do things which in his normal condition would seem very shameful, not to say criminal. We are all familiar with the fact of making our friends undress themselves, or eat potatoes, or do a great many foolish things under the influence of hypnotic suggestions. How far that can be carried is a question which is by no means settled. I remember seeing a great many such experiments performed in Charcot's clinics seven or eight years ago. Dr. Stanley Hall, at that time professor of psychology at the Johns Hopkins University, was interested in the study of hypnotism, and we worked over some particular phases of it, and among others this matter of criminal suggestion. I was not in a position to know the subjects very well, but I used to see the experiments done over and over again upon old and upon fresh subjects, of giving them a knife, or some harmless powder said to be a deadly poison, and suggesting their criminal use. There never was any hesitation in carrying out the hypnotic suggestion. It may be that criminal suggestion is something that has a very unfortunate future before it. I quite agree with Dr. Sterne that we should not regard it as an excuse at all, and should educate the popular mind into regarding it as no more of an excuse or perhaps not as much an excuse as drunkenness. I am satisfied that a great amount of hysteria is caused by hypnotism. This is not so evident in this country as it is abroad. Any one who will follow the work of some person who has been exploiting hypnotism in one of the larger hospitals abroad will see an enormous crop of hysterics that has sprung up around these unhealthy mental experiments. I use hypnotism a good deal myself in certain selected cases, I have never had very much success with inebriety, although perhaps some. I have had some success with sexual perversion, and have had a good deal of success in treating ordinary hysteria. I have never seen any bad results from hypnotism used in a purely therapeutic way. The number of persons who can be hypnotized is certainly very limited. I should say 10 per cent. was a very high average in this country.

DR. E. S. PETTYJOHN, of Alma, Mich.—I beg leave to disagree with the author's theory to the effect that a man can

do as much work on two or three hours' sleep as he can do on the allotted time of eight hours. I wish to speak in this connection of two cases that have come under my observation. One of them, a school teacher, retires after her year's service to her country home. She is very much exhausted, weak and anemic. She then sleeps on an average twenty hours out of the twenty-four, taking one or two meals a day. This she continues from four to six weeks, after which time she comes out like a butterfly from a cocoon. She is then as bright and hearty and strong as if she were a young woman again. The other case is that of a school teacher and is quite similar. I would like to ask if that is not a recuperation of brain cells by prolonged rest and sleep? The brain cells themselves have not the power of muscular activity and so the process of elimination must come from rest. Elimination and repair of the muscular system can be accomplished by the activity of the muscular tissues, but in inactive cells these processes must be secured by rest, and how can this better be secured than by the agency of sleep? I would like to see it proved that a man or woman can do as much work on two or three hours' sleep as upon the amount usually taken.

DR. B. D. EVANS, of Morris Plains, N. J.—I think the matter of hypnotism, like a great many departments in the study of medical agencies, is at this time carried to at least an enthusiastic, if not to an unreasonable extent. Most persons who claim to be hypnotists or have the power of hypnotizing subjects, are necessarily enthusiasts. I have noticed another thing, that they have, as a rule, a large number of cases that can not very well be verified by the testimony of any observer. I mean by this, that an enthusiastic hypnotist gets results that another person observing does not appreciate, and that if the cases operated upon are taken and studied apart from the person who believes he has operated upon them, that these cases will give a very different testimony to others, from that which they give to the person who says that he has hypnotized them. The point made by Dr. Sterne and Dr. Preston, that a very small percentage of persons are subject to hypnotic influences, is borne out by the limited observations I have made along this line. The power of suggestion is admitted by all observers. I am inclined to think, in regard to the matter of hypnotic suggestion, that the results are obtained principally upon people of a neuropathic organization. In all cases that have come under my observation or that I have inquired into, I have found that the subjects were people of very limited intelligence or of extremely bad heredity. In the animal kingdom this seems to hold good. The rabbit, for instance, which is a very stupid creature, is said to be readily hypnotized.

DR. W. S. WATSON, of Fishkill-on-the-Hudson, N. Y.—We are hearing a great deal lately, of the evil doings of individuals being ascribed to the influences of other people. I believe there must be first a willingness on the part of the subject before it is possible to hypnotize him. It is my experience that if my subject is not willing, I am powerless to do anything with him. I believe that there can and will be much good come from hypnotism, but I think there should be some very stringent legislation against the public hypnotizing which is practiced in this country.

DR. W. J. HERDMAN, of Ann Arbor, Mich.—I can not agree with the statement that hypnosis is not injurious to the subject of it. I think there is no question but that it has a deleterious influence. I have had two girls under my care who were the subjects of auto-hypnosis. They were both sophomores in college. One of them had had a severe attack of la grippe. As a result of that, she fell into a state of auto-hypnosis. Her room-mate, by "suggestion" probably soon exhibited the same state. They were rooming in the house of a lady who had formerly been their teacher but had married a Professor. Their condition was discovered by this lady who went into their room and found them both apparently in sleep but while "in sleep" engaged in conversation. As they had been children together, while in this condition they talked over the events of their childhood. In the case of the first girl this condition lasted only three or four weeks. She recovered under treatment for her impaired nervous condition. It was three months before the other girl came into a moderately normal condition. During this entire period I never made the slightest attempt, and did not permit any one else, to throw them into this condition. Every time they were found in that state it was by auto-suggestion. During the course of treatment of the second case, I asked the lady in charge to bring the young woman to my office. She would sometimes drop into the hypnotic state on the street, but usually not until she came into my wait-

ing-room which was somewhat warmer than the street. I went through every possible test for the condition of the nervous system. As the ophthalmologist had his office in the same building, I took her into his dark room and he examined her with the greatest care as to the condition of her eyes. During this ophthalmologic examination she was in a state of somnambulism. When she was awakened she did not remember that she had ever been in the dark room. I had her also in one of my examining-rooms during hypnosis and she could not recall, when awake, anything that was in that room. Not to make a long story of it, when she fully recovered from this abnormal condition, the consciousness of what occurred in that state came back to her and she would recollect the experiences as of a dream. She would, while in a hypnotic state at home, recount to those about her, her experiences in my office and in that of the ophthalmologist. When she was awakened from that state and questioned about it she knew nothing about those circumstances. This young woman is perfectly honest and perfectly straightforward. That is her record from early childhood. She came into my office once with a friend, after I regarded her as perfectly well. She asked me if there was not in one of my inner rooms, a painting. I said "yes," and asked if she recollected anything about it. She inquired if it was a marine scene. I said yes, and asked if she remembered any of the figures in it. She asked if there was not a ship in it and a buoy; and this she did as if she were trying to recover a memory of something that had made but a faint impression on her mind. She went on recollecting thus, one thing after another as if by a great effort of memory. In the same way she went through the details of the ophthalmologist's dark room, of which she had no recollection whatever some months before when in her normal condition. Now it appears as if she had registered upon her mind in that condition something which was shut out of her mentality when in her normal condition. While in the hypnotic condition she would always talk with her room-mate about the experiences of her childhood. She was then, to all intents and purposes, a child in her manner, speech and allusions. On one occasion when she was in the hypnotic state in my examining-room, one of her former teachers, who had known her very well as a child, was present. I asked her questions which she answered in a jerky, petulant way, quite the contrary of her normal manner, for when she was herself, she was a perfect lady. The Professor exclaimed upon hearing her answer: "If that isn't that girl as she was at 9 years of age and exactly as her brother is now; that is a family characteristic." Subsequent experiences and culture had built upon this "family characteristic" and had given her the refinement of manner with which I was familiar, but in the hypnotic state she had gone back to that stage of brain registration which was characteristic of her childhood.

What I started out to state was this: that the series of experiences undergone by that girl unquestionably weakened her mind. Since that time she has been engaged in school teaching. Only yesterday I learned that there is something of an arrest or deterioration in her mentality; that she is unable to concentrate her mind as formerly. She passes often into a dreamy state and is unable to use her mind as she did three years ago. I am satisfied that there is a dissipation of energy in hypnosis, whether it is auto-hypnosis or brought about by somebody else's "suggestion." There is a voluntary or involuntary inhibition of the higher centers of brain activity, and by frequent repetition this tends to mental weakness and, as has been stated by Charcot, time and again, such persons are likely to become hysterical and purposeless if they were not so previously. I regard this study of hypnotism as most valuable to us by reason of its giving to us the knowledge of the physiology of mental action. It is no wonder we know so little about its true significance, since physiologists can tell us so little as to how the brain is connected with mental activities. Until they can give us more definite information of physiologic psychology, we can have still less of pathologic psychology. I believe hypnosis to be a mental state closely allied to sleep and also very closely allied to those conditions which we term hysteria.

DR. HUGH T. PATRICK, of Chicago—We can not hope to settle the question of hypnotism in this discussion, but it would seem to me desirable to have an expression of opinion in this Section at this time. That there is such a thing as hypnotism, I think goes without saying. That it may be deleterious, I think goes without saying. That its practice should be restricted, I think goes without saying. But I would make two pleas, first, that it be accorded a place among our diagnostic and therapeutic aids; a place as limited

as you will; personally, I think it must be exceedingly limited, but still, a place. Second, that it constitutes no short cut to therapeutic success. He who would use it must be the well-educated, careful, wise physician still.

Dr. W. N. Sudduth, of Minneapolis, Minn.—Dr. Pettyjohn wanted to know if sleep is not a therapeutic agent. If his teacher had broken her hours of work by frequent naps she would not have needed the twenty hours of sleep. As to whether hypnotism is an injurious agent or not, depends entirely upon the way it is induced and the individual upon whom the operation is performed. I am a living example of nine years use of auto-suggestion. In 1882, from nine to ten hours office work and five to six hours microscopic work at night, I broke down with nervous prostration. In the summer of 1885, in the old town of Heidelberg, I mastered the matter of auto suggestion by which I could put myself asleep for any time I wished. I was so weak that I could not walk more than a quarter of a mile at a time. I would go into the forests above Heidelberg, walk as far as I could, and then put myself to sleep for a few minutes at a time. Inside of a year's time I had increased my weight to 210 pounds and made a corresponding increase in strength. At the present time, I do twelve hours of most intense work daily. I breakfast at 7, work from 8 to 12, then have dinner, and take a nap after dinner till 2 o'clock; then I work till 6, get another meal and at 8 o'clock begin my literary work and keep it up till 12 or 1 o'clock and then I go to bed and sleep four or five hours. I have kept up this routine for nine years, and am in better mental and physical shape than ever before in my life. The case of the two girls brought before us by Dr. Herdman was not hypnotism at all but simply hysteria. The very fact as the Doctor goes on to state, that they have since suffered from mental disease, shows that it was a premonitory sign of mental disease. Hysteria can illustrate every stage of hypnosis that you ever heard of.

Another point mentioned was that the enthusiasm of the practitioners of hypnotism makes them not good observers. I have been in nearly all the laboratories of Europe. I have spent fifteen years of solid work on that subject. I have not been in practice; I am a student in morbid psychology. I have hypnotized at my home on an average twenty-five to fifty persons a week. They are not hysterical people, but students of the universities I have been connected with. The best subjects I have ever had have been those of the greatest vitality, the best physique and greatest ability. The poorest subjects are those who are weak-minded. The best results and the quickest results have been with other classes of subjects. There are three classes of people who can not be easily hypnotized: idiots, because they have no will power; insane people (barring melancholia); and skeptics. You can not hypnotize an individual who has no faith in you. You can not hypnotize children under 5 years of age. I make a distinction between mesmerism and hypnotism, and if I had time could prove it to you very plainly. Mesmerism appeals to the natural attention, which is common to man and the lower animals. Hypnotism appeals to the educated attention. I do not use mesmerism. I believe that when you set up a machine to mesmerize people and put them to sleep it may be injurious. The only results I have ever seen that have been bad were produced in cases where mechanical means were used to mesmerize the subject. If you work on hysterical people, you get hysterical results. Charcot worked in an hysterical atmosphere. In fifteen years of constant use of hypnotism as a means of studying psychology on normal healthy persons, I have never had but one case that showed any hysterical symptoms whatever. There are laboratories in Europe which report from six to twelve thousand cases. The men I have seen there and the reports which I have received from there, have not shown any deleterious results from hypnosis. Where patients were were in the pathologic condition to begin with, you might observe bad symptoms, but such symptoms would have been observed after the administration of ordinary drugs. If you put a normal atmosphere about it and use normal methods on healthy individuals, the time will come when hypnotism will be almost a household remedy.

Dr. A. E. Sterne—I hope the times spoken of by the Doctor will never come. I don't want to see hypnosis used in my family. We have not to deal with normal conditions as physicians. From our standpoint as practical therapists I don't want it used.

OPERATIVE TREATMENT OF PURULENT DISEASE OF THE ANTRUM OF HIGHMORE, WITH EXHIBITION OF NEW INSTRUMENTS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WALTER J. FREEMAN, M.D.

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PHILADELPHIA.

In considering the operative treatment of purulent disease of the antrum of Highmore, I shall speak only of operations for chronic disease. Acute purulent cases, which in my experience are of much more frequent occurrence and much oftener of intranasal than of dental origin, seldom require more than the removal of the cause and appropriate local and constitutional remedies.

Antrum operations naturally divide themselves into two classes: the intranasal and the intra-oral. Each has its advantages, and many methods have been devised to meet the indications demanded by the two positions. Until recently the general rule has been to open the antrum at its lowest attainable point, in order to secure the best drainage, as with scarcely an exception the importance of drainage was especially urged as the *sine qua non* of correct surgical treatment, for it was not deemed inexpedient to have such a pus cavity draining into the mouth, month after month. Over one hundred and twenty years ago, however, Hunter, by indicating the middle meatus as a seat for operation, pointed toward other desiderata than drainage. While giving due weight to the surgical importance of drainage, we must recognize not only the disagreeable features of pus flowing into the mouth and its injurious effect on the digestion and general health, but also—thanks to Miller—the positive dangers thus engendered, not to mention the great difficulty of healing a cavity so exposed to irritation and re-infection from entering food particles and microorganisms.

Operators are widely divided as to the best course to pursue in treating this sinus, but most of those who now advocate opening the antrum into the mouth for the purpose of drainage, after introducing a drainage tube, plug it, to prevent discharge into the mouth or entrance of foreign substances into the cavity. Two only, I believe, dissent from this plan: Bosworth, who holds that the plug is unnecessary, and Zarniko, who asserts that neither tube nor obturator is required, but that the opening through the alveolus remains closed by a blood clot until this is driven out at the next irrigation.

I do not wish for a moment to condemn intra-oral operations; on the contrary, I find them indispensable in certain cases. But as presenting fewer objections and offering many advantages not obtaining from this position, I wish to direct more attention to the intranasal methods, and to urge a more careful comparison of the two positions. Should we have, for instance, an empyema of the maxillary sinus with a diseased molar or bicuspid as the exciting cause, what more proper than to have the tooth extracted under nitrous oxid gas and a so-called drainage tube introduced? The tooth cavity can at this time be reamed out to admit a tube from 4 to 6 mm. in diameter, and as the tooth must be removed it adds but little to the

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severity of the operation to insert the tube and thus secure, *not drainage, but means freely to irrigate and medicate the cavity.* The most desirable apparatus, though rather expensive, is a gold tube with a collar fastening it securely to a neighboring tooth, but there is great risk of damage to the sound tooth.

Again, let us suppose that after unsuccessful treatment by way of the alveolus or by one of the intranasal forms of operation, we suspect that either a foreign body or a growth is keeping up the irritation. It is obviously necessary to make a thorough exploration of the cavity, and now the Dessault-Küster operation through the canine fossa is the proper one. In connection with this, I wish to present a convenient form of drill, which has proved so satisfactory in my hands that I feel justified in bringing it to your notice. You will observe that the blade cuts in both directions by a series of half turns, and so penetrates bone very rapidly; and while it cuts a circular hole like a trephine, it is less apt to catch in the soft tissues and lacerate them, as that instrument tends to do in this position. The diameter of the perforation, nine-sixteenths of an inch, permits the exploration of the cavity with the little finger, or the introduction of an electric lamp or small mirror, or even the overlooking of the sinus by ordinary reflected light. After carefully exploring the cavity, removing any cause of irritation, curetting if necessary and break-



ing down bands, pack lightly with iodoform gauze. While Küster removes the packing in a few days and puts in a drainage tube, Grünwald changes the gauze every three or four days for several weeks before doing so. For my own part, I prefer packing daily with thymol iodid gauze for a week and then fitting a large diameter obturator of metal or hard rubber, which is held in position by the pressure of the cheek. This allows direct applications to be made to the interior of the antrum, and the progress of the case to be watched.

With the exception of the usual and comparatively useless procedure of introducing a small caliber tube through the alveolus, the intra-oral operations are best done under a general anesthetic. I do not use the phrase, "useless procedure," unadvisedly; I have watched for drainage in such cases, even where the tubes were 2 mm. in diameter, and have not seen a trace of pus come down, the cavities at the time being full. Again, I have filled the sinus with water and it would not drain, although the ostium maxillare was patent. This can be explained partly by the tubes entering the cavity too far, and partly by the peculiarly thick and tenacious character of the pus. It is extremely difficult to judge of the necessary length for these tubes, and it has been suggested to have them fenestrated, but I feel assured that the formation of granulation tissue would offset this ad-

vantage. It is only when the empyema is getting well, Zarniko's statement to the contrary, notwithstanding, that the discharge becomes milky and flocculent and capable of draining away through a tube of small diameter.

We see, then, that the intra-oral methods are in many ways not only exceedingly disagreeable to the patient (and not the least of these objections is the necessity for general anesthesia), but even dangerous if the tube is left open, and surgically a failure with reference to drainage if the tube is closed. Drainage, moreover, is clearly not the chief consideration, for free drainage is usually secured for many hours at night through the normal openings, by lying on the back or on the sound side, and yet spontaneous cure in these chronic cases is rarely observed. Even in the erect posture the tenacious pus once started by the air current, as in sniffing, continues to flow and may empty the cavity. Braune has experimentally shown that the air of the antrum can be partially exhausted by forcible inspiration, so that in acute congestions we may even get somewhat of a cupping action by this means.

Let us turn now to the consideration of the intranasal methods. We will speak of treatment through the middle meatus only to condemn it in unmeasured terms, whether it be through the normal openings, as first suggested by Hunter, or through an artificial puncture, as advised by Hartmann. Chiari was able to get pus by way of the ostium maxillare in but one of twenty-eight cases of empyema, and Fränkel has been unable to cure a single case by this method. While it is difficult and often impossible for the physician to irrigate the antrum by way of the middle meatus, it is manifestly out of the question for the patient to do so. Then, too, the Hartmann puncture can be done only at the risk, as Zuckerkande has shown, of wounding the orbit, or of severe hemorrhage from large blood vessels on the outer wall.

Operations through the wall beneath the inferior turbinal, on the other hand, are of real value. Mikulicz, in the operation, proposed by him about ten years ago, makes an opening three-eighths of an inch broad by five-eighths of an inch long, far up under the inferior turbinal, where the wall is usually quite thin. Through this large opening the pus can drain quite freely into the nose, although the perforation is at times some distance above the floor of the antrum. It is not, however, an operation to be undertaken lightly, for the pain without total anesthesia is considerable, and the hemorrhage frequently demands tamponing of the naris for twenty-four or forty-eight hours. This operation, then, is to be ranked with that through the canine fossa for severity, while it is inferior, in that it allows no examination of the interior of the sinus. Even with so large an opening, however, some patients, Fränkel states, are unable to cleanse the cavity themselves.

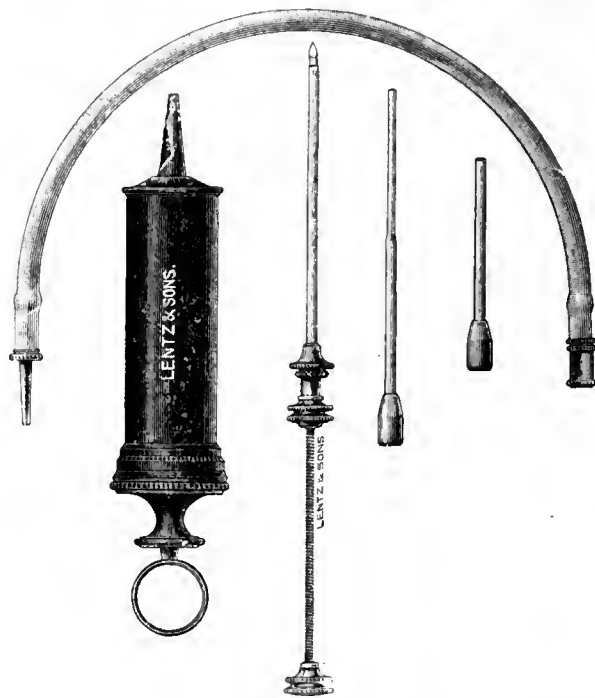
Less objectionable, though still possessing serious drawbacks, is the Krause method. He penetrates the outer wall of the inferior meatus far up and back with a strong curved trocar and canula, washes the cavity once and insufflates iodoform. But he puts nothing into the opening to maintain its patency, and so every second day the canula, armed with an obturator, must again be forced into the cavity. If one considers how rapid the healing of such punctures is, and the great tendency there is for granulations to form, he will realize that the treatment con-

stitutes really a series of operations which must be done under cocain. Bloch objects to this method, on the ground that the opening is extremely difficult to find. While some of Krause's cases are cured in a few weeks, others continue treatment for months, and few could be found in this country to submit to such an ordeal. Another objection to this method is that the patients are unable to carry out the treatment themselves. Again, both Krause's and Mikulicz instruments are too large to be used in making a trial puncture, so that the diagnosis in obscure cases must be confirmed by another method before undertaking theirs.

While many ingenious methods have been devised for the intranasal operations, one very important thing seems to have been overlooked, viz., a simple and practical means of keeping open the perforation, so that the treatment may be readily carried out by the patient as well as the physician. To overcome this objection has been my principal aim in the operation which I now present. In suspected cases of empyema it is often necessary to irrigate the cavity, as first proposed by Ziem, to determine whether pus be present. While he prefers to make the puncture through the alveolus, the majority of operators lean to the intranasal position. Lichtwitz goes so far as to make a trial puncture under the inferior turbinal, and finding pus, operates upon the sinus through the mouth. Following him, I also use a straight trocar and canula, but instead of making the opening as he does in the Mikulicz-Krause position, I perforate low down and more anteriorly. The nasal duct lies from 30 to 35 mm. from the naso-labial junction, and unless it opens in a furrow, its exit is high up under the turbinal. As I keep close to the floor of the nasal fossa, I may at times have to penetrate thicker bone, but this is quickly and almost painlessly done, and the disadvantage is compensated for by entering the cavity near its bottom and thus securing better drainage, while the risk of injury to the tear duct is avoided and a resting place for the head of the tube is obtained inside the pyriform aperture. The inferior turbinal and naso-antral wall beneath it are first anesthetized with 10 per cent. cocain solution; using this trocar and canula, a few taps with the mallet causes it to penetrate the wall, the entrance into the antrum being unmistakably recognized by the absence of further resistance. Withdrawing the trocar, warm sterilized normal salt solution is at first gently, later with considerable force, syringed through the cavity. Should the water return perfectly clear, even after repeated flushing, remove the canula and no harm results. I would emphasize *repeated* flushing, for in one case I used over a pint of water before obtaining a trace of pus, but finally washed out a pus cast of the cavity, the presence of which had caused a marked edema of the eyelids on that side. When pus is present, however, I do not remove it at once, but re-introduce the trocar, remove the two nuts and holding the trocar accurately in place, the hand resting against the patient's face, withdraw the canula. It is to render this possible that the trocar is twice the length of the canula. I now slip a drainage tube over the trocar till it penetrates the cavity and withdrawing the latter, complete the washing of the sinus by syringing through the long silver tube in the set (the wash tube), which accurately fits the permanent tube. If pus is now obtained the tube has been correctly placed. The antrum being thoroughly cleansed,

air is blown through to dry it, and then an antiseptic powder is insufflated. The operation, including cocainization, and treatment, takes but eight minutes, and few complain of any pain. The physician should treat the case for the first few days until the nose becomes accustomed to the tube; later, the patient can learn in a minute to pass the wash tube and cleanse the cavity for himself.

Before undertaking any operation on the antrum, its position should be determined by grasping the three points forming, as I call it, the antral triangle—the thumb in the canine fossa, the first finger on the malar process and the second finger on the edge of the orbit. Within these boundaries must lie the antrum, and knowing this, one can hardly go astray. The set of instruments necessary for this operation consists of a trocar and canula, silver drainage tube and a mallet, for irrigating the cavity, a wash tube, syringe and rubber tube with connections. The drainage tube may readily be cut down to fit the case. The trocar is 16 mm. long and 3 mm. in diameter.



The canula is steel, as softer metal splits in penetrating thick bone. The wash tube goes nearly through the drainage tube in order to free it of any accumulations.

Among the many advantages of this operation are: 1, the ready acquiescence of the patient; 2, the celerity and slight degree of pain with which it is done; 3, the completion in one short séance of the diagnosis by lavage, and the operation for therapeutic purposes; 4, the small wound and the loss of only a few drops of blood; 5, the ease with which patients are able to treat the cavity themselves; and 6, the fact that total anesthesia, and therefore assistants, are unnecessary.

The disadvantage is that the cure is delayed beyond that reported for some of the other antral operations, but when once healed, these cases do not seem to have the reported tendency to recur. With the enlargement by one-third, of the caliber of the tubes over those I used four years ago, the cases have done better, and by employing the Friedlander dry

method of treatment the outlook is most promising. The cases which have resisted treatment, and which have shown no progressive tendency to improvement under irrigation, have usually revealed some cause for the continuance of suppuration on exploring through the canine fossa. The ease with which remedies may be applied to the antrum by this method leads me to hope that others by following this line may suggest more successful remedies. Iodoform is out of the question in one's private practice, and Chiari denies that it gives the positive results claimed for it by Krause, Siebenmann and others. All operators, however, acknowledge the excellent results obtained by packing the cavity with iodoform gauze, and Chiari packs it even through the 4 to 6 mm. opening in the alveolus, which he recommends.

In closing, a few words of caution suggest themselves. Do not attempt to aspirate the cavity. The blood vessels are but illy supported and the normal openings being closed, you may cup the cavity as I did with my first case. Do not syringe with strong solution of peroxid of hydrogen, as advised in many books. Even after the cavity has been irrigated, some pus remains, and the pressure from the liberated oxygen, except with very weak solution, causes intense pain.

Do not make an exploratory puncture through the alveolus where dental caries exists, or you may readily infect a healthy antrum.

1720 Locust Street.

DISCUSSION.

DR. GEO. C. STOUT, Philadelphia—We should all feel grateful for any light which may be thrown on the treatment of these obstinate and hitherto refractory cases. Dr. Freeman's apparatus seems most complete and will add materially to our present technique, which by means of these instruments will be clear cut and esthetic. I have now two cases going around with silver tubes in their antra which were introduced through the inferior meatus. These cases have not been cured, and the only advantage gained by the wearing of the tubes is a decrease in the disagreeable odor and a lessening of the viscosity of the discharge. These tubes have been worn three months and over. No favorable results were obtained from the introduction of any medications into the antrum, although many were used persistently for some time. The pain experienced in introducing the trocar was slight after cocaineization excepting on one occasion, when I attempted to introduce it low down near the floor of the nose, and in this case found the wall so thick and the pain so severe that an attempt to perforate it higher up was advisable.

DR. HOLBROOK CURTIS, New York—I had two questions to ask Dr. Freeman before I heard the remarks of Dr. Daley; the first was: "How many cases of empyema of the antrum are associated with polypoid degeneration of the tissues within the cavity?" The second was: "In how many cases in which he had introduced his tube had he observed an inflammation of the tear duct?"

In my practice I have found the condition of a majority of cases necessitated a free opening either through the alveolar cavity or the canine fossa, and packing or curetting. I regard the method advanced by Dr. Freeman to be of value from a diagnostic standpoint, but as a method of cure of empyema of the antrum generally speaking, the method is insufficient and unsurgical.

DR. CASSELBERRY—If one is to open the antrum in any case through the nasal wall, the instruments and method of Dr. Freeman are most perfectly adapted to the purpose. It is certainly an improvement on the means employed by Mikulicz or Krause for perforating through the nasal wall, because it provides a canula for continued drainage, which can be worn out of sight, within the nostril, but which as demon-

strated on the patient present is readily accessible to the patient for self-injection of antiseptic lotions. The method of drainage through the nasal wall is best adapted to cases which are not of dental origin, and in which the teeth are all sound and one wishes to avoid the extraction of any of them. It would also serve in any case as an exploratory puncture, to make certain the diagnosis, and as a preliminary treatment to ascertain if cure will not ensue simply on the establishment of drainage for a brief period. As a rule, however, and always in cases of dental origin, I prefer an opening through the alveolar process, via the socket of the first or second molar tooth. A canal about one-fourth of an inch in diameter can be made and through it one can curette the antrum to ascertain if there are polypi, granulations or inspissated pus which might delay recovery if undiscovered. Then a gold drainage tube is inserted and worn until recovery, or for a year or more, when, if a discharge still continues, it becomes a question as to whether a radical operation by a large opening in the canine fossa and iodoform packing should be done.

DR. B. ALEX. RANDALL, of Philadelphia, said—I have had little experience personally treating these chronic cases, as I have generally transferred them to laryngologic colleagues, but have seen many treated by Dr. Freeman's and other methods, and am very favorably impressed with the reasonableness of his procedure. We may not be such "promising medical men" like Dr. Beard whom Dr. Daley mentions, as to run the same risk of a fatal result; but if my recurring acute antrum trouble ever becomes chronic, I expect to be "buncoed" at Dr. Freeman's hands and cured like many of his patients. The danger of aspiration of the antrum to which he referred, I can substantiate by my personal experience in totally darkening my antrum in a few hours with extravasations through unthinking "sniffing" in the effort to free the stenosed nares.

DR. FREEMAN (in answer to Dr. Stout)—In answer to Dr. Stout, I would ask why he does not operate through the canine fossa and see why the suppuration continues in his cases? When my cases do not progressively improve under the intra-nasal method, I seek the causes by exploring through the canine fossa.

Dr. Klein, who advocates the operation through the alveolus, and the placing of a wire drainage tube, is already answered in my paper. The drainage into the mouth is most objectionable.

Dr. Daley, who is against any but the radical operation through the canine fossa with thorough curetting, is answered by the death of the case which he reports in the practice of a New York surgeon, where the antrum was opened through the mouth and septic pneumonia resulted. I do not think we are warranted in subjecting our patients unnecessarily to this risk. Why not continue treating patients by my method, after making an exploratory puncture through the nose? If they do not improve and get well then turn to a more radical method of operating.

Dr. Curtis asks as to the frequency of polypi of the antrum in chronic empyema. I have not found any, and Zuckerkande in his many examinations has found but very few. I think many may be deceived by the peculiar swelling to which the mucous membrane lining the antrum is liable on the least irritation. It may be so great as even to obliterate the cavity. With regard to his other question, whether I had had any case of epiphora, I answer, no, and for the reason stated in my paper, I penetrate below the opening of the tear duct.

Dr. Casselberry pertinently asks what percentage of cures I have had. I have already forestalled this question by speaking in my paper of the possibly slower cure by this method. I think if carefully examined, however, my results will compare very favorably with those of others. Four of my earlier cases were clinic cases and withdrew from treatment before I had perfected the method. Four cases I considered total failures and operated on through the canine fossa ten months ago. These cases are still discharging, although I carried out fully what Dr. Daley advises. I only say I wish I had left in the tubes; then at least they were comfortable, now far from it. I report six cases of cure among some twenty-two antra involved, which sounds like a small percentage. These have remained well at least a year. Three of the twenty-two were done for other physicians and are not under my care. Of the four remaining three are—so to speak—recent and are progressively improving.

The last case is one of eighteen years standing, now under treatment two and one-fourth years. As I have cured one antrum for her by the tubes, she will not hear of any more radical method.

SCROFULOSIS, CHLOROSIS AND TUBERCULOSIS AND THEIR TREATMENT.

Read at the meeting of the Mississippi Valley Medical Association, held at Detroit, Mich., Sept. 3, 4, 5 and 6, 1895.

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I.—TUBERCULOSIS AND ITS DIRECT CAUSE.

During the present century, medical writers have been very active on the subject of tuberculosis, and we can readily understand this activity when we remember that nearly one-seventh of the human race die of this disease. The disease commonly recognized as consumption has been known since the Dark Ages. Even Hippocrates has given a good description of it, at least in reference to lung and pleura, finding the characteristics of this morbid process in a suppurative destruction of the affected organ. Later on, the above-mentioned suppurative destruction was found in other organs also, but as the changes found in the lungs were predominant, not only in the clinical picture, but also in the anatomic findings, those changes in the other organs were believed to be of a secondary nature, the tuberculosis of the lungs being primary. It was observed that the formation of certain nodular bodies preceded the decay or destruction, and each one of these nodes being called a tuberculum, the name of tuberculosis was given to the disease as a whole. Certain small dewdrop-like nodes were named miliary tubercles by Bayle at the commencement of this century, and Laennec, the celebrated French pathologist, saw the gray miliary tubercle changed to a yellowish color and undergo the so-called cheesy degeneration, which he thought to be characteristic of tuberculosis, against which Virchow protested, claiming that other than tubercular inflammatory products could also undergo the process of cheesy degeneration.

Tuberculosis has been regarded as an infectious disease for centuries, but the cause and consequently the modes of infection remained a mystery until Klencke and later (1865) Villemin demonstrated this belief to be true, by transferring parts of organs of man and animals afflicted with tuberculosis into the bodies of healthy animals, thus causing general tuberculosis in the animal experimented on. Villemin caused general tuberculosis by implanting parts of scrofulous glands under the skin or into the peritoneal cavity of animals, proving that certain forms of scrofula, in fact most of them, are of a tubercular nature. Waldenburg, B. Fränkel, Buhl and others, repeated the experiments of Klencke and Villemin with the same results, and they came to the conclusion that the cheesy material must either be invaded by or give birth to the infectious substance. Cohnheim and Klebs believe in a primary invasion of the infectious substance, which then causes all the anatomic changes which tuberculosis brings about, and is at last contained in the cheesy material. Charcot and Aufrecht fed animals with parts of tubercular organs, and Tappeiner made them inhale the dust of a dried sputum from consumptives, with the result of producing tuberculosis in the animals.

It was now to be expected that the ultimate cause of tuberculosis would sooner or later be discovered, and in the year 1882 Robert Koch published the discovery of the bacillus tuberculosis as the cause of all forms of tuberculosis. Koch invented a process of staining the microorganism, which when unstained

had hitherto been invisible even with high magnification, and he was thus enabled to demonstrate their presence in all forms of tuberculosis, and their absence in non-tubercular morbid conditions of the animal body. He also succeeded in culturing them and again producing tuberculosis by inoculating small parts of such pure cultures into animals. This latter experiment closes the chain of proofs of the fact that the bacillus tuberculosis Kochii is the cause, and the only cause of tuberculosis in man and animals. For particulars in reference to this discovery and all details, I refer the reader to Koch's *Etologie der Tuberculose; Mittheilungen des Kaiserlichen Reichs Gesundheitsamtes*, Berlin Bd. II, 1884. Watson Cheyne, Rosenbach, Fluegge and many other competent investigators have repeated Koch's experiments in all their details, and they have all confirmed his results.

Now that the tubercle bacillus is thus known and recognized, medical authors have begun the study of its biologic properties, concerning which I will not go into details here. It is true that the bacillus tuberculosis retains its infective capacity for one hundred and eighty-six days, even if kept under unfavorable conditions. Sputum containing tubercle bacilli was dried and kept for this length of time, and animals were then infected by it. When we consider this, we will understand how very much we are exposed to infection. The bacillus tuberculosis is 1.5 to 3.5 μ . long, slender in comparison with its length, and slightly bent. When Koch published his work, he had found the bacillus under the following conditions: in 19 cases of miliary tuberculosis; in 29 cases of tuberculosis of the lung (here especially in the sputum); in fresh cheesy infiltrations and in cavities, the walls of which were breaking down; in tubercular ulcers of the tongue; in tuberculosis of the pelvis of the kidney, the uterus, the testicle; in 21 cases of scrofulous glands; in 13 cases of tuberculosis of the joints; in 10 cases of tubercular affections of the bones; in 4 cases of lupus; in 17 cases of tuberculosis of cows; in 273 cases of tuberculosis of guinea pigs; 105 rabbits; 44 field mice; 28 white mice; 19 rats; 13 cats, and in a number of tubercular dogs hamsters, pigeons, chickens and other animals.

The existence of the tubercle bacillus being now established, we must next ask, What are its modes of life? Where do we find it outside of the animal body, and how does it reach human beings?

II.—MODES OF INFECTION.

I will select a few typical cases to demonstrate the different modes of infection.

Case 1.—*Tuberculosis by Inhalation.* Two girls, say from 15 to 30 years of age, enter a room in which a consumptive is staying. One of these girls belongs to a family in which consumption is hereditary. Her father, or mother, or grandfather, or grandmother died of tuberculosis. She is pale, tall and slender; her chest is flat, and her ribs are not very elastic, but rather rigid, as shown by her shallow breathing; she has a little cough due to a bronchitis which comes and goes. The other girl is of a healthy appearance, and consumption can not be traced in her family. The patient coughs and expectorates into a cuspidor, the upper margins of which are slightly soiled with the sputum; some of the sputum even falls on the floor or carpet, from

which after becoming perfectly dry, it is stirred into the air by an air current and is inhaled by both visitors. The dust containing the tubercular poison is drawn into the larynx and into the bronchial tubes of both individuals. The healthy girl with great excursions of the walls of the chest and a strong expectorant power will soon, that is to say, in the course of a few hours, expectorate the foreign substances, while they will remain in the air passages of the other girl. They now mix with the bronchial exudate, and as the tubercular organisms find in this conditions suitable for life—moisture, temperature, and nutritive material—they grow and multiply. In number they multiply to thousands and are constantly moved up and down with the mucus in the bronchial tubes. Though some of the mucus and some of the bacilli are expectorated, thousands remain and continue to multiply. The upward and downward movements of the mucous column, laden with bacilli, cause friction against the bronchial mucous membrane, producing defects of the protecting epithelial layer, especially at points in the smaller portions of the bronchial tree, where its branches bifurcate at more or less right angles. (Rindfleisch.) This unprotected portion will be the point of entrance for some bacilli; they are rubbed into the deeper tissues of the bronchial mucous membrane, and once seated there, they bring about the formative action on the surrounding cells natural to them (Baumgarten), leading to a multiplication of those cells, which finds its visible expression in the grayish, dewdrop-like *miliary tubercle* (Bayle) or in a more diffuse production of cells, the *tubercular granulation*; or in a filling out of air cells with this newly formed cellular material,—*cheesy pneumonia*. Whether the product be a miliary tubercle, or a tubercular granulation or pneumonia, they all have this in common; they all contain numerous tubercle bacilli as long as they are fresh; they soon show a lack of nutrition; they soon show a dying of the cells, a necrosis which presents the appearance of dry Swiss cheese, therefore called *cheesy degeneration*, and at this stage they show no more, or but very few, tubercle bacilli. These cheesy, degenerated portions gradually take up serum again, becoming moist and soft. This soft cheesy substance, representing a decayed part of the affected lung, again shows incalculable numbers of tubercle bacilli. It is partly expectorated, thus furnishing the source of numerous infections in the outer world, and leaving a cavity behind. These cavities may be the size of a pin's head, or may occupy a whole lung. I said before, a part of the cheesy material is expectorated; another part gets into the adjoining branches of the bronchial tree and causes the same changes mentioned above; while some may reach the principal bronchus of the other lung which is thus far not diseased, and infect this also. Again, another part may reach the larynx, the epiglottis, etc., and cause a tubercular laryngitis; while again other portions may reach the mouth, but instead of being expectorated, be swallowed, thus causing an intestinal tuberculosis. The lips of such patients will naturally very often be covered with many tubercle bacilli and if they kiss any one the tuberculosis may thus be transferred. One of the localizations in the lung may break into a vein, causing a dissemination of the tubercular virus throughout the whole body, thus producing a general miliary tuberculosis.

The case above described would represent a typical case of tuberculosis caused by inhalation. It is understood that the anatomic changes of the lungs, the bronchial tree and the larynx are accompanied by the common clinical symptoms; fever, emaciation, shortness of breath, cough, pleuritic pains, etc. Instead of a female, a male might be infected; instead of the stated age, the patient might be at any age, although those between 15 and 30 years are most frequently affected. The descendant of a healthy family, too, may become infected but this is exceptional.

Case 2.—*Food tuberculosis caused by swallowing tubercle bacilli.* The drinking of milk from a tubercular cow and the eating of diseased parts of meat not infrequently cause intestinal tuberculosis. I have made the post-mortems of quite a number of cases of purely intestinal tuberculosis, milk having been regarded as the carrier of infection. Tuberculosis of the intestinal tract may also result from the virus being transferred in kissing. If we shake hands with a consumptive who has just wiped his mouth with his hands, or handled his handkerchief, our hands may be covered with tubercle bacilli which may easily enter our mouths and produce the same effects as above described. It is true that in many cases the acid of the gastric juice may destroy the tubercle bacilli, but the acid is not always present, and so they may pass through the stomach and enter the jejunum and ileum to do harm there.

Case 3.—*Tuberculosis by inoculation.* A nurse or other person cleans a vessel containing the infected sputum of a consumptive. The skin is cracked or a cut is inflicted during the cleaning, and some of the sputum is thus introduced into the blood current. General miliary tuberculosis may develop very rapidly. I have seen this occur.

Case 4.—*Hereditary tuberculosis.* This mode of infection has not been cleared up as yet. We know that cows give birth to calves afflicted with tuberculosis, while human beings, it seems, are generally not born infected by a perfect tuberculosis, but rather with a predisposition to it. This predisposition is generally called scrofulosis, and we will see later that this condition is of the greatest importance, the more so, as it is very much neglected. It is also possible but this has not yet been proven, that a direct infection of the fetus by the sperma of the father or the ovum of the mother may take place. In such a case, generally local infection and infection of the regional glands exists.

III.—MEASURES INTENDED TO ARREST THE SPREAD OF TUBERCULOSIS. WHAT MEASURES ARE NECESSARY?

1. Early diagnosis of the disease by a physician. There should be medical centers in all parts of cities where poor people who are suspected of having tuberculosis may be examined free of charge, and in case the examination should reveal tuberculosis, their relatives should be informed of the nature of the disease, and printed directions given them, enumerating the precautions which are necessary to prevent the disease from spreading. The people in general should be advised to consult a physician as early as possible when tuberculosis threatens. Early diagnosis is very important, as cases in the first stages give the most recoveries, and the sooner a case of tuberculosis is discovered, the sooner protective measures can be introduced.

2. Disinfectants should be given to the needy, free of charge; covered porcelain vessels as sputum receptacles, and covered vessels into which the handkerchiefs, underwear, bed-clothes, etc., may be deposited and boiled, should be furnished at the lowest possible cost.

3. The patient should be instructed to deposit his expectorations very carefully in the above-mentioned covered porcelain vessels, which should contain some 2 per cent. solution of carbolic acid or only water. All cuspidors in the rooms occupied by the patient should contain a disinfectant or water, preventing the drying of the infectious material.

4. The handkerchiefs of the patient should be well cared for. Not less than two should be used daily, and when a new one is taken the one used should at once be put into a covered vessel and boiling water should be poured on it. Every night all the wash collected should be boiled for half an hour.

5. The body and bed wash of the patient should not come in contact with that of other members of the family until after it has been boiled or better yet, not at all.

6. The patient should sponge his whole body at least twice a week, and should direct especial care to the cleaning of his face and hands. He should also keep his finger nails cut very short and well cleaned, as the spaces under the nails are gathering places for tubercle bacilli.

7. The patient should not kiss anybody.

8. Teeth and mouth should be kept clean.

9. The patient should sleep alone in a room. This room should be well-aired all day. It should have no carpet, and the floor should be washed every day.

10. The patient should not attend large gatherings except in the open air. He should not visit theaters, concerts or restaurants.

11. The patient should be very careful not to expectorate on the street, on the floor of street-cars, etc.

12. The patient should not shake hands with other people.

13. In all places where drinks of any kind are sold, glasses should be cleaned in running water, and should not be dipped by the dozen or more into the same contaminated water. Dishes, knives, forks, spoons, etc., in hotels and restaurants should be well cleaned.

14. Streets should be well cleaned, and on dry days should be well sprinkled.

15. The sidewalks should be of stone or cement, and should not be excepted from the cleaning and sprinkling process as most consumptives expectorate on the sidewalks rather than in the middle of the street. Dry and windy days give the most chances for infection, and on such days the sprinkling should be very thorough.

16. Ladies should not wear trailing dresses, which will come in contact with the ground and thus gather a great amount of infectious material, which, carried home, may become a source of infection to their family.

17. All milk consumed in hotels, restaurants and private houses should be boiled. Tubercular patients on milk farms and in all places where milk is sold, should not stay in the rooms where the milk is kept, nor should they have anything to do with the milk or its products, as milk is the best medium of infection.

18. Hospitals should be erected near or in the cities for the sole accommodation of consumptives, for the following reasons:

(a). If consumptives are kept in general hospitals, they constantly endanger the other patients, as patients whose constitutions have been weakened by disease or operations are more liable to infection than others.

(b). In these special hospitals the patients can be taught the necessary degree of cleanliness and the necessary precautions for disinfecting themselves, their sputa, etc., so as to protect others. Two weeks in the hospital will generally be sufficient for this.

(c). Consumptives suffering from intercurrent diseases should be accepted at all times and retained until they have recovered from the attack.

(d). Patients in the last stages should also be accepted by these hospitals, but should be kept entirely isolated from the others.

(e). On leaving the hospital, the patients should be induced to promise to keep up the care learned very conscientiously, and if poor, they should be supplied with a quart of milk daily for their own use, free of charge.

Gentlemen, this is a long list of rules, and considering the indolence of people in reference to such matters, we can hardly hope that they will all be carried out at any time, although we can promise that "time and money spent in this cause will prove an excellent investment."

We physicians, knowing the biologic properties of the tubercle bacillus, knowing that it can not propagate outside of the animal body on account of its delicate sensitiveness to change of temperature, we know that a perfect disinfection of all products of tuberculosis of man or beast, would in time mean a complete extermination of tuberculosis, and therefore we are not afraid of such a long list of rules as the above. Every one of the measures proposed will bring about a certain result, and what one or a few of them alone can do, is shown by Prussian statistics, as published by Prof. G. Cornet *Berliner Klinische Wochenschrift*, No. 20, 1895). The President of Police von Richthofen and the Minister von Gossler of Berlin, after hearing the propositions made in regard to prophylaxis of tuberculosis by a medical board issued orders to carry out those measures in the prisons, penitentiaries, and insane asylums of Prussia with the following result: while in the years of 1875 to 1887, 31 persons out of 10,000 died of tuberculosis, beginning from the year of 1887 a gradually decreasing mortality was observed, down to 25 out of 10,000 in the year 1893, which means that from 1887 to 1893, 70,000 persons died of tuberculosis in Prussia, less than was to be expected at the former death rate. A similar decrease was observed at Hamburg where physicians headed by Predöhl constantly urged the introduction of prophylactic measures, while in Bavaria where those measures were opposed by Bollinger the death rate remained the same until 1892. Although these figures are so very encouraging, one's thoughts must not only wander in this direction. We must not forget scrofulosis and chlorosis, possessing as they do the so-called predisposition to tuberculosis, a predisposition which is partly of a mechanical, partly of a histologic, or a chemic nature (diabetes). I have seen so much neglect of scrofulosis and chlorosis and so much misunderstanding, that I would like to call special attention to the principal facts concerning them.

IV.—SCROFULOSIS.

Scrofulosis is generally an hereditary condition,

which children inherit from parents who were diseased with tuberculosis, scrofulosis or syphilis. Scrofulosis may also be acquired during childhood by living in badly ventilated rooms, to which sunlight, the great oxydizer, disinfectant and purifier, has no access; life in dark and moist basements; over-nutrition, too much bread, potatoes, and other starchy foods, and insufficient cleanliness of the body—all may lead to scrofulosis. The skin and the mucous membranes in these cases are in an exceedingly vulnerable condition, and the regional lymphatic glands are unduly affected by any abnormal state of the organs which they drain. Once affected, the inflammation of the glands early assumes a chronic character and their products of inflammation have a tendency to undergo cheesy degeneration. A superfluous amount of lymphatic vessels and an abnormally rich absorption from all parts of the body is also to be found. We are in the habit of differentiating between a torpid scrofulosis and an erethic scrofulosis and this differentiation is not only of theoretical importance. Children with the torpid form of scrofulosis have thick lips, the upper one is turned upward, the entrance to the nasal cavities generally show a yellowish secretion of the nasal mucous membrane and the breath has an offensive odor. A conjunctivitis gives a red margin to the eye, the cheeks are red, glossy and puffed up, swollen glands of the neck can be felt, or we see scars indicating the seat of past glandular affections.

The erethic form of scrofulosis shows us children of a gracile, slender build, a pale almost transparent skin, haggard cheeks, small hard glands around the neck and in other portions of the body. This form is more easily overlooked than the other. These children are considered tender but not sick, and so their parents see no reason for consulting a physician. Only too late do they find out their mistake. The anemia from which these children suffer (I have already mentioned that they are pale) furnishes a blood for the growing organs which is insufficient in quality and quantity, and this will be the cause for an insufficient development of the different organs; they will remain small and will not be able to functionate nearly as well as other normal organs would. But even if, for instance, the liver and kidneys, though small and not of perfect anatomic structure, may functionate quite satisfactorily for many years, certain other organs can not. I refer to the heart and the aorta, especially the latter. If the aorta is too small—and these patients at the age of about 20 or 25 actually have an aorta the size of a child's—it means that the main channel which conducts the blood supply from the heart to the organs and peripheral portions of the body is insufficient, and there must be and always will be a lack of blood for nutritive and functional purposes in all parts of the body, an irreparable condition which can only lead to the worst results. It is now too late! Even transfusion of blood will be of no avail, as there is no room for an additional quantity of blood in these small channels.

V.—TREATMENT OF SCROFULOSIS.

Sunlight, exercise in the open air, well ventilated rooms, if possible on the seacoast or in wooded portions of the country, bodily cleanliness, proper food in measured quantities, codliver oil in winter and iron especially in the erethic forms, are the impor-

tant factors which bring excellent results. We physicians can not cure scrofulosis without the aid of intelligent, conscientious and untiring mothers. Children who have not such mothers can only be successfully treated in sanitariums. If I am called to a scrofulous child, my recommendations will be as follows:

1. Seacoast or country for at least three months a year. A shorter stay will not bring any lasting effects. (For poor patients sanitariums are to be provided for by municipal and state governments). All the outdoor exercise possible.

2. Warm salt water baths lasting for ten minutes morning and night. At home these baths may be prepared in the following way:

(a). Five pounds of seasalt, or if the people are poor, of rocksalt are dissolved in a wooden or porcelain lined bath tub full of warm water.

(b). This same bath is used altogether six times, but after the first bath a bucketfull of water is taken out each time, and in its place a bucketfull of boiling hot water with one pound of salt is added.

(c.) The bath temperature should be about 98 F. Every fourth day a new bath must be prepared.

3. During the cool part of the year I would give pure cod-liver oil and at other times syrup of iodid of iron.

4. If called to either poor, inattentive or negligent people, I would in regard to diet only recommend meat, eggs, milk, some vegetables, but very little potatoes, bread and carbohydrates in general, while in other cases I use the following diet which is employed at the great Hospital at Berck-sur-Mer and which has also given me very good results:

Breakfast:—

Milk soup.	6 times a week,	7 ounces.
Milk chocolate	1 time a week,	7 ounces.

Dinner:—

Soup	5 times a week,	8 ounces.
Fat vegetables	2 times a week,	8 ounces.
Roast meat.	6 times a week,	4 ounces.
Fried eggs	1 time a week,	1½ eggs.
Fresh vegetables . . .	3 times a week.	
Dry vegetables	3 times a week.	
Prunes.	1 time a week.	

Afternoon:—

Cheese	2 times a week,	1½ ounces.
Butter	2 times a week,	¾ ounces.
Sweet pastry	1 time a week,	
Fruit	1 time a week,	2½ ounces.

Supper:—

Soup	irregular,	8 ounces.
Meat (boiled)	4 times a week,	5½ ounces.
Fish	2 times a week,	5½ ounces.
Roast meat.	1 time a week,	5½ ounces.
Fresh vegetables . . .	2 times a week,	5½ ounces.
Potatoes	3 times a week,	5½ ounces.
Milk and rice	2 times a week,	¾ ounces.

In the torpid forms of scrofulosis the daily amounts of liquid taken should be reduced to two pints, all in all, while in the erethic forms the patient should continue to take his usual amount and add from four to six quarts of boiled milk daily; this milk may be diluted with water at equal parts. As a matter of course, the frequent catarrhal conditions of the mucous membranes, the affections of the ear, bones and joints, etc., have to be attended to very promptly and perseveringly. Concerning the important treatment of the small heart and the small aorta, I refer to the treatment of chlorosis in the following chapter.

As soon as a lasting rise of temperature sets in, indicating a commencing tuberculosis, I give my patients, if they are adults, a No. 1 gelatin capsule

filled with oil of cloves every two hours, or even every hour from 7 A.M. to 10 P.M.

VI.—CHLOROSIS.

A condition which mainly presents a lessening of the hemoglobin of the blood is called chlorosis. It seems that under conditions so far unknown to us, the iron contained in our food forms a combination with the sulphur compounds in our intestinal channel and thus becomes unabsorbable. The blood becomes pale and watery, the mucous membranes and the skin grow pale and all the well-known symptoms of chlorosis set in. It is hard to understand why people allow the process to advance as far as they do without calling for medical aid, but the fact remains that they see the patient become almost bloodless before they think it their duty to consult a physician. I think if we had an English name for the disease, like the Germans have, "*Bleichsucht*," that would help matters materially. "*Green sickness*," I believe is the only term used in this country, and I think it to be very proper, but it should be used more, so that more people might become acquainted with it.

VII.—TREATMENT OF CHLOROSIS.

A small heart and a small aorta are often found in chlorotic individuals, especially in cases of chlorosis, complicated with *erethic scrofulosis*, while in simple chlorosis we oftener find a large heart, and to this I wanted to call your attention particularly for two reasons: 1, small heart and a small aorta give a disposition for tuberculosis and cause constant weakness, constant aillings and early senile changes in all organs; 2, *we can increase the capacity of the heart and the aorta*. Many hundreds of post-mortems on beer drinkers—I mean people who daily drank large quantities of beer, have proved to me that they understand the technique of dilating the aorta and the heart. If they can do this in themselves we can reach the same result in our patients. It is simply the constant increase of pressure in the arterial system caused by the presence of large amounts of liquids consumed that increases the caliber of the aorta and not the alcohol. It is a kind of *internal massage*, and we can do the same with milk, which is harmless and nourishing besides, or with other liquids. Believe me, when I tell you, that with perseverance you will succeed in by far the majority of cases, and you will not only prevent tuberculosis, but your patients will grow much stouter and their ailments which threatened to make life miserable to them will cease.

If we have a case of chlorosis before us, which yields to an energetic iron treatment only in an imperfect or transitory manner, or which shows an imperfect development of the body in comparison to the age, then we may well conclude that the above mentioned condition exists, and act accordingly. It is better to be guided by those marks, than by the percussion figure of the heart, although the latter will often give the clue for our opinion, but only, if we know well the outlines of the normal heart at different ages and if we are well acquainted with linear percussion. There are quite a number of cases of chlorosis with a general obesity and a large heart existing at the same time; in such cases a reduction of liquids rather should precede or go hand in hand with the iron treatment. We must individualize. But I may say that *every case of erethic scrofulosis calls*

for internal massage of heart and aorta. This treatment should be introduced in the following way:

I first tell my patients to continue their usual mode of living for two more days, measure *all* the liquids they take and report the whole quantity taken after two days. Half of the quantity used, I consider the average daily amount and then I order one more quart of liquid to be taken each day until the highest limit will have been reached. Different patients range between three and nine quarts daily, while most of them will take from five to six quarts; this means in addition to the quantity they used to take before treatment began. They can take pure boiled milk, or, if this occasions inconvenience, milk and water (boiled) half and half, or the liquid can be made up of beer or any other liquid which they may prefer. Thus we will cause a constant increase of pressure which will gradually but surely—with but few exceptions—cause an increase of weight that in my cases has varied between three and thirty-five pounds within four months, and we will then be able to get a full and lasting result from our iron treatment where we were unable to get it before.

In reference to the medical treatment of chlorosis, I would like to call your attention to the fact, that most practitioners use the iron in too small quantities. I have had a great number of chlorotic patients who had been under treatment with Blaud's pills, three or four a day having been ordered for them with but very little good results. I gave them sixteen three-grain Blaud's pills in the form of Fraser's tablets, four after each meal and four at bed time, ordered them to eat three eggs a day, drink four quarts of milk daily and as much beef juice as possible, and they made a speedy and complete recovery. If I can have it, I give ferratin at meal times beside. After about a week the patients begin to feel life and elasticity returning, and in the course of from six to eight weeks they will have gained considerable color. I advise you to keep those patients under your charge and control until they are perfectly well, as an incomplete recovery will often be followed by bad relapses which can be prevented. The patients are too apt to consider their rosy cheeks a sign of complete health. Only the physician must decide. Has everything been neglected and has an infection with the tubercular virus taken place? Then we are called upon to cure.

VIII.—TREATMENT OF TUBERCULOSIS.

You certainly do not expect me to bring a compilation of everything of value in the treatment of tuberculosis, but I will say that by mentioning no other methods but my own, I do not ignore the others or undervalue them. On the contrary, I believe that different methods lead to good results. Nowadays it almost requires an excuse if we introduce a new remedy for an infectious disease and it is not a serum of some kind, but I shall not offer an excuse as long as mercury cures syphilis. I heartily wish that an antitoxin to the tubercular virus may be found that will reduce the mortality from this disease as the diphtheria antitoxin has done in diphtheria, but while we are waiting for that to come we must not let our patients die, believing that only serum can help. With the different methods employed, so far, and with better hygienic conditions, we already have 24 per cent. of recoveries and we can increase this number, if the people will hear our loud and persist-

ent call: "Come early." We know that the curability of tuberculosis has its limits, and that a man whose consumption is by accident cured in the third stage would in most cases be a cripple; that means, he will suffer shortness of breath and chronic bronchitis and never regain perfect health. The first and second stages give chances for recovery and after such guarantee comparative health. Pleuritic thickenings and adhesions will remain, fibrous changes in the parenchyma of the lungs also, and consequently the dullness which they cause. The bronchitis in older cases will also remain, but if there is no temperature for months, if the patient gains flesh and color, if there is no progression of the local changes, and if there are no tubercle bacilli, after repeated examination, to be found in the sputum, then we can speak of a recovery just as we do in syphilis.

Now, I will make you acquainted with my own method of treatment which, while by no means a panacea, will, I hope, gain your favor in active service if your expectations are reasonable and your endeavors persevering.

Basing on Robert Koch's finding (*Mittheilungen aus dem Kaiserlichen Reichsgesundheitsamte. Etiologie der Tuberculose*) that oil of cloves 1 to 300,000 prevents the growth of tubercle bacilli, I have recommended its use for the last eight years, have employed it in my practice for the last five years and a half and have found that this, in reference to tubercle bacilli, a very powerful antiseptic, can be introduced into the human body in quantities which will bring about concentrations of disinfecting strength for a year and a half at a stretch without doing any harm—without, for instance, causing albuminuria. I have injected it hypodermically for many weeks at a time and when the injections were made properly, have seen no ill effects. I have employed the treatment in 243 cases in the course of five years and a half, and all those in the first stage seem to have permanently recovered. I have yet the tubercle bacilli specimen on hand from patients who have not shown any symptoms of tuberculosis for the last three or four years, but who to all appearances are perfectly healthy. I have also had some recoveries in the second, and also two in the third stage, but while the second stage sometimes responds well, the time has been comparatively too short for the forming of a far-reaching opinion. I have employed this treatment in the following way:

1. A No. 1 gelatin capsule is filled with the best pure oil of cloves (Merck), and taken with a glass of milk every two hours from 8 A.M. to 10 P.M.

2. If the oil of cloves is tolerated, one capsule should be given every hour, if necessary for a year and a half or two years.

3. Oil of cloves (Merck) and cold pressed olive oil are mixed in equal parts. They are kept standing in a warm place and a hypodermic syringe-full is injected into the subcutaneous tissues, first once, then twice a day, but at the same time. These injections are continued as long as the patient will stand them for about four weeks. Then comes a pause of two weeks, injections for two weeks and so on. My patients all have their own syringes with an asbestos packing. I first draw the syringe full of absolute alcohol (Squibbs), squirt this on the skin of the back and then inject in two places. In one patient I have had an extensive necrosis of the skin following injection, caused by the patient bending over while I was injecting which caused the needle

to slip somewhat, and the injection entering the layers of the skin. I have seen a number of necroses in one other case, but I did not make the injections. If you inject into the subcutaneous tissues where the needle is movable, such things will not happen. I sometimes make my injections in the supraclavicular regions but here they can not be made very often, and an extensive, but not very marked edema reaching down to the third rib often follows them.

I have also used a clove water in cases of exudative pleurisy which I thought to be of tubercular origin. In such cases I aspirate with a Dieulafoix, and then wash out the pleural cavity with a three-fourths of 1 per cent. mixture of oil of cloves and water, which is prepared in the following way: water is boiled for two hours, then mixed with three-fourths of 1 per cent. of oil of cloves; the mixture is filtered at a temperature of 100° F. into a bottle which has been thoroughly cleaned and washed with some of the water that has been boiled for two hours. The filtrate should be clear at a temperature of 97° F. to 100° F. Now, for instance, if I should draw out three pints of pus, I would wash out as well as I could with the filtered clove water, and at last infuse two pints (two-thirds of the volume aspirated) and leave them in the pleural cavity, closing up the needle wound. I have treated fourteen cases in this way, four children and ten adults. The character of the exudate was seropurulent twice, and purulent twelve times. In one child, resection of a rib had to follow the washing, and one patient died of tuberculosis of the lungs soon after. This last patient left town and the actual success of the washing is not known. Twelve patients made rather speedy and perfect recoveries.

As the anti-bacterial properties of the oil of cloves are so great, and as it can be brought into the system in such large quantities without doing harm, I consider the cloves superior to creasote, but see no reason why it should not be given together with creasote. The combined use of both I would strongly recommend.

Venetian Building.

FURTHER OBSERVATIONS ON SUBMUCOUS INJECTIONS OF CREASOTE IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The employment of remedies by the method of submucous injection has been resorted to in but few affections. This is probably due to the fact that internal medication and topical applications meet most of the indications for medicinal treatment. The pathology of the initial lesion of tubercular disease in mucous membranes is, however, exceptional. Beginning first in the mucosæ, immediately beneath the epithelial layer of cells, the deposits are so effectually protected that, unless ulceration takes place, local applications are of little benefit. In these affections it would therefore seem that measures should be employed that would admit of direct contact between the remedy and the diseased tissues.

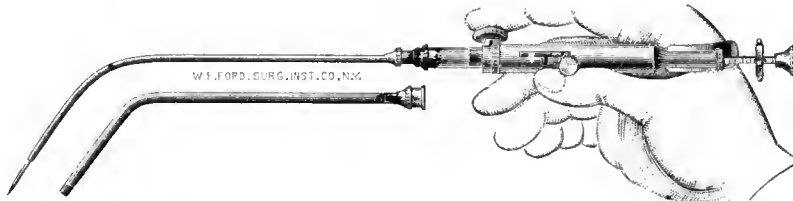
To effect this, either surgical measures or submucous injections must be employed. By the latter

method, lactic acid, menthol, iodoform and boric acid have been given. Some observers have favorably considered lactic acid and menthol, but the other remedies have given only indifferent success. Krause says he was led to use lactic acid from its well-known property of acting only on diseased tissues and leaving healthy tissue undisturbed. He began his injections with a 10 per cent. solution of lactic acid, which was gradually increased in strength to 80 per cent. There was little pain or reaction until the 50 per cent. solution was reached. His results from this treatment were fairly good; subjective symptoms disappeared, ulcerations healed and infiltrations diminished to a more or less degree. Hering, Major, Gleitsmann, McSherry, Rosenberg, and some others have recorded their experience with injections as being on the whole favorable. The writer has also employed lactic acid submucously with some success, but all of his injections with this remedy even in 10 per cent. solutions caused some pain and soreness; despite the favorable reports of the treatment by submucous injections; some writers assert that they have had nothing but failures from it, so that, on the whole, this form of treatment has not been received with much enthusiasm.

This I think is partly due to the inaccurate and imperfect means which have been used to make the injections. The laryngeal syringe of Hering and several others I have seen, consist practically of a long needle with a laryngeal curve, attached to a syringe

Creasote has many qualities which seem to recommend it for submucous injections. It is neutral in reaction, and when applied locally it resembles carbolic acid in causing considerable local anesthesia; it is also antiseptic, sedative and astringent. There is much difference of opinion about its effect on the tubercle bacillus. According to experiments and observations of some writers there is much evidence to show that creasote has a decided anti-bacillary action. The writer inclines to the theory that creasote neutralizes the poisonous products of bacillary origin which are said to produce the fever and digestive troubles of tubercular patients and, that if it does not really kill the bacilli, it practically renders them innocuous; the greatest difficulty being to supply creasote in such a manner and in sufficient quantity to reach all the bacilli.

The oily solutions of creasote, in the proportions already published by me, give the highest percentage of favorable results when given by the submucous method; some cases do better when the hydrocarbon oil is left out. The omission of the oil renders the solution stronger and of greater consistency. Other patients improve more rapidly from the injections of alcoholic solutions of creasote, beginning with a 20 per cent. solution and gradually increasing until 50 per cent. is reached. These solutions cause some burning and irritation. In a few instances pure creasote has been employed, but in my experience, it should be reserved for cases where there is considera-



barrel and piston. With this syringe it is impossible to accurately gauge the depth of the injection, and when using a syringe of this kind, I have found it necessary to push the needle deep into the tissues, otherwise the movement of pushing down the piston and the unsteady condition of the surrounding muscular structures were sure to disengage the point of the needle. As the tubercular infiltrations are very superficial, it is probable that some of the failures are also the result either of the injections being too deep, or of the fluid welling up around the needle and escaping.

The automatic syringe and guarded needle point described in my article on the submucous injections of creasote, in the *New York Medical Journal* March 30, 1895, obviates these difficulties to a great degree. In several instances where there seemed to be no result after an injection, I found that either the needle had slipped or the fluid escaped around it.

The point of the needle should always be moderately sharp, and owing to the action of the creasote or lactic acid, the rubber guard should be renewed frequently, otherwise it becomes soft and slips up on the needle when pressure is made. The syringe should be held by the operator in as favorable a position as possible, so as to make the injections with ease. Separately these directions may appear unimportant, but if faithfully carried out they do much to turn failure into success.

ble and rapidly progressing tissue necrosis. In my first injection I rarely used more than one drop of any of the solutions for each injection; subsequent experiments show that two, three or more drops of the oily solutions may be used with advantage over the arytenoid cartilages and ventricular bands of some patients.

The benefits obtained from this method of treatment vary in different patients. In some the dysphagia, dysphonia and other subjective symptoms have entirely subsided and the disease has seemingly been arrested for several months without much change in the hypertrophies and infiltrations. In others again, the infiltrations have diminished to a point where further treatment seemed unavailing until a change of climate increased the general nutrition and favored further resolution. There is still another class of cases in which the tubercular process may be arrested in all but one portion of the larynx. This was well illustrated in one of my patients, who gave a conclusive history of syphilis, and on first examination his laryngeal trouble was thought to be specific. A thorough course of antisyphilitic treatment increased the laryngeal affection. Further examination proved the case to be tubercular. Under the creasote treatment the disease was arrested in the cords and in one of the arytenoids. The other arytenoid, although persistently injected, did not diminish more than one-third of its former size. The mixed treat-

ment for syphilis was then begun and within a week the delinquent arytenoid was reduced to nearly normal proportions.

When tubercular disease infiltrates the perichondrium of the arytenoids, the prognosis is not favorable and it is doubtful if the cartilages ever resume their normal size and appearance under any treatment.

Prompt response to treatment can not be expected in a disease so intractable as tubercular laryngitis. Many failures to obtain some benefit are, however, in part due to the hopeless spirit with which some physicians undertake its treatment.

Physicians who have been more or less successful in the treatment of laryngeal tuberculosis by various methods, will agree that it was obtained only by the systematic and persistent use of the selected methods.

While the writer does not wish to be understood to think that creasote is the only drug to be used in tuberculosis of the larynx, he does assert that when the submucous treatment is decided upon, that it should be given by the automatic syringe already mentioned, no matter what remedy is used. The exact depth and amount of the injection can then be regulated and the field of injection always kept in view in the laryngeal mirror. Usually, the submucous injections have been reserved for infiltrated and hypertrophied tissues and not for the ulcerative stages. The ability to give a superficial or deep injection, according to the requirements of the case, has added greatly to the degree of usefulness of the submucous method. A resumé of the claims for submucous injections of creasote are:

1. In the early stage of the disease when there is only slight thickening of the tissues as a result of the tubercular deposits, the method as described by the writer brings the creasote in direct contact with the deposits. Further progress is frequently arrested, and the infiltrations subside.

2. When the stage of ulceration is reached, and the ulcers are comparatively deep, with some surrounding infection, injections into the surface of and around the ulcer, assist granulation and arrest further invasion of tissue.

3. When the affected tissues are rapidly necrosing, the patient is usually too weak to undergo curetting or excision. The injection of creasote is then very beneficial, relieving the pain and laryngeal soreness, hastening the separation of necrosing tissue and arresting the progress of the ulcerations.

DISCUSSION.

DR. CASSELBERRY—The laryngeal syringe which the author has exhibited is ingenious and seems well adapted to the purpose. In delicate intralaryngeal injections it certainly is an object to be able to avoid the slight deviating motion which is imparted to the hand by driving a piston home. The spring catch of the syringe might, however, be made to work more smoothly and perfectly.

DR. H. W. LOEB, St. Louis, called attention to the possibility of accomplishing good by submucous injection of immunized horse serum. Dr. Paquin, of St. Louis, was quite successful in the use of the serum in pulmonary tuberculosis, and while the speaker had seen a case of laryngeal tuberculosis improve under subcutaneous injections distant from the larynx, he thought that submucous injections would be more successful.

DR. CHAPPELL—I regret I can not agree with Dr. Gleitsmann when he says it is an easy matter to regulate the depth of a submucous injection in the larynx with an ordinary laryngeal syringe and needle. I realize the success of submucous injections depends in having a guarded needle. The spiral spring in the barrel of the syringe has to be very strong.

A COMBINED UTERINE IRRIGATOR AND DRAINAGE TUBE, WITH INDICATIONS FOR ITS USE.

Read before the Loup Valley District Medical Society at St. Paul, Neb., March 12, 1895.

BY O. GROTHAN, M.D.

ST. PAUL, NEB.

The need of uterine drainage as based upon modern surgical principles is or ought to be so well understood that anything said in this direction may seem as though treading on already well beaten grounds. Yet the importance of the subject will bear repeating, even though we have good reason to expect these indications to become fewer and fewer, as time goes on, hand in hand with aseptic obstetrics and gynecology. Still there is one thing certain, that until we may live in a Utopia of a sterilized medical profession and absolute cleanly patients, the dirty doctor (I mean surgically dirty) and ignorant midwife will always be with us, and leave infection along their wake. Beside, an infected womb of ten or fifteen years ago, may at any time, cost our patient the price of her life, irrespective of the law of established tolerance. The indication for uterine drainage and irrigation may be considered under the heading of puerperal and non-puerperal. To the latter a rather wide range of usefulness may be extended, viz:

1. After the removal per vaginam of uterine fibroids.
2. As Manton¹ has stated, after some cases of trachelorrhaphy.
3. After the Apostoli treatment.
4. According to Murray and Polk, curettement and drainage for pyosalpinx.
5. In chronic gonorrheal endometritis, especially where there is narrowing of the cervical canal.
6. In subinvolution as the result of septic endometritis and in hemorrhagic and catarrhal endometritis.
7. In dysmenorrhea of congestive origin or due to stenosis.
8. The septic variety of endometritis accompanied by hypertrophy with excessive glandular secretion, inertia and atony of the uterine muscles, the benefit of drainage and stimulating or antiseptic irrigation is striking. The last named condition often calls for curettement, iodoform gauze tamponage and finally the use of proper drainage.
9. In sterility, due to stenosis, either congenital or acquired.

10. It will answer the purpose of a stem pessary, if such an instrument has ever a legitimate indication.

But where the most good may be accomplished is in puerperal sepsis. Here the endo-uterine douche alone, as a rule, without free drainage is inadequate. Let me state right here that when the lying-in patient is infected, nine times out of ten the accoucheur is responsible; but these things may and will occur we all know, and that, from circumstances over which we have no control, as, for instance, where midwives have preceded us, and gross uncleanness on part of the patient or attendants, both before and after parturition. Also from the rekindling of an old infection—the so-called auto-infection. We should also remember that there are contra-indications for placing a foreign body within the uterine cavity. Chief among these are acute inflammations of high grade, whether metritis, endometritis or parametritis, and we must be morally certain that pregnancy does not exist. The

¹ Annals of Gynecology, July, 1895.

indications for uterine irrigation and drainage are not difficult to determine, as every text-book and journal treating of the subject recommends irrigation and efficient drainage, so that the question confronting most of us is not *when*, but *how*, to employ this measure; the solution of which is left entirely to our own resources.

Should I now ask you, what are the best means at our disposal for securing uterine drainage, if I mistake not, your answer would unanimously be, iodoform gauze. This substance is the material *par excellence* to carry off primary wound secretion, as well as a valuable tissue stimulant and drain in tubercular or other fistulous tracts, and almost an indispensable mechanical hemostatic and uterine stimulant after curettement; but, as stated by competent observers, instead of acting as drainage in the uterine cavity, it is simply expelled or acts as an obstructing plug to the discharges.

Next Walter S. Wells' spiral wire tube, filled with wicking and supposed to establish osmosis between the uterine cavity and a medicated sponge placed in the vagina, has proved to be a failure.

Then comes Cherron² with 20 to 100 strands of silkworm gut introduced on a special holder, the free ends of the gut being fitted to a celluloid plate. This may in a few cases prove of some value as a capillary drain.



Combined Uterine Irrigator and Drainage Tube.³

We have Bolt's and Wylie's hard rubber drainage tubes, to both of which the same objections are found applicable. In gynecology these tubes answer better than in puerperal sepsis, but in either case they fall short of our expectations; first, on account of the grooves being partially closed by the tissues pressing into them; second, and the most serious objection to their use, is occlusion by the vagina falling against the free outlets.

In a recent case of puerperal sepsis, where one of these tubes had been placed in the uterus for twenty-four hours, its withdrawal and the simple introduction of an English catheter was followed by the discharge of more than an ounce of exceedingly foul sanguino purulent fluid. Of the two, on account of its freer outlet, Wylie's tube is preferable; but who would think of using a contrivance of this kind for drainage in a surgical wound?

I will here show you a Manton tube which is the best of any on the market, as you will observe it has a truncated extremity and a slot nearly its whole length, but it has the same objectionable outlet as the two last named—hence is of but little practical value.

I now present an irrigating drainage tube, constructed of vulcanized rubber or platinum which has, so far as it has been used, proved to answer every indication for which it is intended. It is at present the ideal uterine drainage tube because:

1. Its outlet can not become obstructed and overdistend the flabby uterus.

2. It is the only tube through which irrigation may be accomplished and that will admit of continuous uterine siphonage or irrigation in those very virulent cases where life would be extinguished in a day or two.

3. By no other means is it ever safe to irrigate the uterus without the use of a speculum, as it is never permissible to pass an instrument through the vagina by the sense of touch directly into the uterine cavity, although this folly is sanctioned by high authorities.

4. We should never trust even a trained nurse to irrigate the uterus, but after once introducing this tube, a nurse can be instructed to use an antiseptic vaginal douche and then attach a No 7 English catheter—from which an inch or more of the tip has been removed—to a fountain syringe, turn on the stream, and guide the catheter into the tube. As the cavity of the tube gradually tapers from the last drainage or return fenestra to the irrigation apertures the catheter will, by introducing it until resistance is felt, fit snugly and throw the fluid into the uterine cavity, returning it through the irrigation openings. In this way, by placing a patient on a douche pan, intra-uterine irrigation may be resorted to, without the least inconvenience or exhaustion to the patient, as removal of the tube for sterilization, as a rule, oftener than every twenty-four or forty-eight hours is found unnecessary even in case of puerperal sepsis. In non-puerperal patients, removal of the tube is not so often indicated. Whatever the indication for which the drainage tube is used, the patient must be kept absolutely at rest until its removal.

In conclusion, let it be understood that I do not wish to go on record as advocating drainage in every case of endometritis, dysmenorrhea, etc.; in fact, its indication is rather the exception than the rule. I am aware, too, that even the majority of cases of puerperal infection will, sooner or later, recover without any local treatment whatsoever; again, a few antiseptic vaginal douches are all-sufficient; or every indication may be fulfilled by one thorough uterine cleansing. But that there are rebellious cases which tax the physician's skill to the utmost, can not be doubted, and where alertness to the danger signals, and effectual and radical treatment, is the lying-in patient's only safeguard. It is equally true that physicians who scout at the idea of all intra-uterine medication and who, in a practice of ten or twenty years, never invade this organ, are far from being alive to their patients' welfare.

When any treatment is to be directed to the endometrium two points, however, should under all circumstances, be kept in mind—namely, gentleness in manipulation and conscientious antiseptic precautions.

TUBERCULOSIS.

Read before the Pennsylvania State Medical Society, 1895.

BY J. M. BATTEN, M.D.

PITTSBURG, PA.

I wish to show, by clinical observation, that the tubercular diathesis, predisposition to, or habit, is inherited to the third and fourth generations, and that consumption has been but very slightly, if at all contagious among those who came under my observation

² Gazette des Hôpitaux, October, 1892.

³ Manufactured by the Aloe & Penfold Company, Omaha, Neb.

who have not inherited that predisposition to the disease.

Mrs. G. had five children. She and four of the children died of phthisis pulmonalis. The remaining child, a female, lived till the age of 84 years and bore ten children, five of whom died of phthisis pulmonalis. Three of the latter were married and had children. The eldest a male had four children, three of whom died of phthisis pulmonalis—one is still living. The second one, a female, married and had one child, and within a year after the birth of the only child, the latter died of children's disease and the parents died of phthisis pulmonalis. The third, female, married and had one child, a male, who is still living. The mother died young and the husband died recently of heart disease. Two females, unmarried, died young of phthisis pulmonalis. Of the five living, the eldest had ten children, two of whom died of typhoid fever. The remaining children are living but delicate. The mother is 75 years old and has paresis. The second, a female, married, had five children all living and healthy. The third, a male, in his younger days had hemoptysis, but removed from the city to the country and is still living. He is married and is the father of five children, all delicate. The fourth, a female, married a delicate man who afterward died of phthisis pulmonalis. She is the mother of five children, all delicate. The fifth, a male, is still living at the age of 58 years. He has hemiplegia and is the father of three children, small in stature but healthy.

One case of another family, Mrs. M., who died of tuberculosis, had borne four children, three of whom died young; two of them of children's diseases, the third at the age of 20 years, of phthisis pulmonalis. The mother, Mrs. M., died at the age of 40 years. Mrs. M.'s parents were healthy. Her mother lived till the age of 86 years, and her father till the age of 74 years. The remainder of the latter's children, five in number, are all living and healthy with no history of tuberculosis in the family. Mrs. M. is the only case who came under my observation, in which the disease may be said to have been acquired.

Of the fourteen cases of widows or widowers who came under my observation, whose husbands or wives died of phthisis pulmonalis, all are now living and healthy.

Now the most popular theory as to the cause of phthisis pulmonalis seems to be that the cell must have a deficiency in vital energy and also must have inherited the tubercular diathesis before the tubercle bacillus can attack it with any degree of success. Then it follows that a cell may have a deficiency in vital energy, not having inherited the tubercular diathesis, yet the tubercle bacillus may not attack it, or the cell may have a sufficiency of vital energy and an inherited tubercular diathesis and it may be invulnerable against the tubercle bacillus' attacks. But I have no doubt, in the case of Mrs. M., that the tubercle bacillus successfully attacked the cell with deficient vital energy, without it having had inherited a tubercular diathesis.

On the other hand, there are those who may claim the old theory that the disease is transmitted from parent to offspring, and they might ask the following pertinent questions: If there was no tubercle bacillus, would there be any tuberculosis, and if there was no inherited tubercular diatheses would there be any consumption? It is a well-known fact that "the tree is known by its fruit." You all remember how Jacob of old, transformed the sheep and cattle into "ring-streaked, speckled and spotted," in order to take advantage of his father-in-law, Laban. With our present knowledge of the laws governing procreation we would say that such a change in the color of those animals was caused by the impression made on the parents at the time of copulation. That is, the change in the color of the animals depended on the impression on the ova, either through the female or through the fructifying influence of the male—the semen—at the

time copulation took place. Consequently, there could not have been any other factor to cause the change in the color of the animals. When a person of tubercular diathesis is impregnated, or impregnates, there may be claimed to be a constitutional condition in the offspring similar to that of the affected parent. This constitutional condition may affect the circulatory, nervous or glandular system in such a way as to interfere with a healthy physiologic action of the same and, thereby, producing a weakness in these various systems, and finally diseased cells and consumption are developed.

I believe that the proper plan to prevent this disease, tuberculosis, is to educate young men and young women how they should make their selections, in order that their posterity may not be tainted by disease, and they should also be taught the great importance of making healthy selections.

Fifth Avenue and Ross Street.

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting, held Oct. 8, 1895, at 155 Dearborn Street. There were seventeen members in attendance, DR. GRADLE in the chair.

Minutes of the last meeting were read and approved.

DR. COLEMAN reported a case of ulcer of the cornea treated by a Saemisch incision and subconjunctival injections of corrosive sublimate. De Wecker says in the *Annales de Oculistique* for June, 1895: "I return to large injections of sublimate, 1 to 2000 with eserine. I have ordinarily injected half a Pravaz syringe full even in very advanced cases of suppurative hypopyon. Only six or eight injections are necessary to obtain recovery, with clearing up of the diseased portion." Abadie, in the *Annales de Oculistique*, 1895, writes: "If the patient comes to us with very extensive suppurative of the cornea, and it is not in our power to restore the diseased parts, we are always able to preserve the portion which still remains intact. To accomplish this object several methods are at our disposal—the method of Saemisch, the actual cautery. What I wish to say is that to-day we have a much better method, that is subconjunctival injections of sublimate, and we can in a large number of cases dispense with the actual cautery. The following cases prove a surprising success: one, a man, aged 48, with an ulcerated point on the cornea and a little pus in the anterior chamber. Injection of two drops of sublimate, 1 to 1000. This was repeated on the third day. Patient was cured without the slightest alteration in the cornea.

Second case, aged 40, with extensive ulcer and large hypopyon. Had three injections; quite cured in seventeen days.

The *Annals of Ophthalmology and Otology*, April, 1895, contains an abstract of Dr. Bull's paper on the question of the "Efficacy of Subconjunctival Injections of Mercuric Bichlorid in Ophthalmic Therapeutics." A review of the literature showed great diversity of opinion among the various observers as to the value of this new treatment during the past year. Dr. Bull had employed these injections in forty-eight cases. He summarized as follows: "Pain is always severe in spite of cocaine, and reaction is apt to be very severe. The only class of cases in which the sublimate injections seem to exert any positive effect in allaying symptoms and shortening the duration were those of scleritis and irido-choroiditis of the non-syphilitic type. The treatment

is still on trial and should not be promiscuously employed in all sorts of cases."

One further quotation after all the laudation of the sublimate injection treatment, and the consensus of opinion in regard to its wonderful effect, especially in hypopion ulcer. The following review of Dr. Bach's work is instructive, although disappointing to our expectations. Under the head of "Experimental Researches on Ulcer of the Cornea, Produced by Staphylococci," Dr. Bach has endeavored to demonstrate experimentally the efficiency of sublimate injections. He inoculated the cornea of rabbits with staphylococci. Both eyes were simultaneously inoculated. One was treated simply with instillations of atropin; the other received, in addition, subconjunctival injections, following the technique laid down by Darier. In forty experiments the therapeutic results were negative. Indeed, the reactionary phenomena were more intense and lasted longer. He found that as long as the cornea was not perforated, no microorganisms entered the interior of the eye, even in the hypopion which is the result of exudation of fibrin and leucocytes. He tried to find mercury in the eye, but did not succeed. He has settled upon the following treatment for corneal ulcers: the eye is bandaged, and 6 to 8 drops of atropin are instilled daily; the cul-de-sacs are cleansed with physiologic salt solution, and after the ulceration progresses, the borders are lightly touched with the galvano-cautery. If there is hypopion, without tendency to absorption, the cornea is punctured to evacuate it. The punctures may be repeated.

Finally, Dr. Coleman's own case: G. E., aged 22, a machinist, was brought to me on September 30, last. Two weeks previous, a piece of steel chipped off by a turning lathe had struck the left cornea. A fellow-workman had attempted to remove the steel and partially succeeded. Four days later the steel was removed by the family doctor. Hypopion appeared on the day before I saw him. At first visit there was deep conjunctival injection of the whole bulb, with a deeply infiltrated, creamy, central opacity of the cornea, two lines in diameter, the surface of which presented a superficial uneven ulceration. One-quarter of the anterior chamber was occupied by pus; the pupil was semi-dilated and regular under atropin; the iris was discolored; pain quite severe. V-fingers at four inches. Treatment, September 30: subconjunctival injections near the lower corneal margin of sublimate, 1 to 2000, and sodium chlorid 1 to 1000, 10 minims; atropin 1 per cent. and later eserine .25 per cent. A hot solution of boric acid was applied to the eye every two hours. October 1 there was extensive ecchymosis below the cornea at the site of injection, which prevented the lids from closing. The ulcer and the hypopion are about the same. Given iodoform ointment in the eye. October 2, cornea more infiltrated and the hypopion increased. Repeated the injections of 3 minims at three points. October 3, infiltration of the cornea increased at the lower three-quarters, and the hypopion was worse. Fearing my patient's eye would go on to destruction under the injections, I, for a time, questioned whether to use the galvano-cautery or the Saemisch incision. As the cautery without perforating the cornea would not empty the chamber of pus and, if used to perforate, might entail a prolapse of the iris and severe reaction, I decided to adopt what seemed to me the most rational procedure, that is, a Saemisch incision, which I did, and pressed out the coagulated pus; prescribed formalin 1 to 1000, to be instilled into the eye every hour. October 4, no pus in the chamber; less infiltration of the cornea, and no pain. Corneal wound reopened and formalin repeated. Since this date the opacity and ulceration of the cornea have gradually lessened, and recovery with slight opacity is assured. Given a case of infected ulcer of the cornea, I believe that the galvano-cautery or sublimate injections may be good treatment; but with pus in the anterior chamber that is not rapidly absorbed, or is increasing under treatment, it seems to me not only rational surgery to give it vent by incision, but very bad surgery to omit to do so.

Dr. DODD had used the corrosive sublimate injections in a number of cases, and said his conclusions were very indefinite. They proved most satisfactory in cases of severe syphilitic iritis. In these cases the results were quite marked. In ulcers of the cornea the treatment was of no benefit, and in many cases it made them worse. In diseases of the fundus they were of no benefit; the pain of the injection is always severe. It is now claimed by recent experimenters that the physiologic salt solution is even better than the corrosive sublimate, because the only action such injections have is to increase the lymph circulation.

DR. MONTGOMERY said that many cases of syphilitic iritis yielded rapidly to simple constitutional treatment combined with atropin, and that little dependence could be placed on the results of the few cases treated with corrosive sublimate.

DR. GRADLE spoke of the cumulative effect of anti-syphilitic treatment, and said that but little effect was noticed in such cases at times until the drug had been used for some time, and then suddenly the drug began to act on them. It would seem as if the new treatment were doing the work, and that it was simply due to the cumulative effect of the whole treatment. He had tried corrosive sublimate injections in only two classes of cases; in one class of interstitial keratitis, and the class of syphilitic retinitis. In both of these classes of cases it was possible to foretell the course of the disease, both being slow in development. In such cases the injections had proved to be of absolutely no benefit. He considered the Saemisch incision the best treatment for ulcers of large size; the cautery the best for the small and deep ulcers.

DR. WARE believes in the Saemisch incision when hypopion is present, but he has been able to control most cases by the cautery.

DR. HALE spoke of the treatment in Kiel, Germany, and said that the cautery was very much used.

DR. PINCKARD referred to the large number of cases of ulcer serpens that came to the Massachusetts Charitable Eye and Ear Infirmary from the granite quarries in Quincy. The cases are chiefly caused by blows from fairly large stones, the size of a marble, which not only abraded the cornea, but which seemed to paralyze the nutritive function and allow the cornea to rapidly slough. In such cases the routine treatment had always been the Saemisch incision, with almost uniformly good results, the cautery being rarely used.

DR. WALKER, of Denver, referred to similar cases seen there in which miners were struck by small pieces of stone and had noticed the same interference with the nutritive function. The Saemisch incision was also chiefly used by him.

DR. COLEMAN said, in closing, that De Wecker, of Paris, recommends the use of eserine instead of atropin in cases of ulcer of the cornea.

DR. PINCKARD spoke of the use of pilocarpin in a similar way.

DR. COLBURN showed a piece of iron removed from an eye. It entered the eye about four lines from the corneal edge, passed across the globe and lodged in the retina. The next day the piece of iron was removed with a magnet. The second day a large opacity in the vitreous developed, and on the third day opacity in the posterior capsule began. In a few days the whole lens was perfectly opaque, although it had not been touched either by the foreign body or by the magnet. The wound healed very kindly in a short time, without any pain, redness, or other symptom.

DR. GRADLE had seen a case where on the fifth day after the injury the whole vitreous was opaque. The wound was in the upper cornea and the foreign body (a piece of steel) was easily extracted with a magnet.

DR. COLBURN said this was the third case he had had in which opacity followed in the lens when the lens was not touched.

DR. DODD had a similar case.

DR. PINCKARD asked if any member had had a case in which a foreign body was removed from the vitreous and the case recovered useful vision.

DR. MONTGOMERY had one case in which a foreign body was removed from the vitreous within half an hour after the injury, and many months afterward the patient had useful vision.

A number of cases of foreign bodies remaining in the eye with fairly useful vision were spoken of.

DR. WALKER reported a case in which a man was shot through the iris and lens, the shot lodging in the sclera behind. The shot could not be seen with the ophthalmoscope on account of the hemorrhage, and the eye-ball was removed.

DR. PINCKARD had seen two cases in which the shot had gone entirely through the eye-ball and lodged in the orbit.

DR. MONTGOMERY had seen one such case, but the shot was a large buck-shot, and the eye was so much torn that it was removed.

DR. GRADLE showed some beautiful photographs of sections of the ear.

On motion, the Society adjourned.

C. P. PINCKARD, Secretary,

103 State Street.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Eighth Annual Meeting, held in Washington, D. C., Nov. 12, 13 and 14, 1895.

(Concluded from p. 911.)

FIRST DAY—AFTERNOON SESSION.

DR. GEORGE H. NOBLE, of Atlanta, Ga., read a paper entitled,

ONE HUNDRED AND SIXTY-SIX CASES OF CANCER OF THE PREGNANT UTERUS OCCURRING SINCE 1886.

The author's attention was directed to this subject by four cases that came under his observation; his success in dealing with them had encouraged him to look more carefully into the treatment, and as a result he had collected 166 cases of cancer of the pregnant uterus which had occurred since 1886, the time of the Bar thesis. Dr. Noble then confined himself mainly to the statistics of the treatment and results, referring to Bar, Cohustein and others for information concerning the age, the period of recurrence, the period of abortions, etc. There were twelve partial amputations of the cervix in the seven months of pregnancy, averaging five and a half months; 96.6 per cent. of the mothers recovered from the operation, while 8.3 per cent. died; 66.6 per cent. went to full term, one child dying subsequently, and 41.6 per cent. aborted. Two mothers had subsequent operations performed for the removal of cancer, but there was recurrence in both cases. Another conceived a second time, and died thirteen days after confinement of peritonitis. Of the three cases of intra-vaginal amputation of the cervix, two recovered from the operation, giving a mortality of 33.3 per cent.; the children the same. One mother died of peritonitis, one died suddenly six weeks after confinement, and the third had two subsequent operations for the removal of the malignancy. The intravaginal amputations give a combined mortality from operations, of mothers 19.3 per cent., of infants 40 per cent. Sixteen supravaginal hysterectomies were done prior to the seventh month, with a mortality of 6.2 per cent.; six had recurrence of the disease, three had no return and seven were not observed. There was therefore an ultimate mortality of 66.6 per cent. In the sixteen cases in which the records are complete, thirteen cases were lost, a mortality of 82.5 per cent. Of the remaining three, one went to full term, and the other two were not mentioned. One case aborted thirty-five days after conception, aborted again in forty days, conceived a third time, was delivered normally, and was well five years afterward. There were twenty-three vaginal hysterectomies. In two cases the results were not recorded, leaving twenty-one cases, all successful. There were seven cases of vaginal hysterectomy in the puerperal period from fourteen to twenty days after abortion or delivery, all recovered.

The total number of abdominal hysterectomies was sixteen; twelve of these were Freund's operation, one after Mackenrodt's method, and the remainder not described. Of eleven cases, seven died from the operation. One case had enchondroma of the pelvis; another had return of the cancer in one year, and a third had a return in a few months, and died seven days after an operation for ileus due to cancer of the intestines. These three are the only ones with complete records; therefore it is impossible to give an estimate of the ultimate recoveries. The products of conception were all lost.

Cæsarean section was done forty-three times, as follows: conservative (or Sanger) twenty-six; Porro, nine; Freund's, eight times. Of the twenty-six conservative operations, sixteen died and seven recovered; in two, the results are not recorded, and one was dead before the operation was performed; mortality in twenty-three cases being 43.7 per cent.

The number of recoveries in the Cæsarean-Porro operations were four, deaths five; mortality of 55.5 per cent. In eight Cæsarean sections by the Freund method, there were three recoveries and five deaths, giving a mortality of 62.5 per cent.

A short summary shows: 1, that vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable hope for the mother; 2, that abdominal hysterectomy should be done when the uterus is too large to be rapidly and safely removed through the vagina; 3, that at or near the end of pregnancy, Cæsarean section should be resorted to, when the child's interest is to be considered; 4, that Cæsarean section with Freund's operation is permissible when the disease is confined to the uterus and the child is viable; 5, that in doubtful cases, cutting of the cervix and rapid delivery

may be judicious when the incision can be made in non-ulcerated or non-infiltrated tissue; 6, that as there are four chances to one, against the life of the fetus, and as an equal number of mothers may be ultimately cured in the early stages of the disease, the safety of the fetus should not be allowed to hazard the life of the mother; and that, upon the other hand, the futile efforts directed to the interest of the mother when her case is hopeless, should not jeopardize the safety of the fetus in the latter months of pregnancy.

DISCUSSION.

DR. HOWARD A. KELLY, of Baltimore, said that cancer of the pregnant uterus is rare. He had seen but three cases. If the cancer is seen in the early stage, when it presents itself as a mere nodule on the cervix, not apparently extending into the broad ligaments and pregnancy is approaching, it would be safe to let pregnancy go on to full term and labor to take place naturally. Per contra, if the cancer has advanced to such an extent that there is a possibility of involvement of the broad ligaments, the surgeon could not operate too soon, because under the conditions of pregnancy the growth of cancer of the cervix is much more rapid than it is ordinarily.

DR. VANDER VEER, of Albany, stated that four years ago he operated on a case, doing a vaginal hysterectomy. Pregnancy had advanced about four months. He felt happy about the case for two and a half years, at the end of which time cancerous nodules presented themselves at the site of the cicatrix. Pregnancy had advanced to full term. The patient lived for a period of eight months. The pelvis was filled with a cancerous deposit. Dr. Vander Veer reported another case of cancer of the pregnant uterus, and while the patient recovered from the removal of the uterus, she subsequently died from recurrence of the disease.

DR. E. S. LEWIS, of New Orleans, contributed a paper entitled:

HYSTERECTOMY FOR FIBROIDS.

The author said that hysterectomy for fibroids, now a justifiable and recognized operation for the preservation of health, the prolongation and the saving of life through important operative procedures, minimizing the element of risk, had reached its present enviable position by the substitution of direct ligation of the uterine arteries, for the unsatisfactory methods heretofore employed to secure immunity from hemorrhage, these measures often failing to prevent bleeding and not infrequently there was exposure to infection through the region of the cervix. Complete hysterectomy, whether by the vaginal route in fibroids of moderate size, through the abdomen in certain cases, or by the combined abdomino-vaginal method in other instances, heralded a brighter era for the future of hysterectomy. That exceptions might occur with regard to individual cases, rendering the complete operation inadmissible, he was prepared to admit. The author then reported eight cases in which the complete operation was practiced.

Case 1.—Patient aged 53 years. Tumor the size of a seven months pregnancy. Operation performed March 11, 1894. Incision from pubes to two inches above umbilicus. Omentum detached from anterior surface of tumor to which it was adherent; a portion of omentum ligatured and cut off on account of free oozing. The subperitoneal fibroid attached to the fundus was lifted out and upper portion of ligaments ligated and divided. The bladder was then detached and vaginal roof opened in front and behind. The lateral vaginal connections and lower portion of broad ligaments were transixed and ligated with a double ligature and the uterus freed. One suture through middle of vaginal vault. The incision (abdominal closed) and the vagina loosely packed with iodoform gauze pushed above vaginal roof for drainage on account of some slight venous oozing. The tumor weighed twenty-five pounds. This patient made a satisfactory recovery.

Case 2.—Patient, 43 years of age, had profuse uterine hemorrhages. Uterus as large as a five months pregnancy from interstitial fibroid. Endometrium curetted and iodine injected without relief. Hysterectomy by the vaginal method. Recovery.

Case 3.—Patient, aged 63 years. Diagnosis: interstitial fibroid with carcinoma of cervix. The uterus reached the middle of the hypogastrium and was about the size of the preceding case. Its removal was easily effected in the same manner. Ligaments were secured with clamps. The fibroid, about the size of an orange, was not weighed. Recovery.

Case 4.—Patient, aged 44. Uterus enlarged from small fibroids. Vaginal hysterectomy followed by recovery.

Case 5.—Patient, aged 35 years. Diagnosis: uterine fibroid, reaching to umbilicus. Recovery.

Case 6.—Patient, aged 42. Large uterine fibroid the size of an eight months pregnancy. Vaginal hysterectomy.

Case 7.—Patient, aged 40. Diagnosis of subperitoneal fibroid attached to fundus. Same operation.

Case 8.—Colored woman. Fibroid affecting the body of the uterus and as large as a six months pregnancy.

Dr. HOWARD A. KELLY, of Baltimore, made some remarks on the "Technique of Supravaginal Hysterectomy." He described a new method for hysterectomy in removing the uterus, ovaries and tubes through the abdomen. It is a modification of the Baer method. He had tested it in about one hundred and fifty cases of all kinds, and had operated in the presence of hundreds of practitioners. While he had not heretofore described it, he had briefly referred to it before the Section on Obstetrics and Diseases of Women at the Baltimore meeting of the AMERICAN MEDICAL ASSOCIATION.

Dr. JOSEPH TABER JOHNSON, of Washington, D. C., followed with a paper entitled:

SEVENTEEN CASES OF HYSTERECTOMY.

The first successful hysterectomy ever performed was done by Dr. Burnham, of Lowell, Mass., in 1853. Kimball, who assisted Burnham in his first case, subsequently operated with success after a correct diagnosis had been made. In 1875 Kimball reported nine hysterectomies with three deaths. Burnham had then done sixteen hysterectomies with four deaths. These results were considered fairly good at that time. In 1878 Gusserow reported that up to 1866 Koeberle had lost all but eight out of forty-two hysterectomies, giving him a mortality of 81 percent. Schroeder collected reports of 103 hysterectomies with a mortality of 85.3 percent. Thomas' "Diseases of Women" reports twenty-four cases with eighteen deaths. Storer, in 1874, reports ten American hysterectomies; all died. From 1874 to 1894 many changes in technique including asepsis, the Trendelenburg position, the intrapelvic but extraperitoneal treatment of the pedicle, the closure by suture of the separated edges of the broad ligament, drainage when necessary through the vagina after total extirpation, have all had their share in diminishing the mortality from 85.3 percent.

In the June number of the *Annals of Gynecology*, Cushing publishes a report of 1,670 suprapubic hysterectomies done by American operators, with a mortality reduced to 13.8 percent. One of the improved methods of widening the scope of this beneficent and magnificent operation and greatly reducing its mortality was introduced, advocated and practiced by Dr. B. F. Baer, of Philadelphia, who is quoted in Cushing's article as having operated seventy-eight times with seventy-one recoveries and seven deaths. Dr. Johnson presented his paper for the purpose of reporting seventeen operations by Baer's method with sixteen recoveries and one death.

The three preceding papers were then discussed jointly.

Dr. HENRY O. MARCY, of Boston, agreed with Dr. Johnson that the method of operating by the Koeberle clamp had been shown to be absolutely wanting in this type of operation; that it is not easier to do excepting in very few and rare cases; that it is ill-advised and subject to serious dangers. In reference to the operation described by Dr. Kelly, he desired to refresh the memory of the members, that in 1880 he published a paper in which he reviewed the various steps and pointed out the advantages of the operation which is now known under the name of Dr. Baer. In the International Congress of 1881, he presented a second paper in which he emphasized the value of it. The advantage of leaving the stump was a great gain in the subsequent result, in that it left a sort of fixation point between the uterus, rectum and bladder. It is of value, again, in that it does not shorten the vagina—a question of paramount importance in reference to marital life and of the conditions that may follow in the subsequent history of the patient. He was sure that surgeons were working on the line of great and general improvement, and that when the technique of this operation has been developed more thoroughly, the time is coming when the removal of large fibroid tumors of the uterus will be accomplished with equal safety as the removal of large ovarian cystomata.

Dr. RICHARD DOUGLAS, of Nashville, said one advantage of the procedure described by Dr. Kelly was that the bladder was out of the operative field, the surgeon not having to handle that viscus; that the operator could open the broad ligament and remove the intraligamentary fibroids without difficulty and without danger. Another important feature was that the risk of ligating the ureter was greatly reduced.

Dr. W. E. B. DAVIS, of Birmingham, believes that most surgeons are now inclined to accept the intra-abdominal method of operating, although it was still a question whether we shall have a pedicle, or go in through the vagina. A very important point was with reference to the time of these operations. He had seen Dr. Kelly operate and admired his manual dexterity; but to take out the uterus in six or seven minutes meant very little when it takes an assistant, or the operator himself, an hour or more to complete the balance of the operation. At the meeting of the AMERICAN MEDICAL ASSOCIATION he saw Dr. Kelly remove the uterus by the method he had described in something like seven minutes, but it took his (Kelly's) assistant one hour and twenty minutes to finish the operation. This was no reflection on Dr. Kelly's skill as an operator, but he thought the matter of time should go down on record, in a little different way.

Dr. VANDER VEER, of Albany, remarked that in 1889 he removed the uterus somewhat in the manner described, the case having been already recorded. He had done the operation only twice since. He uses the Koeberle clamp because he thinks he can do the operation much quicker, and has no reason to regret its use.

Dr. A. M. CARTLEDGE, of Louisville, believes it is an advance in pelvic surgery to remove the uterus in badly septic cases, whereas formerly only the tubes and ovaries were taken out.

Dr. E. S. LEWIS, of New Orleans, remarked that his experience with total hysterectomy for fibroids was restricted to the cases he had reported. The operations which he had performed up to last year were cases in which a partial removal of the uterus was effected, leaving a portion of the cervix. He could not but think, however, notwithstanding the majority of the gentlemen who had spoken upon the subject appeared to be advocates of the partial operation of leaving a part of the cervix, that total removal of the uterus was the best operation.

Dr. KELLY said, in reply to Dr. Davis, that when he spoke of removing the uterus in seven minutes or less, it did not include closure of the wound, dressing, etc. He had never been so dishonest as to make the statement that the entire operation could be done in such a short space of time, nor would he like that impression made.

Dr. JOHNSON remarked in reference to taking out the cervix, that it prolongs the operation and necessitates greater mutilation and more stitching, and seems to be unnecessary in view of the successful cases that had been and are being reported. Patients get perfectly well without doing it. He concurred in Dr. Davis' statement that the time consumed in taking out the uterus did not amount to much, but that we should consider the matter from the time the first incision is made until the last stitch is inserted, the wound dressed, and the patient off the table.

Dr. JOSEPH PRICE, of Philadelphia, contributed a paper entitled

ABDOMINAL HYSTERECTOMY.

Among other things he said that had the same mortality attended the early ovariectomies that attended the first ventures in hysterectomy, there would have elapsed a longer period than forty or fifty years between the first successful ovariectomies and the date of the revival of the procedure. Both vaginal and supravaginal hysterectomy had been largely practiced by those who have given pelvic surgery most attention. They are the men who have contributed the most to perfecting the procedure. Abdominal hysterectomy is the one procedure indicated in all cases of intra-uterine malignancy, where vaginal portions of the cervix are not involved, in all cases of uterine malignancy complicated with tubal and ovarian disease, and in cases of uterine fixation antedating the malignant development. Hysterectomy, vaginal or supravaginal, should be a simple, direct and complete operation in every detail. Where the operation is done with good surgical judgment and skill, there will be comparative immunity from all risk of dangerous hemorrhage and avoidance of sepsis. The method of procedure successful experience recommends as safe, the most satisfactory and complete in its results, is extirpation by lateral ligation, incision of the posterior vaginal fornix, circular incisions of vagina to bladder, and approximating vaginal walls to, and matching the perineum, completes the simple procedure. This is the method with which others as well as Dr. Price himself, have met with the best success. Operations for malignancy by the upper method of dealing with omental and other adhesions lessen the risk of post-operative troubles and early recurrence. In all operations for

malignancy, Dr. Price advises the removal of both the ovaries and tubes, and says that an operation would be imperfect without it. The leaving of the ovaries sometimes results in the growth of small tumors, necessitating an additional operation. The toilet should be perfect. If the operation has been complicated by pus accumulations in tube and ovaries, with universal adhesions, irrigation followed by glass drainage will give the best results. Drainage should be used in all cases where the adhesions are extensive, as oozing of blood and serum may be very free.

Morcellation, with a mortality of one in seven, can not certainly be said to offer any very strong claim to our consideration. Such a mortality does not compare favorably with the much abused extraperitoneal operation with the Koberle or elastic ligature. Dr. Price had no statistical reasons for complaining of any one of the four methods—intraperitoneal amputation, extirpation, supravaginal, extraperitoneal, or vaginal extirpation, as his results in all had been altogether satisfactory from the standpoint of recoveries.

Dr. A. M. CARTLEDGE, of Louisville, Ky., presented the following paper:

HYSTERECTOMY IN ACUTE PUERPERAL SEPSIS, WITH REPORT OF CASES.

The author reported two instructive cases, after which he summarized his conclusions as follows:

1. From our present knowledge of the causation and nature of puerperal infection, we may say it is largely a preventable disease.

2. When occurring, it is of the greatest importance to differentiate between puerperal intoxication or invasion of a piece of putrescent placenta or blood clot by saprophytic germs, and true septic infection or invasion of living cells by pathogenic bacteria. Puerperal sapremia, though in many cases producing the most alarming symptoms, is usually amenable to energetic treatment by curettage, antiseptic irrigation and satisfactory tubular drainage of the uterine cavity.

3. True aseptic infection should be treated by sterilizing the birth canal at the earliest possible time, free elimination by purgation and the prompt evacuation of superficial abscess accumulations about the cervix. Such a course may save the patient from more radical measures.

4. The chief differential points between puerperal intoxication and true puerperal infection are the comparative absence of pain, tympanites and abdominal tenderness, and the more sudden onset and severe character of the symptoms in puerperal intoxication. Hysterectomy, as a primary measure, is never justifiable in septic intoxication, and when necessary it can only be after the mixed or secondary infection which may follow in the track of a primary sapremia.

5. Progressive involvement of the deeper structures, as evidenced by daily elevation of temperature, probably 103 degrees F. in the evening and subnormal in the morning, together with night sweats, scanty secretions, ascending pulse, are indications for hysterectomy.

6. It is often impossible, from the involvement primarily of the low pelvic structures, to make a bimanual examination which will reveal the true condition of the uterine appendages. But in view of the fact that these structures are not so prone to be invaded in the acute violent type of the disease, vaginal hysterectomy should be the operation of selection.

SECOND DAY—MORNING SESSION.

Dr. RICHARD DOUGLAS, of Nashville, read a paper entitled SPLENECTOMY STATISTICALLY CONSIDERED WITH REPORT OF A CASE.

Gathered from all sources, the author finds on record 194 splenectomies. Of these, 126 were females, 57 males, and in 11 cases the sex is not given. Furthermore, he finds that in forty cases the operation was undertaken for wounds or injuries. Of this number twenty-six were males, and fourteen females. If we deduct these, we find that the ratio of splenectomies for disease is 31 males to 112 females, showing the latter sex to be much more predisposed to disease of this organ. Dr. Douglas then reported the following case: Mrs. J. S., aged 33, housewife, multipara, native of Tennessee, family history good, has suffered occasionally with menorrhagia, but more recently from amenorrhea. She had malarial fever when 12 years of age. The last three years she has lived in the western portion of the State on the banks of the Mississippi, and has suffered during this time from frequent attacks of intermittent malaria. About August 1. last, she suffered from an acute pain in the left side. A tumor was then discovered in that region about the size of a fist. Physical examination revealed a smooth, elastic,

movable tumor, filling the left lateral region of the abdomen, its borders well defined, edges sharp and notched. It frequently changed its form; at times it appeared flat and smooth, again it would rise up as a sharp ridge extending from ribs to symphysis pubis. There was absolute dullness over the tumor. Vaginal examination revealed the uterus forward, the pelvis filled with a smooth hard mass, which upon change of posture disappeared from the pelvis and occupied the left iliac fossa. She suffered from paroxysmal pain, not severe. A sense of weight, a dragging in the left side, flatulency, nausea, and occasionally vomiting. There was some emaciation and slight anemia. There was no edema, ascites, vertigo or insomnia. A blood examination of the case constituted a part of the report.

A diagnosis of malignant hypertrophy of the spleen was made, and after due preparation the abdomen was opened by a lateral incision at the outer border of the left rectus, the incision being about six inches long. The spleen was found displaced and free from adhesions. Its pedicle was secured by interlocking ligatures; pedicle was severed close to the organ. As additional security against hemorrhage, ligatures *en masse* were employed; also individual deligation of splenic artery. After removal of the spleen, bleeding from abdominal incision became very profuse and required several ligatures. Peritoneum closed by separate silk sutures, the abdominal wall coapted by usual interrupted silkworm sutures. The post-operative history of the case was a very stormy one, but one month after operation the patient is out of bed and now looks ruddy and well.

Dr. W. E. B. DAVIS, of Birmingham, contributed a paper entitled,

SURGERY OF THE BILIARY DUCTS.

Dr. Davis reviewed the operative procedures practiced on the biliary passages and recommended for cases of obstruction from stone in the common and hepatic ducts, that the obstruction should be removed, and that no attempt be made to suture the incision in the duct or ducts. His experiments had demonstrated that the field of operation will be walled off, and that no general inflammation will occur after this treatment. He had tested the value of gauze in draining bile in injuries of the gall bladder and ducts, and reported cases where he had removed the gall bladder without tying the duct by packing with iodoform gauze. The animals got well. In other instances where he incised the gall bladder and ducts and packed with gauze around the openings, no stitches being used, the animals recovered. Complete walling off of the general cavity was noted when the abdomen of the animals was reopened. The experiments of Dr. Davis demonstrate conclusively that the peritoneum is capable of taking care of a small amount of bile, but that large quantities or the constant extravasation of it will produce a fatal peritonitis usually in from twenty-four to forty-eight hours.

MANAGEMENT OF CASES WHICH HAVE RECOVERED FROM APPENDICEAL ABSCESS IN WHICH THE APPENDIX WAS NOT REMOVED.

By Dr. JOHN D. S. DAVIS, of Birmingham, Ala.

The practice of dealing with appendiceal abscess by simply evacuating the pus and draining the cavity thoroughly without any very extensive search, or the breaking up of adhesions in order to find the appendix, has been adopted by a large number of the leading operators for some time. More recently some of the leading surgeons have advocated, in all cases, that the operation should be made complete; that all adhesions should be freed and the appendix removed. One leading abdominal surgeon, who has perhaps done more work in pelvic surgery than any other man in this country, has advocated this plan of treatment in most vigorous terms. In a large proportion of cases of pus in the tubes and ovaries, gonorrhea has been an important factor in its production. Such pus is not septic and is not calculated to give rise to so dangerous a general inflammation as infection from an appendicitis or an appendiceal abscess. It is a notable fact that a ruptured tube or ovary will usually be followed by a circumscribed inflammation. It is the exception that a fatal general peritonitis results from such an accident. The most fatal forms of peritonitis are due to a ruptured appendiceal abscess. In fact, but few cases are saved when such an abscess ruptures into the general cavity.

An operation on an appendiceal abscess is usually one of the simplest of procedures and is attended with almost no danger. Where the inflammation is circumscribed and the drainage is thorough, nearly all cases recover. The records of operations for appendiceal abscess show that the great majority of cases are cured after evacuation and complete drainage. Recurrence of the disease in such cases is rare.

The appendix in a large proportion of cases having ruptured before the abscess formation, is completely drained through the abscess and permanently cured. In others the appendix is destroyed by the inflammation and there is nothing left of it when the abscess is operated upon. To make an extensive search for the appendix is liable to break up adhesions and then allow escape of septic fluid into the general cavity. Thus a very simple condition may be converted into one of the most serious that could happen to the peritoneal cavity. Dr. Davis believes that there can not be much need of breaking up adhesions, for they give way in a short time after the abscess is relieved. In breaking up these adhesions, in addition to the danger mentioned, the surgeon prepares a favorable condition for fresh adhesions, with the possibility of the bowel being fastened in a position that will produce pain and often obstruction. After the abscess is thoroughly cleaned out, gauze packed into the abscess cavity and between the abscess and abdominal wall will completely shut it off, and the chances for recovery will be good in such cases. Dr. Davis does not favor the breaking up of adhesions and searching for the appendix in cases of appendiceal abscess.

SECOND DAY—AFTERNOON SESSION.

DR. JOHN A. WYETH, of New York city, delivered a memorial address on

DR. J. MARION SIMS AND HIS WORK.

Dr. Wyeth said it was safe to say that Marion Sims attained the highest position ever achieved in the history of the profession. He stands alone in this; his reputation as a surgeon was so world-wide that in any capital, in any country within the domain of civilization, he could command at any time a lucrative practice. Assuredly, there does not exist in the history of surgery another such distinction. In New York, London, Paris, Brussels, Berlin, Vienna, Rome, Madrid, Lisbon, and St. Petersburg he found himself everywhere sought after, not only by the patients he could benefit, but by the leading members of his own profession, who were anxious to pay tribute to his wonderful genius. The study of his life should instill hope into the heart of every student. Born amid the most humble conditions in a backwoods county of South Carolina, he died the foremost surgeon of his country and of the world. What a transition from the log-cabin of the poor farmer in Lancaster District to the palace of St. Cloud, where he was a guest of Napoleon III, the trusted physician to the Empress, as he was to the highest and lowest of those who sought relief at his hands in any part of Europe!

Toward the higher and purer civilization, the progress of man is slow. As yet, the shadows of barbarism linger about him. His heroes are the destroyers, the Caesars and Napoleons, who covered the earth and buried beneath it countless lives, sacrificed upon the altar of personal ambition. But the time must come when those whose genius and works give life and health and happiness to the world will be first in the heart of man. In this purer temple of fame, along with those of Jenner, Ephraim McDowell, Morton, Lister, Pasteur, and others, generations yet unborn shall read the name of Marion Sims.

At the close of Dr. Wyeth's address, remarks were made by Drs. Robinson, Wilson, Nelson, Marcy, Englemann, Kollock, Vander Veer, Gaston, Tiffany, and Westmoreland, eulogizing Sims, most of whom were personally acquainted with him.

DR. GEORGE BEN JOHNSTON, of Richmond, Va., read a paper entitled,

COMPARATIVE FREQUENCY OF STONE IN THE BLADDER IN THE WHITE AND NEGRO RACES.

It is commonly stated by writers on urinary diseases that stone in the bladder is of rare occurrence in the negro race. This is so at variance with his own experience that he has instituted an investigation either to prove the statement or to correct the fallacy. He selected the Southern States of Virginia, North Carolina, South Carolina, Alabama, Georgia, Tennessee, Kentucky, Florida, Louisiana, Mississippi, Arkansas and Texas as the field of inquiry. He selected 400 representative practitioners to correspond with, in order to procure the necessary data. He received 338 responses, 94 of which contained information, and the remainder were negative. He succeeded in collecting 1,068 cases of stone in the bladder. Of these, 952 were in white subjects, and 116 in negroes. It is at once observed that the negro cases represent 9.55 per cent. of all cases reported. This showing is quite sufficient to disprove the idea of immunity which the negro is supposed to enjoy.

Geographically these stones were distributed as follows: Alabama, 10; Arkansas, 11; Florida, 28; Georgia, 90; Kentucky, 56; Louisiana, 19; Mississippi, 99; North Carolina, 126; South Carolina, 66; Tennessee, 128; Texas, 98; Virginia, 430.

Sex is specified in 780 cases, and not stated in 280. Of those in which the sex is indicated, there were 691 in males, and 97 in females, or about seven times oftener in males than in females.

There were 182 cases not subjected to operation, and 584 in which the stones were removed by the following methods: Lateral perineal, 249; median perineal, 100; suprapubic, 138; vaginal incision, 32; dilatation of female urethra, 28; crushing, 35, and operation not given, 5.

Of those operated on, 541 recovered, and 43 died. No report of operation in 304 cases. Dr. Johnston's own cases are incorporated in the foregoing statistics. During his twenty years practice, he has made notes in forty-one cases, which is the third largest list furnished by any reporter, and what seemed to him the enormous number of cases in the negro in the face of its supposed rarity, caused him to set on foot the inquiries leading up to this paper. Of his forty-one cases, there were thirty-five in whites, six in blacks, thirty-nine in males and two in females. Thirty-nine were operated on, and two were refused operation on account of advanced kidney disease. Both died. In twenty-five cases, lateral perineal lithotomy was done, twelve suprapubic, and in the cases of the two females the urethra was dilated and fragmentation practiced. He had no deaths following operation.

PRESIDENT'S ADDRESS.

This was delivered by Dr. L. McLANE TIFFANY, of Baltimore, who said the aim of the Association is twofold: 1, to do advanced work; and 2, to bring it to the notice of and aid other members of the profession. The one complementary to the other, neither complete alone, yet attaining full fruition when associated. The fellowship of the Association is a very extended one, embracing a territory of many degrees of latitude by many degrees of longitude, with infinite varieties of soil, temperature, environment, etc., yet the transactions did not show those exact local records from which facts may be generalized, applicable to the whole area, or a large part of the area, from which the fellowship is drawn. It did not seem reasonable to him to suppose that a surgical operation done among the mountains of western North Carolina was going to behave quite the same way that a similar operation would if done on the Gulf coast of Texas. It did not seem reasonable that similar surgical operations on the banks of the Mississippi and the central plateau of Tennessee would behave the same way. Accurately kept charts with exact and careful notes would unquestionably show differences not yet put on record by any one from which much clinical information could be learned. Again, he questioned whether surgical operations undertaken during the great heat of summer, or after the long continuance of summer heat, would show similar charts or give like results when compared with operations upon patients not subjected to high atmospheric temperature, either temporary or of long continuance. No association had a membership better situated or more competent to carry on a series of such investigations.

DR. WILLIS F. WESTMORELAND, of Atlanta, Ga., made some remarks on

CYSTOTOMY FOR STONE.

Among other things, the author said that any surgeon of the present day, who had had a long and extensive experience in operating for stone, must acknowledge that the upper operation of cystotomy is better and safer. Unless there is a pathologic condition of the blood or infection of the bladder as recognized by chemic or microscopic examination, the surgeon could decide before operation what course to pursue. The anatomy of this region, as laid down by the investigations of Strong and Peterson upon the cadaver and frozen sections, lead the surgeon astray, and the observation of the practitioner is more to be depended upon than any literature we have thus far relative to the subject. In operations for stone, the author said he cares not whether he sees the base of the bladder; that he depends upon touch, and that therefore rectal distension might be dispensed with. Instead of rectal distension, he recommends that a vessel of water be suspended three or more feet above the patient, according to the amount of distension necessary. Where the surgeon desires to effect distension of the bladder by a vessel, if the bladder is ulcerated at any point, with a thickening here or thinness there, it could be done without sudden force, and if

the patient during the operation should sneeze or cough, or contraction of the bladder take place, instead of contracting upon a solid mass of fluid, the fluid is forced back into the vessel and there is practically no increase in pressure.

Dr. CORNELIUS KOLLOCK, of Cheraw, S. C., read a paper entitled

ABDOMINAL PREGNANCY.

After referring to the pathology of extra-uterine fetation and the classification of its varieties by early writers, he reported the following case: Oct. 18, 1894, he saw for the first time a dark mulatto, 34 years of age, the mother of three children, whose general health had been good until within the last fifteen months. The abdomen was very much distended, measuring at the umbilicus sixty-three inches. Fluctuation was evident and wave tap very distinct. The patient affirmed that she was pregnant, and that she had gone four months beyond the actual period of gestation. After a thorough examination laparotomy was decided upon, and an incision was made four inches in length below the umbilicus. The walls were so thin that the instrument penetrated the cavity before it was certain that the abdominal muscles were divided. There was a sudden and copious discharge of offensive matter. An immense fibroid was removed from the anterior portion of the sac. The cavity also contained a fetus weighing ten pounds. The placenta had undergone fibroid degeneration with only a small part of the placental tissue remaining. The patient was extremely weak when operated on. She lived comfortably for five or six weeks after operation, and the doctor thinks she would be alive to-day were it not for the unfortunate intervention of intestinal obstruction.

Dr. J. T. HENRY, of Chester, S. C., followed with a paper in which he reported a

A CASE OF EXTRA-UTERINE PREGNANCY.

In this case the abdomen was freely opened and a large dark mass nearly as large as the head of an adult came into view. The uterus was crowded very much forward. The mass lay posterior to it and was much adherent to the fundus posteriorly and to the promontory of sacrum. The fimbria of the right tube spread out over the covering of the mass. This mass was with some difficulty freed from its attachments except that portion to the fundus of the uterus, and it was thought best to remove the uterus with it, which was done after tying and cutting the broad ligaments. The fetus was five inches long and lay between the placenta and the uterus, the cord being attached to the left margin of placenta. The abdomen was thoroughly washed out with sterilized water and closed without drainage. Patient sat up on the fourteenth day after operation and was out of bed in twenty-five days. She has gained twenty-five pounds in weight since operation.

THE TECHNIQUE OF THE BURIED SUTURE.

By Dr. HENRY O. MARCY, of Boston. The constant receipt of letters, from all parts of the country, containing inquiries concerning the method for the safe application of the buried animal suture, prompted the author to write this contribution. At the risk of seeming dogmatism, he would venture to assert that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon sutures and hermetically sealed with iodoform collodion. Carefully selected tendons are to be preferred for buried sutures, since primarily their anatomic construction makes them stronger, more compact, and as a consequence, more resistant to the softening process which must ensue when buried in the living structures. When properly preserved they have not been subjected to bacterial decomposition, and hence may be sterilized without detriment to their ultimate elements. When tendon has been chromicised, it is best preserved in a sterilized oily fluid. Experience has shown that by far the best preserving fluid is linseed oil sterilized by heat, to which carbolic acid has been added. Tendon improves so much when thus kept that he rarely uses it until it has been in carbolic acid from three to six months. A method far too common has been to preserve chromicised catgut and tendon in absolute alcohol, boiled under pressure. There is no question but that such material is absolutely sterile, but the important factor has been singularly overlooked, that by this process the chromic acid is dissolved out of the tendon, thereby leaving it really less valuable than if chromic acid had not been used.

The infection of wounds may never be absolutely prevented, but the experience of surgeons teaches us daily to what a marvelous extent it can be minimized, reduced in aseptic wounds, he confidently believes even in hospital

practice, to less than 5 per cent. Indeed, not long ago he examined his own personal experience, reviewing six hundred operations with only 2 per cent. of septic cases,—evidence ample to show the safety of the coaptation of wounds by means of the buried animal suture.

One of the interesting features of the meeting was the presentation of a gavel made from the leg of the operating table used by Dr. J. Marion Sims in his office for twelve years preceding his death. It was the gift of his son, Dr. H. Marion Sims.

The following officers were elected:

President, Dr. E. S. Lewis, New Orleans, La.

First Vice-President, Dr. Joseph Taber Johnson, Washington, D. C.

Second Vice-President, Dr. Richard Douglas, Nashville, Tenn.

Secretary, Dr. W. E. B. Davis, Birmingham, Ala.

Treasurer, Dr. A. M. Cartledge, Louisville, Ky.

Place of meeting, Nashville, second Tuesday in November, 1896.

Chairman of Committee of Arrangements, Dr. W. D. Haggard, Nashville, Tenn.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Seventh Annual Meeting held in Chattanooga, Tenn.

Dr. M. CUNNINGHAM of Birmingham, Ala., presiding. Opened with prayer by Rev. J. W. Bachman.

Following reports of officers, the President delivered the Annual Address on

TUBERCULOSIS,

based on his experience in the prisons of Alabama. The statistics showed a great predisposition of the negro to tuberculosis, which he explained as follows:

1. The negro has acquired, since his emancipation, a predisposition to tuberculosis which is hereditary.
2. A greater liability to diseases which predispose to tuberculosis, especially bronchial and intestinal catarrh and pleurisy.
3. He is physically, mentally and morally inferior to the white man, therefore,
4. He is more liable to contract disease, particularly tuberculosis and thoracic diseases (local and from infection) generally.
5. His changed social, religious, political and industrial relations, involving as a rule, a change from the segregate to the aggregate, from a country to town and from farm to public works.
6. His disregard to all rules of sanitation.

The greatest mortality was from 20 to 30 years. In two prisons a mile apart, under the same management and sanitary conditions, there were at No. 1, forty-five deaths from tuberculosis; at No. 2, twenty-six, explained by the fact that there was an epidemic of diarrhea at No. 1, proving that intestinal catarrh predisposes to tuberculosis of the peritoneal form. The excess of mortality, nineteen, being exactly the number which died from tubercular peritonitis at No. 1. An epidemic of diarrhea was always followed by a large number of cases of tubercular peritonitis. The causes of tuberculosis he defined to be: 1, essential, the tubercle bacillus; 2, predisposing, (a), an inherited predisposition; (b), an acquired constitutional or local predisposition. The predisposing never alone producing the disease, the essential rarely. Primarily, it is the result of hetero-inoculation and as a rule it is a local infection producing chronic local changes, the general and acute forms being due to auto-infection. In general acute miliary tuberculosis the lungs, peritoneum, spleen, sometimes the liver, rarely the kidneys were involved, the patient dying before the caseous stage set in. These cases followed pleurisy, frequently, notably after a large amount of fluid had been withdrawn, and from tubercular glands. In the chronic general form, the process involves the same organs, but the infection is not so general and the caseous stage is often reached and local inflammatory lesions generally found. In both, there may be an active tubercular inflammation developed in some organ terminating rapidly. The bacilli were distributed by the circulation. The acute forms are the result of auto infection generally, from a chronic tuberculosis which may not have been suspected. The acute forms are rare; the bone is rarely affected, the one most frequently involved being the sternum. H. Berlin thought the reason the disease prevailed so largely in prisons was: 1, because while apparently clean they contained

germs; 2, because the convicts were generally in a weakened condition; but, 3, and most important, was the fact that they inhaled dust which under the microscope shows sharp corners and these cut the tissue and admit the bacilli.

DR. C. HOLZCLAW had noticed the frequency of tuberculosis in county institutions. While the left lung was first affected in the white, it was the right in the negro. The greater liability of the negro to the disease was due to the fact that the white race has acquired an immunity from long contact.

DR. J. B. MURFREE could not indorse the idea that diarrhea induced the disease, except as it weakened the patient. While the bacillus was the cause, an equally important factor was the predisposition.

DR. J. B. COWAN thought that we could lift up the vital energy and put the functional activity in such a condition as to resist the disease.

DR. G. A. BAXTER differed from Dr. Murfree in regard to diarrhea as a factor in the causation of the disease. It acts by allowing an entrance to the bacilli through abrasions. One agent the writer did not mention was the food and especially the milk. In China, where tuberculosis is unknown, it is attributed to the non-use of milk. He had frequently seen tuberculosis in bones and in the glands of the neck. He could see no objection to the removal of the latter. An imperfect removal might result in general infection but where there were two or three they could be thoroughly removed.

DR. P. L. BROUILLETTE regretted that the microscope had not been used by the writer, as it was sometimes impossible to diagnose tuberculosis.

DR. CUNNINGHAM said that dust produced a fibroid phthisis, but did not produce tuberculosis, though it might predispose to the disease. He did not find typical tuberculosis in the negro. Believes he is acquiring a predisposition to tuberculosis. Both lungs were affected as a rule. The diarrhea predisposes to the disease by abrading the membrane and giving entrance to the germs. The weakness of the paper was that the microscope was not used, but the clinical history and gross lesions post-mortem were enough to complete the diagnosis.

DR. G. MANNING ELLIS, of Chattanooga, read a paper entitled "Pseudo-Hypertrophic Muscular Paralysis," and exhibited a patient, a boy, who gave the history characteristic of the disorder. He was late in attempting to walk. The muscles seemed large. The gait was oscillating. While apparently healthy and well developed, he seemed weak. The difficulty in locomotion increased. The characteristic symptoms were shown; the peculiar gait, the manner of rising by placing the hands on the knees and climbing up on the thighs, the lordosis, absence of tendon reflex and diminution in size of the muscles of the legs which comes after the enlargement. The upper extremities showed the enlarged infra spinatus and the decrease in size of the latissimus dorsi producing an absence of the axillary fold.

DR. WILLIS F. WESTMORELAND asked if there was an adherent prepuce. The reply was that there was not. He reported two cases where there was adherent prepuce; in one an operation had been performed in a late stage but with no benefit. He thought that if there was irritation from this cause, an operation before the disease began would be of benefit.

A reception was tendered the Society by Dr. and Mrs. R. P. Johnson at the Southern Sanatorium at 8 P.M.

SECOND DAY.

DR. J. B. MURFREE, of Murfreesboro, Tenn., read a paper on
THE PLACENTA—HOW AND WHEN DELIVERED.

He maintained that as soon as the child is born, Credé's method should be employed. If the placenta does not come away in twenty minutes, gentle traction should be made on the cord. Undue force should not be used. If this does not succeed and especially if the placenta presents centrally, the hand should be introduced into the uterus and the edge freed from its attachments. If the placenta was delivered as soon as the child was born, it would leave the mouths of the vessels open. Exactly when to deliver can not be definitely stated in every case. Most practitioners wait too long.

DR. R. R. KIME does not agree with the author in advising introduction of hand into vagina until other means have been exhausted; prefers wrapping the cord around the first two fingers of the right hand and following up to placenta, then by pressure on placenta, and gentle traction on the cord, it will usually slip out. Objects to ergot in obstetric practice.

DR. W. G. BOGART delivers the placenta as soon as he ties the cord, gives the child to the nurse and prepares his hands

which takes about twenty minutes. He grasps the fundus and squeezes the placenta out if possible; if not successful, he introduces two fingers into the uterus and grasping the edge of the placenta makes a rotary motion with the other hand still on the fundus. Never makes traction on the cord which he deems dangerous. Ergot should not be given to expel the placenta. The important point is to get all the placenta away. Has no fear of putting the hand into the uterine cavity if it is thoroughly clean, nor does he deem it necessary for this reason to use an intra-uterine douche.

DR. PRESTON SCOTT thought we were all too hasty to get rid of the placenta. Time should be given for tonic contraction. Gentle traction should be made on the twisted body of the placenta. Had excluded ergot from his practice entirely. Used the hot water douche to promote contraction.

DR. J. P. STEWART waits longer than twenty minutes; an hour, if necessary, if there is no hemorrhage. If the placenta was in the vagina, delivers at once, as it acts as a foreign body causing contraction and tearing the membranes.

DR. J. B. COWAN thought there was a bappy medium between twenty minutes and an hour. He assists nature during the pains. If necessary, puts his hand into the uterus. Post-partum hemorrhage can be prevented by steady pressure on the fundus kept up an hour if necessary. Never pulls the cord.

DR. MURFREE said that ergot was liable to produce hour-glass contraction. There can be no harm in introducing the hand into the uterus.

DR. E. H. SNOLL, of Birmingham, read a paper entitled "Reflect," reporting cases which were not relieved because not properly investigated by means within the reach of every practitioner. A case treated for liver disease was relieved by a course suggested by an examination of the urine; one diagnosed as consumption responded to a similar course; one of headache was found to be due to diabetes. In these cases, no examination of the urine had been made. Doctors should study their cases more.

DR. J. B. COWAN said that the lesson of the paper was that doctors should think more. In this respect he found fault with modern education, which was too much a process of cramming.

DR. WILLIS F. WESTMORELAND thought that the modern medical school taught that every case should be as well examined as if for life insurance. The day when albumin could be seen by looking into a bottle was past. There was no college of any pretension that did not teach examination of the urine and the use of the microscope. The modern students were better qualified than those of the past.

DR. J. B. MURFREE thought that the point of the paper was that we did not take time to think; that we did not know how to make these examinations. The facts were not properly put together.

DR. PRESTON SCOTT was surprised that in many cases seen in consultation, no examination of the urine had been made and the cases not properly studied.

DR. W. C. TOWNES asked what the writer meant by a rigid diet.

DR. SNOLL said that he meant the exclusion of all starchy foods, the use of meats, milk, oysters, cheese, turnips, greens and such articles.

(To be continued.)

Amendment of South Dakota Laws relating to Dissection.—Section 351 of the Penal Code of South Dakota, being section 6552 of the Compiled Laws, has been amended by adding thereto, as Subdivision 4: "4, whenever the person dying is at the time of death an inmate of any charitable institution, supported by the State of South Dakota, and such person is at the time of death under medical treatment by physicians appointed or under supervision of said authority: *Provided, however,* That before such dissection is allowed an order shall be made by the superintendent or person having charge of such charitable institution, stating that in his opinion such dissection is necessary, or advisable for the purpose, either of obtaining knowledge of the cause of the death of such person or necessary for the treatment of others; and *provided further,* That before such dissection be allowed, the consent of the next of kin of said deceased person shall be obtained, unless said deceased person shall have been neglected or abandoned by said kin for a period of not less than six months next preceding the time of death of such person, and when no inquiry for, or in regard to said deceased person shall have been made by the next of kin of said deceased person, for a period of six months next preceding the death of such person, such person shall be deemed abandoned for said period."

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, NOVEMBER 30, 1895.

THE PSYCHOSES OF OLD AGE.

All the forms of psychoses found in adult life may be noticed in old age also. Mania was first observed, then melancholia, and more recently FURSTNER has pointed out the frequency of mental confusion (*verworrenheit*) in them. Other authors have published interesting cases of systematized delirium, and RITTI has added instinctive insanity and hysteria.

RITTI, who is physician to the National Insane Asylum at Charenton, France, read a paper on this subject before the recent French Congress of Alienists and Neurologists. Mania, he states,¹ while the first psychosis noticed in old people, is by no means the most frequent. Of eighty-one cases of senile insanity collected by FURSTNER, only nine belonged to this variety. Published cases are rare also, especially if we eliminate the cases of an intermittent type. The disease may present itself under its diverse forms, from simple maniacal excitation to mania with fury. As to whether it presents any different features from the usual adult type, the number of cases is insufficient as yet to determine. We are also uncertain as to the termination of senile mania, on account of lack of sufficient observation. All authors admit that recovery may occur, but sometimes on insufficient grounds. However, FURSTNER in the nine cases under his observation had three recoveries with two improvements. It is probable that in most cases, this psychosis with its continuous furious agitation and constant insomnia will lead sometimes to a fatal issue, but more often to the most complete dementia.

Melancholia is the type of psychosis most often observed in old persons. FURSTNER in his eighty-one cases observed it fifty-four times, or nearly 67 per

cent. Among them were the three principal types: simple, thirty-three cases; anxious (melancholia agitata), eighteen cases; stupid, three cases.

Suicide is frequent in old age. This seems paradoxical, yet it is borne out by figures. From 1835 to 1880 there were in France 191,289 suicides among both sexes, and 48,931 of these were over 60 years of age. This may be analyzed a little more in detail:

	Of 148,339 men	Of 42,950 women	Of 191,289 both sexes
61-70 years	24,065	6,548	30,613
71-80 "	11,786	3,538	15,324
Over 80 "	2,182	812	2,994

This table is extremely interesting. It shows us that the female sex commits suicide nearly four times less than the male sex, and that a quarter of all suicides occur in the last years of life.

The most recent statistics do not modify the preceding figures. Those for 1891 (the last that have appeared) show there were in that year 8,884 suicides, 2,854 of whom were over 60 years. Again analyzing these we find:

	Of 6,937 men	Of 1,947 women	Of 8,884 both sexes
61-70 years	1,325	311	1,636
71-80 "	780	191	971
Over 80 "	195	52	247

As to the reason for these numerous suicides, in some cases they are due to external causes, but in most cases the preponderant rôle is the psychosis. In old persons as in adults, taking one's life is generally the consequence of some mental trouble, a psychosis either hereditary or otherwise.

Under the name, mental confusion, FURSTNER² describes a hallucinatory psychosis frequent in aged persons (he has observed eleven cases) which seem in direct relation to atheromatous processes. The prodromic stage is characterized by anomalies of the circulation: cephalalgia, heaviness of the head, slight attacks of vertigo. Then there are digestive symptoms, constipation, and from a psychic standpoint a tendency to shed tears easily, great irritation, loss of memory, etc. The patient rapidly reaches the acute stage with an explosion of all symptoms, confusion of ideas, a complete disorientation of the intellectual faculties, hallucinations, and illusions. The agitation becomes violent, the movements disordered.

The somatic symptoms of this acute phase are important to note. The pulse is rapid, small, irregular; face and extremities slightly cyanotic; gastric symptoms, subicteric tint. To these are added the cerebral symptoms: inequality of the pupils, hemiparesis of the face and extremities, aphasic and paraphasic states, violent headache, syncope, etc. These symptoms are not all constant, and tend to disappear slowly. The prognosis of this type is not at all unfavorable, and in a few months patients generally present marked ameliorations. In FURSTNER's cases six were cured, two became incurable, two died from pneumonia, and one became more lucid.

¹ Arch. Clin. de Bordeaux, 1895, No. 8.

² Arch. für Psych., xx, 465.

Systematic delirium. Of this type two varieties have been found so far, among the aged: delirium of persecution and of grandeur. Published cases are rare as yet, but enough are known to show that this delirium is not confined to adults. The aged may create delirious conceptions with a cohesion, an energy, a logic—if we may call it so, fully the equal of those found in other periods of life.

Moral or instinctive insanity. RITTI uses this term to designate those pathologic states consisting principally of an often irresistible ardor for culpable and dangerous acts. Age is not exempt from this species of aberration, and the less so, since advancing age with its depressed will power weakens the resistance to morbid impulses. Hence, the cases of kleptomania, of homicidal mania, and especially those frequent aberrations of the genital sense observed as often in women as in men.

Hysteria is another psychosis which may be found even in advanced age, as HENRY has pointed out. Anesthesia, and especially hemianesthesia is rare in the aged hysteric, while hyperesthetic zones, and notably the hysterogenous are frequent. Convulsive movements of the limbs are also infrequent, but on the contrary, painful and spasmodic phenomena in the viscera are very intense. So we may define senile hysteria as a "painful hysteria with splanchnic manifestations." As regards the mental state, this differs but little from that we are accustomed to in younger persons.

Somatic symptoms. The study of these symptoms in psychoses of the aged is of prime importance. All the organs of the economy should be examined with scrupulous care. Disturbances of the cerebral circulation (ischemia and hyperemia) are frequent in the aged, either from cardiac lesions or from atheromatous arteries. The urinary organs rarely escape, micturition becomes difficult, cystitis is frequent. The kidneys are often diseased, with concomitant urinary insufficiency and uremic intoxication, and it may even be asked if most of the cases of mental confusion are not due to this intoxication.

THE PHYSICIAN IN THE BIBLE AND IN THE TALMUD.

Very few people study the Bible as a source of purely historical information. The same remarks are also true of the Talmud. While not so very few studies have been published of medicine and medical men as represented in these two books, yet it can safely be said that the majority of such studies are practically useless from a strictly scientific standpoint because they are more or less tinged with personal religious sentiments, and lack the purely objective character of historical researches. It is consequently very interesting to read a recent historical study of the physician in the Bible and in the Talmud by Dr.

PREUSS,¹ of Berlin, concerning which there can be no doubt but that its representations are entirely uninfluenced by the religious sentiments of the writer.

The physician of the Bible and of the Talmud treated not only internal diseases, but also the diseases of the eye, of the teeth and the various surgical affections, especially injuries of various kinds, such as the bites of snakes, fractures and the like. In one place it says that when a person tumbles from the roof, then the doctor comes and puts plaster on his head, his hands and his feet. Amputations were performed under various indications such as gangrene, in leprosy, and other conditions. The EMPEROR TITUS VESPASIANUS was trephined. It is even mentioned that attempts at covering cranial defects were made. A very frequent operation was the ritual circumcision. The rôphê, as the Biblical physician was called, was also consulted in regard to gynecologic affections, and it seems that he was interested in midwifery.

In doubtful religio-legal questions the physician, or rôphê, was sometimes called as an expert. It is also quite clear that some attempts at scientific investigation were made, because it is stated that students of ISMAEL examined post-mortem the body of a prostitute, who had been burned to death under the sentence of a Roman judge, in order to determine the number of bones in the human body. Like the doctor of antiquity in general, the rôphê was also his own druggist. He had a receptacle in which "all remedies are contained." He prepared the theriac, that wonderful mixtum compositum of antiquity which consisted of sixty-four ingredients. He spread his own plasters.

Concerning specialists we learn only this, that a certain BEN ACHIJAH was appointed for "intestinal diseases" of the priests of the temple. But in addition to this temple doctor, official medical positions do not seem to have existed. Military physicians are not mentioned, and KING JORAM had to return to his home in order to be cured from sickness. This is not so very remarkable, because in Biblical times neither Greece nor Egypt possessed any sanitary systems. As regards the time and the course of study of Biblical physicians we possess no information whatever. PUSCHMANN² assumes that the student received personal instruction from persons experienced and trained in medicine. We read of a student of a physician from whom "he had learned all the ordinations of physic." There is no mention of any medical schools.

The first physicians spoken of in the Bible were Egyptians, slaves of Joseph. Their activity seems to have been confined to the art of embalming. The regulations concerning leprosy contain no mention of medical men.

¹ Archiv für path. Anat. u. Phys. und für kl. Medizin, Bd. 133, Heft. 2.
² Gesch. d. medic. Unten., B. 26.

In the Talmud, four men are expressly designated as "the doctor:" 1, the physician THUDOS or THEODORUS who, it is assumed, studied in Alexandria, because he is frequently quoted as saying that in Alexandria every female swine and every cow was castrated before exportation in order to prevent the increase of the race outside of the country. It is also stated that he came into the schoolhouse and declared that certain vertebrae and cranial bones placed before him did not come from the same person. 2, TOBIAN and 3, BAR GIONTI, concerning whose achievements nothing is known. 4, the physician MINJOMI or BENJAMIN, who designates all fluids as noxious for the ear except the juice of the kidneys.

The work of physicians was always highly appreciated among the old Jews. In Hebrew the designation physician, is derived from a root signifying to relieve, ameliorate, whereas in other languages the term usually comes from a root meaning to know. "Even when the physician sees that his patient is near to death he says to him: Eat this, not that; drink this, not that; but he does not say, Your end is near." The physician was responsible for his doings. Any intentional injury was punishable according to the laws of the land, but if the injury was the result of a mistake on the part of the physician then he was not held responsible to the worldly judge, but the decision and punishment was left to the higher judge. It will be remembered that in Greece and Rome the physician was exempt from all punishment, even for the intentional killing of the patient. The Jewish physician was not permitted to treat heathens any differently from his own fellow-believers; he was to bestow equal care on both. This liberal tendency went so far that even heathen physicians of standing were allowed to perform ritual circumcision.

Medical services were recognized in those days as worthy of compensation. "A free doctor is no good," said a wounded man to his assailant, whose duty it was to "pay the bill," and who wanted to bring the wounded to "a free dispensary." We read of a doctor that he had a certain place in his consultation room where the money he was to have was placed. If the doctor observed that a patient was poor, then he gave the patient money, and said: "Go, strengthen yourself!" Concerning the liberality of the fees of Talmudic physicians nothing is known.

THE WORK OF THE OPHTHALMIC SECTION FOR 1895.

Preceding issues of the JOURNAL have laid before its readers the work of the Ophthalmic Section. Those interested in this subject know best its worth, its scope and its thoroughness. Such as were so fortunate as to see the members in session at Baltimore are able to add personality to the actual work and make its value more realistic. It suffices to say that

every band of ophthalmic workers in the United States and Canada was adequately represented, and that the papers under consideration represent the ophthalmologists of the entire continent.

The most casual study shows that the papers and discussions were the result of careful planning by the Section officers. To the Chairman, DR. JACKSON, and the Secretary, DR. WÜRDEMANN, is due the credit of perfecting as well as devising these plans which were fully adopted by the Section. The brevity of the papers and discussions is accounted for, when it is known that each individual was notified in advance of his preparation that but twenty minutes would be allowed for the reading of his paper, and but five minutes for any discussion. This compelled crisp statement of fact and reasoning, and gave the Section a succession of fresh speakers. This character of the papers and discussions renders their study by the worker in other fields easier and more attractive.

Papers discussing portions of one general subject are found placed in such logical order as to be discussed and studied together as well as separately. Thus incipient cataract, the operative treatment of immature and some forms of zonular cataract, and the operation for secondary cataract formed one group.

Then we find a group of papers discussing many points respecting plastic operations of the eye, the restorations of the eyelids with sliding flaps, transplantations of skin in plastic operations on the eyelids, skin grafting in ectropion and entropion, transplantation of a strip of skin into the intermarginal space; some cases of the restoration of the eyelids by plastic operation.

Another series of papers treat of intra-ocular diseases and injuries, as the evisceration of the eyeball, histologic and bacteriologic notes on cases of penetrating wounds of the eyeball, etc., hemorrhage into the retina and vitreous in young persons associated with evident disease of the retinal blood vessels, extensive colloid changes of the choroid, prognostic significance of albuminuric retinitis.

There are many papers dealing with various points relating to the ocular muscles, altogether forming a timely discussion of many moot questions. Among these may be mentioned: the technique of tenotomy of the ocular muscles; the slight effects sometimes produced as the result of free tenotomies of the ocular muscles for heterophoria, the limitations of tenotomy of the ocular muscles, tendon advancement with a special indication for its employment, the indications for, advantages and technique of muscle shortening, strabismus, the extent to which recently suggested methods of muscular exercise should displace tenotomy in the treatment of heterophoria, practical points gained in the treatment of one thousand cases of insufficiency of the ocular muscles, hysterical affections of the eye muscles, and

some remarks on the paralysis of the superior rectus muscle. As in the other groups of papers, a discussion of many of the points made, added greatly to the aggregate value of all.

Another group of papers discuss points respecting diseases of the orbit and the tarsal cartilages.

Still another group discusses moot points on refraction of the eye and includes an elaborate report of a committee on the examination and care of eyes during school life.

Finally, there are a considerable number of unclassified papers treating of living questions in ophthalmology. In whatever manner regarded, the Ophthalmic Section for 1895 merits the attention of every worker in this field, and will prove helpful to many in other fields of medicine. The methods and spirit of the Section must stimulate other sections to that which is best, and materially assist in raising the entire Association to the highest attainable standard, and so promote the real development of the entire medical profession. It may interest those not members of the Section to know that the volume of Transactions of the Ophthalmic Section, with the discussions complete, are now passing through the press, and can be obtained at the JOURNAL office for \$1.

QUIS CUSTODIET CUSTODES?

The *New York Medical Record* in one of its latest issues calls attention to the impropriety of the chief medical member of the New York State Lunacy Commission appearing on the witness stand as a paid medical expert in cases where insanity is involved. Its exceptions are well taken, since the Lunacy Commissioner is an officer who may in that capacity have later to pass on the same cases. He stands between the insane and the asylum authorities under certain circumstances, and his prejudging their case as an expert witness is in a way a violation of their rights as it is also a wrong to the public.

In Great Britain, we believe, no asylum officer is legally permitted to testify as to the mental condition of a person who may afterward be committed to his care, or, at least, to have any share in the certification of his insanity for his commitment. The rule is not a bad one as far as it applies to matters of commitment to the special charge of the testifying witness, though it should not be so widely construed as it is perhaps in England, so as to really exclude competent expert testimony where individual interest could play no part in making or modifying the opinion. But if it is applicable to asylum keepers, it is still more so to those who are over them in a supervising capacity, and this, it would seem, ought to suggest itself to every one holding such positions. The presumption that such is the case is probably the reason for any lack of specific statutory provision to that effect.

The really most essential and important function of a lunacy commission, and for this every State should have one, is a judicial one, and it should therefore command the highest legal and medical talent for the solution of the dubious questions relating to mental derangement that may come before it. It should be the protector of the individual as well as of the public, and its members should keep themselves from all bias or precedent that can disadvantageously affect them in either of these relations, and as they are really, in a sense, a court of last resort they should not put themselves on record as having opinions as to individual cases that can by any possibility come later under review by them.

These, at least, would seem to be the only views that could be held on a full consideration of every phase of the case, by men with a high sense of personal honor. But with what Mr. HOWELLS calls the "business ideals" of the present age, the sense of honor is a variable quantity, and many respectable and even estimable people fail to realize the higher signification of the term in all the practical relations of life. In these matters, even if honor, which may seem to some a sort of medieval and aristocratic conception, does not appear to be involved, a strict sense of propriety which often amounts to the same thing and is quite akin to nature, should be cultivated and made to regulate conduct.

A lunacy commission does not serve its full purpose by devoting itself to the regulation of expenses and the collection of statistics of insanity; these are the "tithing of mint, anise and cummin," and other things yet are the "weightier matters of the law."

CONNECTICUT KEEPS "OPEN HOUSE" FOR QUACKERY.

The profession of Connecticut has been unable to secure the same class of registration acts that obtain in many of the eastern States, which fact is alleged to be painfully felt in the competition of practice in the large towns. The October issue of the Bulletin of the State Board of Health shows that a movement is on foot that will tend to correct the evil. It says:

The following action was taken at the last meeting of the New Haven Medical Association, having been proposed by DR. MAX MAILHOUSE:

WHEREAS, In consideration of the fact that large numbers of graduates of colleges, which in this State are recognized as legal and reputable, are being rejected by examining boards in other States where the possession of such diplomas is not in itself sufficient to entitle the holders thereof to practice; and

WHEREAS, As a consequence of the foregoing fact, this State has become the dumping ground of other States with respect to undirable practitioners; and

WHEREAS, In our opinion it behooves the State for its own protection to guard against such invasion, it is

Resolved, By the New Haven County Medical Association, that the attention of the other county associations, the various State medical societies and the various committees on lists of medical colleges be called to this state of affairs, and that, pending legislative action, these committees be re

quested to revise such lists that they conform to the tenor of these resolutions: further be it

Resolved, That the State Committee on Legislation be instructed to advocate the amendment of the law, so that all candidates for registration be required to pass an examination, as is now the case in New York, Pennsylvania and many other States.

Adopted by the New Haven County Medical Association at its semi-annual meeting in Meriden, Oct. 17, 1895.

CORRESPONDENCE.

The Rush Monument.

MONTCLAIR, N. J., Nov. 18, 1895.

To the Editor:—I note among the bright paragraphs which as usual make up the column of Miscellany in your issue of the 9th inst., one relating to the monument which our friends, the homeopaths, propose to erect to the originator of their faith. I observed also that you acknowledge that the regular profession is somewhat slow in building a monument to one of the pioneers of medicine in America, Dr. Rush. I could not help thinking as I read, that it is comparatively easy to accomplish anything when the faith, enthusiasm, *amour propre*, or self-seeking of a number of people are directed in one channel or toward one object.

There are many names in regular medicine beside that of Dr. Rush which ought to be perpetuated and which will be perpetuated, with or without a monument, so long as medicine is faithfully studied and honestly practiced. In homeopathy, on the other hand, there is only one name, that of a man, a foreigner, who like Mohammed was an enthusiast, if not a fanatic, whose *delirium du grandeur* led to the evolution of the tenets of the sect which now seeks to do him honor. His memory does not need the monument. He will never be forgotten. Great is homeopathy and Hahnemann is its prophet!

Meanwhile, those of us whom a recent talented homeopathic writer dubs, "the dominant school" of medicine, had probably better concentrate our efforts and raise a monument to Dr. Rush and also to the immortal Warren, as two typical American statesmen, patriots and physicians.

Very truly yours, RICHARD C. NEWTON, M.D.

Dr. Gibon writes to contradict the story that his committee have been negotiating with the same sculptor as the "homeopathic" people.

The Passing of Hypnotism.

SHAFTSBURG, MICH., Nov. 20, 1895.

To the Editor:—In the JOURNAL of November 16, p. 867, is an editorial, "The Passing of Hypnotism." The criticisms in said editorial seem well taken. Some six or eight years ago this community was a witness of its effects as a psychic agent. This note is penned, needlessly perhaps, to illustrate the correctness of your conclusions. Hypnotism is, unquestionably, a dangerous agent, requiring a morbidity of mind for its manifestation. Now to our case:

A young farm laborer went to a public meeting where hypnotism was practiced by a traveling lecturer, as he styled himself. The young man was hypnotized. Next day he was excused from work because his employer discovered that, using his own language, "He did not know what he was about." There was a condition of mental depression, a dullness, amounting almost to stupidity, which lasted many months. People who have seen him since I have, declare he has not yet recovered and never will. An agent which requires a morbid state of mind for its exhibition, must be dangerous. Hypnotism can not pass out of therapeutics too

soon. It seems degrading for scientific men to use the "tools" of "traveling lecturers." Its use seems not a little like "*Similia similibus curantur*" with the *curantur* wanting.

G. W. CROUCH, M.D.

Was It Leprosy?

SPOKANE, WASHINGTON, Nov. 22, 1895.

To the Editor:—My experience with lepers would point to Dr. McDougal's cases as being undoubtedly leprosy.

In the Sandwich Islands many cases can be found to disprove Dr. Ashmead's statement that "if they were lepers the mother would have been infected too."

Dr. Geo. L. Fitch, of San Francisco, who was for some years medical officer at Honolulu and by whose courtesy I saw some hundreds of cases of leprosy, asserted that all the leprosy in the Islands among the natives was "syphilis run riot in a virgin race," and defended his position so vigorously that the Government sent to Germany for Dr. Arnold to decide who was right. This was necessary as all lepers are sent to Molakai to the leper settlement from which place only death can relieve them.

Dr. Arnold's decision was in keeping with the opinion of all the old-time doctors in the Islands and was based upon months of careful research, and I am sure that if Dr. McDougal's two patients were to go before any medical examining board at Honolulu, they would be sent to Molakai without a dissenting voice.

Very truly,

D. C. NEWMAN, M.D.

Triplets.

MILTON, KY., Nov. 23, 1895.

To the Editor:—Mrs. Wm. H. Meiers, a German, primipara, 31 years of age, gave birth to two boys and one girl on the 17th inst. One, a boy, is still living, the other two having survived but a few hours.

A woman in this (Trimble) County once gave birth to four children at one time.

S. E. HAMPTON, M.D.

BOOK NOTICES.

Pediatrics; the Hygienic and Medical Treatment of Children. By THOMAS MORGAN ROTCH, M.D. Illustrated. Philadelphia: J. B. Lippincott & Co. Cl., pp. 1124. 1896.

As might be expected, coming from Harvard, our oldest university, the work is at once scholarly, painstaking and thorough. It is divided into eighteen divisions as follows: Division I, three lectures; a, Introductory; (infant at term). b, Fetal Circulation; c, Vernix Caseosa; II, Normal Development, (four lectures); III, Hygiene of the Nursery; IV, Feeding (six lectures); v, Premature Infants; VI, General Principles of Examination and Treatment; VII, The Blood in Infancy and Childhood (four lectures); VIII, Diseases of the Newborn (three lectures); IX, Diseases of the Skin; x, Syphilis, Erysipelas—the Exanthemata (five lectures); XI, Diseases of the Nervous System and the Myopathies (fourteen lectures); XII, Diseases of the Mouth, Nose, Naso-pharynx, and Pharynx (three lectures); XIII, Diseases of the Esophagus, Stomach and Intestines (three lectures); XIV, Diseases of the Liver, Pancreas, Spleen and Peritoneum; xv, Diseases of the Kidneys, Bladder and Genitals; XVI, Diseases of the Larynx, Trachea, Lungs and Pleura (three lectures); XVII, Diseases of the Heart and Pericardium (two lectures); XVIII, Unclassified diseases, viz., rickets, scorbutus, rheumatism, purpura, diabetes, tuberculosis, epidemic influenza, diseases of thyroid gland, diseases of the cervical lymph glands, parotitis, diseases of the ear.

As will be seen, the book consists of fifty-three lectures on pediatric topics, and no one can look over the lectures on

feeding and on "the blood in infancy and childhood" without not only realizing what immense strides have been taken in the study of pediatrics in the last fifty years, but when the various incubators for premature births, and apparatus for preservation and sterilization of food are considered, but wondering what the world is coming to. At this writing our eyes happen to fall on two old volumes, Farre, "*Maladies des Enfants, de la Naissance a la puberté*," (diseases of children from birth to puberty), Paris, 1847. And in these two closely printed volumes, in which everything relating to the medicine and surgery of childhood is stated, there is not one line on hygiene, excepting the appendix which is given up to "the physiologic education of young children," and in which the question of milk is indeed considered, but how diffusely! How crude the methods of milk examination compared with those figured in Rotch's book, and not a line on preservation, modification or sterilization of milk! How the learned Farre would stare at the proposition to count the blood corpuscles, to estimate the red and white and the hemoglobin!

The last half of this century may well lay claim to precision in method, to accurate knowledge in physiology of development, to direct therapeutic measures, and to its great and crowning glory in advanced preventive medicine; may the next half century show equally great advances! We accept the book of Professor Rotch as in the foreground of the existing knowledge of pediatrics in the closing years of the nineteenth century. The decimal system of dosage and of weights and measures is used throughout the book.

We can not close this notice without complimenting the publisher on the excellent style of the volume and the very handsome illustrations.

The Principles and Practice of Medicine. Designed for the use of Practitioners and Students of Medicine. By WM. OSLER, M.D. Second edition. New York: D. Appleton & Company. Cl., pp. 1143. 1895.

This excellent text-book has so soon passed to its second edition that it must be accepted that a discriminating profession has given its judgment in its favor, and indeed it is well worthy of the generous reception it has met with, from whatever standpoint we view it. This edition has been carefully corrected and many additions made. Nor is the increase in bulk due to mere padding, for a comparison with the former will easily show that the additions are such as the progress of modern science have brought to the front. The work is divided into eleven sections as follow:

i, Specific Infectious Diseases; ii, Constitutional Diseases; iii, Diseases of the Digestive System; iv, Diseases of the Respiratory System; v, Diseases of the Circulatory System; vi, Diseases of the Blood and Ductless Glands; vii, Diseases of the Kidneys; viii, Diseases of the Nervous System; ix, Diseases of the Muscles; x, The Intoxications; Sunstroke; Obesity; xi, Diseases Due to Animal Parasites.

There is everything to praise and little to find fault with in this book. We can not in the space of a mere notice undertake to write a criticism of so exhaustive a work, but we think when the next edition appears the distinguished author will take a less pessimistic view of the antiseptic and eliminative treatment of typhoid fever, (p. 40) and he will at least refer to the syphilitic forms of myositis, (p. 1050).

Handbook of the Diagnosis and Treatment of Skin Diseases. By ARTHUR VAN HARLINGEN, Ph.B., M.D. Third edition, enlarged and revised, with 60 illustrations. Philadelphia: P. Blakiston, Son & Co. 8vo, cl., pp. 577. Price \$2.75. 1895.

This handbook takes up the various diseases of the skin, in alphabetical order, without regard to classification, an arrangement which although very convenient, necessarily gives rise to some overlapping, and causes the reader to make various digressions to other pages when reading on any particular topic. For students preparing for examina-

tion, and for practitioners as a ready reference book, it will be found very useful. It is to be regretted that all the prescriptions, very numerous dispersed throughout the volume, are written in the old style, and that the decimal system is entirely ignored. When the new British Pharmacopœia shall make its appearance, it is understood that the decimal system will be adopted and then there will be no pharmacopœia in any language adhering to the old system. The trend of modern science in all departments is toward universality, and it is a pity to see a new book so persistently looking backward in this matter.

Précis de Manuel Opératoire. Par L. H. FARABEUF, Professeur a la Faculté de Médecine de Paris, Fin de l'Ouvrage (p. 683 à 1082). Résections—Appendice. Aout 1895. Paper, 8vo. Paris: G. Masson. 1895. [From P. Blakiston, Son & Co., Philadelphia.]

In 1872 Farabeuf commenced the work by a book on ligation of arteries, which was soon followed by the second book which was on amputations.¹ In 1893, the first and second books, which had reached respectively the fourth and fifth editions, were included in a single volume, and the one now under consideration is the third book, and is devoted to resections; with exception of an elaborate appendix in which is discussed the subject of trephining, excision of nerves of the face, œsophagotomy, tracheotomy, symphyseotomy, ischiopubiotomy, coccygeotomy, sacral luxation, recto-vaginal fistula, exstrophy of the bladder. The volume concludes with a program of an operative course whereby with four cadavers, four students may accomplish a fairly complete operative course in eighteen séances. The work has not described all the recent operations, as the author pathetically says, but he has described enough of them to answer all practical purposes, and the remainder he will leave to some younger man.

Those who read French will enjoy the candor and quaint expressions of the author, which serve to enliven the pages of the handbook. The illustrations are excellent, and as a whole the work is a notable addition to the literature of the subjects within its scope.

Principles of Surgery. By N. SENN, M.D., Ph.D., LL.D. Second edition. Thoroughly revised. Illustrated with 178 wood engravings and colored plates. 8vo, cl., p. 656. Philadelphia: The F. A. Davis Company. London: F. J. Rebmam. 1895.

The growth of knowledge of surgical pathology since 1890 is so great that a revision of the work was necessary. The great learning and vast clinical experience of the author are shown at their best in a work of this sort, and while the book has been revised to date by the addition of new matter and new illustrations, the arrangement remains the same as in the first edition. For an elaborate review of the first edition, by Prof. Christian Fenger, see this JOURNAL, Feb. 14, 1891, vol. xvi, 1891, p. 250. The book is destined to hold the boards as a text-book for some time to come, and with justice, for it is a fair and exhaustive exposition of the teaching of the day on the subjects of which it treats. We welcome the volume to our library as the latest and most mature thoughts of the distinguished author on the fundamental principles of the science and art of surgery.

The Medical Register of New York, New Jersey and Connecticut. 1895-96. Vol. xxxiii. Published under the supervision of the New York Medico-Historical Society. JOHN SHRADY, M.D., editor. New York and London: G. P. Putnam's Sons.

This annual volume of 250 pages, well printed and bound, gives much valuable information regarding the status of the profession in one of the eastern medical centers that is obtainable in no other form. An arrangement of material better classified than in the earlier issues renders reference

¹ This was translated by Dr. Jno. D. Jackson, of Philadelphia, in 1874

more ready, while the somewhat more complete chronological record and the severer taste of the obituary notices impart the air of a closer attention to the historical element.

The list of physicians of New York and Brooklyn shows many changed addresses, and many removals to outside localities. Evidently the gradual change of the rental year in the great cities of the East from May to October, and the apartment system of merely monthly responsibility to the landlord, are bearing fruit in the medical as well as in other callings.

The Physician's Visiting List (Lindsay & Blakiston's) for 1895. Forty-fifth year of its publication. Philadelphia: P. Blakiston, Son & Co.

This well-known visiting list makes its forty-fifth annual appearance with the same clean pages and excellent arrangement that have characterized it for so many years. A dose table has been compiled for this edition by Dr. Geo. M. Gould, giving the doses of official and unofficial drugs in both the "English" and metric systems.

The value of this list is unquestioned and the long period during which it has been published, is sufficient evidence, if any were needed, of the popularity of the work.

Urinalysis, including Blanks for Recording the Analysis and Microscopic Examinations of the Urine. For medical practitioners, life insurance examiners and specialists. Arranged by JOSEPH C. GUERNSEY, A.M., M.D. Philadelphia: J. B. Lippincott Company. 1895.

This book has 500 blanks for recording the results of examinations of urine, and by their use it is practicable for the physician to keep the record of an ordinary or of a minute examination, moreover it can be kept as a continuous record in long cases. The blanks are preceded by a valuable practical chapter on apparatus and reagents, and the description of the various tests. The book is indexed.

PUBLIC HEALTH.

Diphtheria in New Jersey.—Owing to the alarming prevalence of diphtheria in Burlington, the Board of Health has ordered that all public schools be closed. Consequently the doors were shut for an indefinite period. The infant department of one of the Sunday schools has also discontinued its sessions for the present. There have been thirty cases reported to the Board of Health, seven of which have resulted fatally. Every possible measure is being taken to stamp out the disease. Twenty-one cases of diphtheria have been reported to the Trenton Board of Health within four days, and of these four have proved fatal. There were forty-eight cases of the disease reported last month.

The Abolition of the Contaminating Slate.—War against the school slate and pencil has been declared. Following the example set by the New York City Board of Health, calling upon the school authorities to abolish the use of slates on the ground that they spread contagion, comes the adoption of a resolution by the Mount Vernon Board of Education to the same purpose, and providing for the use of pads of paper instead. The alleged reasons for this action, in addition to the objection to the slate from a sanitary point of view, is that paper is now cheap, pads now being sold which are suitable for school purposes for from 2 to 5 cents each. Public school and health authorities in many cities and towns now have the subject under discussion, and will probably likewise decree that the slate and slate pencil must go. These hitherto useful articles will now be of value only to receive "spirit messages" from the other world through so-called mediums.

Varicella and Vaccinia, their Manifestations and Inter-relations in the Lower Animals.—Copeman (*Journal of Pathology and Bac-*

teriology, Vol. 11, No. 2) concludes his researches concerning the above subjects in the following propositions:

1. The organisms, to which the specific action of variolous and vaccine lymph is due, are, as yet, undiscovered.
2. Although this is the case, all the most reliable evidence, experimental and otherwise, is in favor of the organisms of these two diseases being identical in nature; the phenomena of vaccination being most probably due to an attenuation of the virus, caused in a similar manner to that witnessed in chicken cholera and other diseases by sojourn in the tissues of an animal which is more or less refractory.
3. Monkeys react to inoculations of variola and vaccinia in a similar manner to the human being, and therefore afford valuable means of controlling the results of experiments on the mutual relationship of the two diseases.
4. It is possible to isolate from vaccine (and also to a less extent from variolous) lymph a number of microorganisms, none of which, however, have anything to do with the specific action of the lymph.
5. These bacteria belong, in great part, to that class which is concerned in the process of suppuration, although others both pathogenic and non-pathogenic in nature, may be present also.

These "extraneous" may be destroyed, if present, by the following method of treatment which Copeman, like others, found would preserve the lymph unimpaired for an indefinite period; indeed, its specific activity so far from being destroyed, may actually become intensified; the lymph is mixed with a certain proportion of (75 per cent.) glycerin in distilled and sterilized water prior to storage in capillary tubes, which latter also had been sterilized by heat. There seems to be no doubt but that the glycerin method of storage of lymph offers the easiest solution of the problem of securing an aseptic vaccine virus.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, November 9, to 16, 17 cases, 2 deaths.

Michigan: Detroit and Rochester, November 9 to 16, smallpox reported present.

Tennessee: Crittenden County, October 23, 1 case; Shelby County, November 13, 1 case.

SMALLPOX—FOREIGN.

Cairo: October 22 to 28, 1 death.

Dublin: November 2 to 9, 2 cases.

Guayaquil: October 4 to November 8, 5 deaths.

Hamburg: November 2 to 9, 1 case.

Glasgow: November 2 to 9, 6 cases.

London: November 2 to 9, 1 death.

Madrid: October 29 to November 5, 4 deaths.

Marseilles: November 21, smallpox epidemic.

Montevideo: October 12 to 19, 3 cases.

Nogales: November 9 to 16, 1 case.

Odessa: October 26 to November 2, 5 cases, 2 deaths.

Pernambuco: September 28 to October 12, 300 cases, 31 deaths.

Prague: October 19 to November 2, 5 cases.

Rio de Janeiro: October 12 to 19, 69 deaths.

Rotterdam: November 2 to 9, 2 cases.

St. Petersburg: October 25 to November 2, 7 cases, 2 deaths.

Tuxpan: November 2 to 9, 1 death.

Warsaw: October 26 to November 2, 1 death.

CHOLERA.

Bombay: October 15 to 29, 4 deaths.

Calcutta: September 28 to October 19, 86 deaths.

Egypt: To November 9, 658 cases, 496 deaths.

Osaka and Hiogo: October 12 to 19, 6 cases, 3 deaths.

Tangier: October 1 to 31, 1000 cases, 800 deaths.

YELLOW FEVER.

Cienfuegos: November 10 to 17, 3 deaths.

Guayaquil: October 4 to November 8, 3 deaths.

Perambuco: * September 28 to October 12, 30 cases, 3 deaths.

NOTE.—The U. S. Consul at Pernambuco, Brazil, writes that there is "more fever than has been known during the past twenty years."

NECROLOGY.

RICHMOND LENNOX, M.D., of Brooklyn, 34 years old, a specialist in diseases of the eye, died November 14. He was a graduate of the New York College of Physicians and Surgeons in the class of 1882. He was surgeon to the Brooklyn Eye and Ear Hospital, and also to the Kings County Hospital. He was a member of the New York Ophthalmological Society and the Kings County Medical Society. He was a member of the Hamilton, Lincoln, Carlton, Crescent and Whist Clubs. He leaves a widow and two children. The cause of his death was immediately due to cerebral embolism, occurring about twelve hours prior to his decease; he had for twelve years been the subject of chronic endocarditis.

W. HERBERT DUNLAP, M.D., of Syracuse, N. Y., November 11. He was born in that city in 1853, and was graduated from the Syracuse University in 1875. He received his degree in medicine from that institution three years later. He had made a specialty of dermatology for the last ten years.

JACOB MENDEL, M.D., age 50, died November 12. He was graduated at Breslau, Germany. For the last twenty-three years he had practiced in Milwaukee and was noted for his scholarly attainments. His last illness was of short duration.

—**A. J. Freeman, M. D.**, of Macon, Mo., November 23.—**Henry B. Callahan, M.D.**, of Leavenworth, Kan., November 23, aged 74.—**J. E. Chambers, M.D.**, of Chicago, November 24, aged 35.—**Thomas Flournoy, M.D.**, of Richmond, Va., November 20.—**Davis M. Hammond, M.D.**, of Evansville, Ind., November 18, aged 42.—**D. F. Lindsay, M.D.**, of Noblesville, Ind., November 21, aged 77.

MISCELLANY.

Dr. C. F. Scott, the State Veterinarian of Wisconsin, says that when the golden-rod is eaten by horses, it produces a fatal disease simulating tuberculosis.

The Post-Card Dun.—The *Cincinnati Medical Journal* reports that "Dr. J. W. Morgan, of Cadiz, Ohio, has been arrested for having sent a dun to a former patient written on a postal card."

The American Journal of Surgery and Gynecology has been removed to St. Louis, from which place the December number (vol. VIII, No. 1) is just issued. Dr. Emory Lanphear, Professor of Surgery in the Woman's Medical College, has been appointed editor in chief.

The Committee of the Pasteur Institute has unanimously chosen M. Duclaux, former subdirector, to succeed M. Pasteur as director, and Dr. Roux as subdirector of the Institute. M. Duclaux, who is a professor at the Sorbonne, has been connected with the Pasteur Institute since its foundation.

Population of Japan.—The Department of State has received advices from Japan stating that the population of that country is estimated to be 42,000,000, plus 3,000,000 for the newly added territory of Formosa. Records of the population of Japan have been kept from the time of the seventh century; in 610, A. D., the number was recorded as 4,988,842.

Professor Koenig.—It is now definitely announced that Koenig is to be called from Göttingen to fill the vacancy in Berlin caused by the death of Bardeleben. Koenig is now 64 years of age, one of the most distinguished leaders of sci-

tific surgery of the present, and widely known through his text-books on general and special surgery.—*Deutsche Medicinische Wochenschrift*, Oct. 31, 1895.

New Method for Differentiating Antifebrin, Phenacetin, and Antipyrin.—For this purpose warm a small quantity of the powder to be examined in a test tube with a small quantity of chlorid of zinc. Antifebrin thus treated gives out aromatic vapors; phenacetin, a sharp odor, resembling that of acetic acid; antipyrin, one resembling that of sulphid of carbon.—*Nouveaux Remedies from Pharm. Zing.*, No. 63, 1895.

Medical College Recognized.—The Connecticut law concerning the practice of dentistry has been amended by the insertion of the words "or medical college," placing the holder of a diploma or other certificate of honorable graduation from a medical college having a department in dentistry, on the same footing with the holder of such document from a reputable dental college.

Madame (Doctor) Chellier.—The French journals state that Madame (Doctor) Chellier of Algiers, North Africa, has been appointed by the Governor of Algeria to make a special investigation in the outlying province. She is to visit villages, study the condition of the Arab and Kabyle women, among whom no male physicians are permitted by Mussulman law, and introduce such measures as will alleviate their sufferings.

A Butcher Became a Surgeon.—An agent of the New York County Medical Society has made a case against "Dr." Adolph Grundman, who came to this country two years ago and established himself as a butcher. Later he went into partnership with a registered physician. A female detective, also an agent of the County Medical Society, says that Grundman prescribed for her. He has been held for trial in a police court charged with practicing medicine illegally.

Chlorin in Typhoid Fever.—Dr. R. W. Wilcox (*American Journal Medical Sciences*, September, 1895) in an interesting article on the use of chlorin in typhoid fever, after describing the method of preparation gives his conclusions as follows:

1. Chlorin can be safely administered until complete disinfection of the alimentary canal is obtained.
2. Under its use the tongue becomes cleaner, the appetite and digestion better, fever lower, and the stools devoid of odor.
3. The general strength, the intellectual processes, and nervous conditions improve.
5. The disease is shortened in duration, and usually proceeds to rapid and complete recovery.

Can Demand Services of State Veterinary Surgeon.—The State Board of Health, it has been provided in Missouri, may demand of the Secretary of the State Board of Agriculture, through their President and Secretary, the services of the State Veterinary Surgeon to aid them in the inspection of such infectious or contagious diseases in live stock as are transmissible to the human family, and in the examination of meats, milk and foods, when in the judgment of said State Board of Health the assistance of this officer is necessary.

Staff Surgeon Steuder of the German Army has had a considerable experience with African bilious fever. According to *Illustrated Africa*, he has found that this fever seldom attacks men on the march or engaged in hard work, but seizes them when they are at rest. By examining the blood the fever may be detected before it declares itself, as the deficiency of hemoglobin is marked, and may then be readily cured on the spot. If too much hemoglobin is lost, the only thing to be done is to send the patient to Europe or some healthy climate. In one case he made a cure by the transfusion of healthy blood into the patient's veins.

A Medical Explanation.—From *The Watchman*: "Doctor," said an old lady the other day to her family physician, "can you tell me how it is that some folks are born dumb?" "Why, hem, certainly, madam," replied the doctor. "It is owing to the fact that they come into the world without the power of speech." "Dear me!" remarked the old lady, "now just see what it is to have a medical education! I've asked my husband more than a hundred times the same thing, and all that I could get out of him was, 'because they are.'"

New York State Association of Railway Surgeons.—This Association held a convention at the New York Academy of Medicine on November 12, under the presidency of Dr. R. S. Harnden of Waverly. The subject of the presidential address was the establishment of hospitals by the railway corporations and their employees, acting jointly. An election of officers for the year 1895-96 resulted as follows: President, C. S. Parkhill, of the Erie Railroad; First Vice-President, J. F. Valentine of the Long Island Railroad; Second Vice-President, J. K. Stockwell of the Ontario and Western; Secretary, C. B. Flerrick of the Delaware and Hudson Railroad; Treasurer, Theodore S. Mills of the Ontario and Western; Chairman of the Executive Board, Dr. George Chaffee.

Wooden Diagnosis With Up-to-Date Therapeutics.—Certain medical men of London, are said by *Popular Science* to be backing up the following doubtful expedient for the repression of the patent medicine business. Certain wooden figures have been put up on the nickel-in-the-slot principle. The figures are shaped like a man, with holes in every part of the body labeled with the diseases that usually affect that part. For headache you find the proper slot so labeled in the head of the figure, and drop in a penny; out comes an inexpensive but efficient prescription that can be filled by any druggist. These prescriptions are said to be gotten up by prominent doctors and are very good and useful. One object of this device is to make medicine cheaper to the poor and restrict the use of dangerous proprietary mixtures. The notice reads more like a bit of journalistic enterprise than a fact.

Change in Arizona Dentistry Law.—The law regulating the practice of dentistry in Arizona has been amended, requiring those who wish to engage therein to furnish satisfactory proof that he or she has two years of practical experience in the practice of dentistry. And any applicant, it is further provided, presenting a diploma from a reputable dental college and a fee of \$5, not returnable, may be granted by one or more members of the board, upon approval of the president, a temporary license to practice dentistry in the Territory until the next meeting of the board, at which time it shall issue to the applicant, providing the applicant shall have furnished satisfactory proof that said diploma was issued in good faith, to him or her, a practitioner's certificate entitling the applicant to practice dentistry in Arizona. The proceedings of the board shall at all times, instead of at all "reasonable" times, as heretofore, be open to public inspection.

Dr. Edward Berdoo, a practitioner of London, has written in the *Nineteenth Century* an article on the miracles at Lourdes, to which place he went in the attitude of a reverend skeptic. He saw a vast army of paralytics and consumptives, idiots, the lame and blind. The supplicants at the grotto kneel for hours with arms outstretched, wrapped in devotion, and often in ecstasy. The spirit of devotion is intense; it exalts the whole organism and serves of itself to explain much of the thaumaturgy. That wonderful effects are wrought at Lourdes is unquestionable. Purely dynamic diseases are cured, but not organic maladies. Ulcers and tumors may be caused to disappear, if such lesions be of the same nature

as paralysis and other disorders of motion and sensation, which are commonly considered to be the sole field for the influence of the faith cure. Dr. Berdoo believes that similar cures have been wrought in all ages, and quotes Greek tablets testifying to wonderful cures of blindness through the agency of the gods.

Electrolytic Chlorate of Potash by the Ton.—The *Chemist and Druggist* has an article on the progress made in Europe in the electrolytic manufacture of chemicals, in which is conveyed the prediction that the United States will take the lead in the alkali industry of the coming decade. Hitherto the only important chemical that has been produced by electrolysis has been the chlorate of potash, but it can not be long before other substances will be made by that process. The basis of the remarks of the journal above referred to has been a report by a French chemist, a part of which is given below:

In *Le Moniteur des Produits Chimiques*, M. Désiré Korda gives a sketch of the application of electricity to chemical manufacturing processes, referring particularly to the manufacture in Sweden and Switzerland of chlorate of potash, which, so far, is the only important alkali product made by electrolysis. M. Korda thinks that it is only a question of a few years before the entire alkali industry will be revolutionized. The United States, he believes, will then become the leading manufacturers of chemicals; while in Europe the industry will have its chief centers in Switzerland, Southern France, and Sweden—the countries where powerful and cheap water power are in close proximity to large consuming markets. The Swiss chlorate of potash factory has been at work for nearly five years, the motive power being a waterfall 70 meters high. As yet, of the total yearly European output of about 8,000 tons of chlorate of potash, over 5,000 tons are contributed by the United Alkali Company. The electrolytic process in use in Switzerland is based upon Gall and Montlaur's process in which concentrated solution of chlorid of potash is decomposed in a double vat, divided by a diaphragm, but so connected to insure regular changing of the liquid from the negative to the positive compartments. The electrolyzed solution is heated from 45 to 55 degrees C., thus changing hypochlorite into chlorate. The cathode is of iron or nickel, the anode of platinum or of iridio-platinum. The current is equal to 50 amperes per square decimeter of electrode.

The Pineal Body.—In *Popular Science News* for October, Anna Hinrichs presents an illustrated article on the comparative anatomy of the pineal body. Her thesis is, that this body or "gland," is the rudimentary third eye of man and all vertebrates. The central point of our brain, which so long has remained a mystery to the student of human and comparative anatomy, now appears as the rudiment of a third eye, overgrown and depressed by the immense development of the brain. In other words, at the expense of a third eye, man has secured his brain, the organ of intellection. This discovery is not only very interesting, but also remarkably instructive, since this rudimentary third eye of man was looked upon by Descartes as being the seat of the soul.

"In closely examining the skulls of certain lizards, it was found that near the top of the head, under the dark opaque skin, and often in the very bone, an almost perfect eye exists, though no ray of light ever could reach it. Such an eye is represented in the upper figure of this cut. This eye shows a crystalline lens, a retina of very complex structure, and an optic nerve; in fact, all the essential parts of a perfect eye. But being covered by the opaque skin of the animal, it is absolutely useless. If this optic nerve is traced to the brain, it is found to connect the eye with the so-called pineal gland of the brain. This pineal gland is in no sense of the word a real gland, but a definite portion of the nervous tissue of the brain, invariably located just back and partly over the cerebrum, and in front of the rounded brain mass which generally is considered to correspond to the corpora quadrigemina in man."

It is probable that this third eye was, at an earlier stage of development, not rudimentary but in constant use. A mod-

erate modification—namely, a transparent integument—would suffice; this is exactly the condition of the normal eyes in reptiles to-day; the skin covers them, but it is transparent where it passes over the eye. In the skulls of some of the gigantic reptiles of the earlier age of this globe, paleontologists have long ago found a large round perforation. Probably this was the socket of the third or pineal eye of the ichthyosaurus, the plesiosaurus and the labyrinthodon. But a much more important conclusion must be drawn from this discovery; namely, that in all vertebrates, even including man, the traces of this third eye remain to this day. The pineal eye of lizards being connected with the large pineal gland of the same, it would seem that the pineal gland itself is but the nerve center or optic thalamus for this third eye. In all reptiles and amphibia, the pineal gland is large; so it is also in fishes. In the higher vertebrates, the cerebrum develops very highly, overgrowing the posterior portions, under the influence of which preponderance of the cerebral mass, the pineal body is more and more repressed into rudimentary forms. But it remains with obstinate pertinacity. It is even always present in man—though here only of the size of a pea and rudely resembling a pine cone in shape. It seems also degenerate in structure, having hardly any nervous tissue. These facts of form and structure have given rise to its name, that of pineal gland. The position of the pineal gland in man is almost in the very center of the brain. The pea-like, rounded mass attracts attention when the third ventricle of the brain is opened. It is almost free, being held in place by two light, stalk-like bands or peduncles which connect it to the cerebrum anteriorly. The gland, so-called, is rather vascular, and contains also crystalline mineral matter, the so-called *acervulus cerebri*, consisting mainly of phosphates.

Society Notes.

NORTH TEXAS MEDICAL ASSOCIATION.—The semi-annual meeting of the North Texas Medical Association will be held in Greenville December 10, 11 and 12. There are nearly forty papers on the program, and an instructive meeting is expected.

THE CHICAGO GYNCOLOGICAL SOCIETY, November 22, had an open meeting. Dr. Wathen, of Louisville, was an invited guest.

GRAYSON COUNTY MEDICAL SOCIETY.—The following preamble and resolutions were unanimously adopted by the Grayson County Medical Society at its regular meeting held in Sherman, Texas, November 5.

(Signed.) J. H. GLASSCOCK, M.D., President.

T. M. TAYLOR, Secretary.

DEPARTMENT OF PUBLIC HEALTH.

WHEREAS, This Society believes that a Department of Public Health under control of a Secretary who should be a member of the Cabinet of the President of the United States, is necessary to the welfare of this country; therefore be it

Resolved, That this Society indorses the bill now pending to establish such Public Health Department, and requests our members of Congress to support said bill and aid in its passage.

Resolved, That the Secretary be requested to transmit a copy of the foregoing preamble and resolutions to our Senators and Representatives in Congress.

Resolved, That this preamble and resolutions be spread upon the minutes of the Society.

Hospital Notes.

REQUESTS FOR HOSPITAL PURPOSES AT NEWARK, N. J.—The will of Mrs. Anna Skinkle, daughter of the late Jacob Skinkle, leaves \$3,000 to the Orange Memorial Hospital for the endowment of a child's bed in memory of her deceased son, William Skinkle Allen. She gave to her husband one-half of the residue of her estate, and provided that under certain conditions, the remaining one-half of her residuary estate should be used for the foundation of a general hospital for sick and infirm persons. It is to be located in or near Newark, is to be forever under Protestant control, and is to have connected with it a chapel for religious services, but such services are to be of an undenominational character. To provide against any miscarriage of her wishes in the hospi-

tal matter, Mrs. Allen says in her will that if for any legal or other reason the gift for a hospital, as made by her, is declared invalid, she gives it (one-half of her residuary estate) "to the Mayor and Common Council of Newark for the erection of a wing or annex to the City Hospital, the same to be known as the 'Skinkle Memorial Annex.'"

THE DAY-KIMBALL HOSPITAL at Putnam, Conn., was dedicated November 10.—**St. Anthony's Hospital** at Rock Island, Ill., was dedicated and formally opened November 19.—The committee appointed by the last Iowa Legislature to adopt plans and erect a hospital for the insane at Cherokee held a meeting in Des Moines November 20, and adopted plans for the institution which will cost \$1,000,000.—The twenty-seventh anniversary of the New York Presbyterian Hospital was celebrated November 16. The annual report showed the expenses of the hospital during the year were \$165,692.12 and the receipts from patients were \$29,534.61. Donations were received amounting to \$12,099.30, while the income from investments amounted to \$27,857.29.—The Junior Society of Mount Sinai Hospital, New York, has been organized and promises to be one of the leading charitable societies of that city.—The Ladies' Aid Association, of St. Mary's Hospital, Brooklyn, N. Y., held a promenade concert and reception November 27.—The Woman's Board of Governors of the Orange Memorial Hospital will erect an isolated ward for consumptives.—It is alleged that owing to difficulties that have arisen between the Board of Trustees and the medical staff of the Phenixville, Pa., Hospital, the latter have resigned in a body.—The Silver Cross Hospital at Joliet was opened November 16.

Detroit Notes.

DR. S. L. WYSZYNSKI.—A fatal accident happened at the Buchanan St. crossing of the Michigan Central Railroad, about 5 o'clock on the evening of the 21st inst., resulting in the death of Dr. S. L. Wyszynski, one of the leading physicians of the Polish district of Detroit. The deceased was born in 1854 in a province of Russian-Poland, and was educated as a physician at Academies at Warsaw and St. Petersburg. Four years ago, after having served fifteen years in the Russian Army, he came to America and located in Chicago, practiced there two years, and then moved to Detroit, where he continued a very successful professional career up to the day of his death. A wife and four daughters survive him, two of the daughters being at home and two in Russia, the eldest one, Mrs. Wanra Nicholi, being the wife of a lieutenant in the Russian Army.

WAYNE COUNTY MEDICAL SOCIETY at its regular meeting Thursday, November 21, listened to a very interesting paper by Dr. Dayton Parker on "Diphtheria."

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION listened to a paper by Dr. F. Pettyjohn of Alma, Mich., entitled, "Notes on Differential Diagnosis and the Treatment of Neurasthenia," at its meeting of November 18.

THE ACADEMY OF MEDICINE at its meeting November 5, heard a paper from Dr. Hal C. Wyman on "Fractures of the Neck of the Femur."

HEALTH OFFICE REPORT for week ending November 23: deaths, under 5 years, 25, total 92. Births, male 47, female 35, total 82. Contagious diseases: week ending November 23: diphtheria last report 25, new cases 27, recovered 10, died 8, now sick, 34. Scarlet fever, last report 13, new cases 6, recovered 4, died none, now sick 15. Smallpox, last recovered 3, new cases none, recovered none, died one, now sick 2; also one case from Hamtramck, and one from Rochester, Mich., were taken to the smallpox hospital.

Philadelphia Notes.

THE JEFFERSON MEDICAL COLLEGE has purchased an adjoining property at Tenth and Medical Streets, and will in the course of next year open a laboratory building, five stories in height, fitted up with all the modern apparatus for technical teaching in physiology, bacteriology and pathology. The first floor is to be used for dispensary work.

THE MEDICO-CHIRURGICAL COLLEGE has purchased the adjoining properties on Cherry Street down to the corner of 17th Street, so that its buildings when completed (including the College Hall, the Hospital and Maternity) will extend an entire square from 17th to 18th, on Cherry Street.

A new clinical amphitheater is in course of erection on the premises of the hospital. An amicable adjustment of strained relations has been made with the Philadelphia Dental College. Both schools have used the lecture halls conjointly and carried on their dispensary service in the same building, for several years; but the classes have now grown too large for this arrangement to continue, and after next term the Medico-Chirurgical will dissolve the arrangement and will occupy the premises alone; the Dental College seeking quarters elsewhere. Dr. J. C. Benning has been elected Professor of Anatomy and Surgery in the Philadelphia Dental College, succeeding to Dr. Garretson's chair.

FREE LECTURES ON BACTERIOLOGY.—A course of five weekly lectures, on Saturday afternoons at 3 o'clock, was begun at the Academy of Natural Sciences last week, (November 16) by Dr. M. V. Ball.

THE CITY BACTERIOLOGICAL LABORATORY.—A protest has been made against the continuance of the bacteriologic department in its present location on the seventh floor of the City Hall. Members of Council and others in fact wish to have the entire Health Department removed to a separate building so that they may not come in contact with medical inspectors in the elevators and lobbies. It is asserted that the bacteriologic laboratory is much visited by the public, and visitors are shown guinea-pigs and rabbits and "such small deer," in all stages of fatal infection with diphtheria, anthrax and other zymotic and contagious diseases. There seems to be an inconsistency in the health authorities placing human beings under so-called quarantine at their own homes, on account of a child which is affected by these disorders, and on the other hand indiscriminately inviting visitors to the laboratory, where the Klebs-Löffler bacillus is doing its deadly work on a score of inferior animals, which in addition to being made to suffer for the cause of science are also permitted to gratify a very unscientific curiosity.

POLYCLINIC HOSPITAL AND SCHOOL FOR GRADUATES.—Dr. A. Larue Vansant has been elected Professor of Laryngology, and Dr. James K. Young Professor of Orthopedic Surgery in this school.

THE TRUSTEES OF THE WOMAN'S MEDICAL COLLEGE have appointed Dr. James K. Young Clinical Professor of Orthopedic Surgery.

THE PEPPER LABORATORY OF CLINICAL MEDICINE connected with the Hospital of the University of Pennsylvania, 36th and Spruce Streets, will be formally opened Dec. 4, 1895, at 3 o'clock, P.M. Addresses will be made by Drs. J. S. Billings, Director of the University Hospital, and W. H. Welch of Johns Hopkins.

PHILADELPHIA HOSPITAL.—Dr. Alfred C. Wood was recently elected to succeed Dr. Wm. G. Porter, on the medical staff of the hospital, the latter having resigned after nearly twenty-five years service. Dr. J. Chalmers Da Costa was also elected to the surgical staff, thus increasing the number of surgeons to ten. Dr. Elizabeth L. Peck was chosen to succeed Dr. Clara Marshall on the obstetrical staff. Dr. Ernest B. Sangree was made pathologist to the hospital.

MUNICIPAL AUTHORITIES SUPPLY ANTITOXIN.—November 20 should be a red letter day in the Philadelphia Health Department, as it possibly marks a new era in medicine, for on that day the city of Philadelphia, entered the lists among the manufacturers of medicine and distributed to the Municipal Hospital the first delivery of antitoxin, or diphtheria vaccine, of its own manufacture.

A COLONY FARM FOR EPILEPTICS in Pennsylvania has been projected and a charter obtained from the courts. Dr. Wharton Sinkler, of Philadelphia, is the President of the Board of Directors. It has been announced that a donation of \$50,000 for building purposes has been promised, if a suitable site be obtained for a farm before the first of next January.

SCHLEICH'S METHOD OF LOCAL INFILTRATION AND ANESTHESIA was recently brought before the Philadelphia County

Medical Society by Prof. Theophilus Parvin, and Dr. Keen has done a laparotomy, a herniotomy and several other operations by this method, which is a substitute for general anesthesia in suitable cases. Dr. Morton and other surgeons also have operated successfully by local anesthesia.

St. Louis Notes.

MORTUARY REPORTS for the week ending November 23: deaths, 160; preceding week, 156; corresponding week of 1894, 146. Births reported, 233.

CONTAGIOUS DISEASES.—The Health Office reports for the week ending November 23: cases of diphtheria, 160, deaths, 20; cases of croup, 20, deaths 10; cases of typhoid, 11, deaths, 6; cases of measles, 10; cases of scarlatina, 12.

THE ST. LOUIS MEDICAL SOCIETY.—The scientific program on November 23 consisted of a paper on "A Phase of Traumatic Epilepsy," by Dr. Frank R. Fry, with discussions by several neurologists. Dr. Fry deprecated the common use of the word traumatic, as somewhat lacking in discrimination, and advocated the use of the term only in those cases of epilepsy where it could be shown that trauma had affected the brain directly or indirectly in a way to produce epilepsy. His remarks were made anent two cases that had been reported as instances of traumatic epilepsy, in one of which the trauma had been a burn at the knee, and in the other a head injury; both of which had been cured by treatment of exciting foci outside of the brain itself; viz., treatment of the scar in one case and the removal of buttons of bone in the other.

Dr. A. B. Shaw, in his discussion of the paper, emphasized the need there was of a constant reminder that epilepsy was merely a symptom, pointing out how various lesions of the brain might produce epileptoid manifestations. He could not say that he was entirely in accord with the reader in his attempt to limit too sharply the use of the term traumatic, though he did not wish his position to be construed as opposing that taken by Dr. Fry, since in his hearing of the paper he might have failed to gain a clear notion of the limitations Dr. Fry advocated. Dr. C. G. Chaddock could see no reason why a case of epilepsy should not, for practical purposes, be called traumatic when its development could be shown to be related to an injury, no matter whether the trauma affected the brain directly or not. If we were to reserve this qualifying word for only those cases of epilepsy in which injury to the brain could be demonstrated, it could be consistently used only where the brain had been actually examined, or where there were symptoms of focal lesions. As the cases cited showed, it was well in any case to consider the possible operation of reflex influence even in those cases where the injury had been to the head. As a suggestive allusion, reference was made to the possible path to the cortex of an irritative excitation of the dura; viz., through the peripheral neurons of the trifacial and the vagus. A rather close relation of the fifth nerve to the vagal nucleus was assumed through its descending roots, and the proximity of the vagal nucleus to the convulsive area in the medulla was pointed out. Was there any relation between this area and the vagal nucleus and cortex that could be of influence in the production of convulsive seizures? Though Buiswanger had not produced epileptic convulsions by irritation of this area, tetanoid movements had thus been induced, and at least its relation to the vagus was worthy of consideration in cases of epilepsy where a reflex through the trifacial or vagus was possibly in play. The influence of predisposition to epilepsy in cases of a traumatic causation was emphasized, because there was seemingly an inclination to overlook it. It was suggested that it was quite as influential in traumatic cases as in other varieties of epilepsy, and this could not be ignored until a lesion that would invariably induce epileptic seizures had been demonstrated. It would be interesting to know whether the findings in the urine and blood that had been demonstrated for so-called idiopathic epilepsy would hold good for epilepsy due to gross brain lesions. The necessity to remember that general causes, such as a toxin in the blood, might induce Jacksonian seizures, was pointed out, for neglect of this might lead to an error in diagnosis. Dr. G. C. Crandall likewise laid stress upon the element of predisposition in epilepsy, no matter what the exciting cause, and he pointed out the bearing other signs and symptoms of a general neurosis might have upon the prog-

nosis of operative procedures for the cure of convulsive seizures. Dr. Ludwig Bremer alluded to the findings of sclerosis of cortical and subjacent nervous tissue which he had been able to demonstrate in the few epileptic brains he had examined. He emphasized the relation of epilepsy and hysteria, recalling the fact that it is often impossible to make a differential diagnosis between true epilepsy and hysterical seizures. He was inclined to question whether there was not an hysterical element in so-called reflex epilepsy. Dr. Keating Baudry instanced several interesting cases of reflex epilepsy, mainly of genital origin, which rather pointed to an hysterical factor. The general discussion was concluded by remarks from Drs. Funkhouser and Jacobson.

Washington Notes.

HEALTH OF THE DISTRICT.—From the report of the Health Officer for the week ended November 16, is taken the following abstract: the general health of the city underwent a material improvement last week. From 121 in the week previous, the mortality fell to 99, and the annual death rate per 1,000 inhabitants correspondingly declined from 22.8 to 18.6. There was no death reported by diphtheria, scarlet fever, measles or whooping cough. There were 7 deaths from typhoid fever as compared with 8 by the last report, while those from consumption were over 50 and from other lung maladies 20 per cent. less. The birth returns amounted to 72, and those of marriages to 79, of which 44 were between white and 35 between colored persons.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Medical Society held on the 20th inst., Dr. H. W. Beatty reported a very interesting fatal case of dermatitis exfoliativa which was discussed by Dr. B. F. McGuire. Dr. Behrend reported a fatal case of rabies in a lady patient, and Dr. D. E. Salmon read a paper on the prevalence of rabies in the District of Columbia. Both subjects were discussed by Drs. V. A. Moore, Walter Reed, Forwood, Chappell, Lovejoy, Schaeffer and others. Dr. Acker reported a case of endocarditis following chorea in a young child.

REPORT OF COMMITTEE ON STEAM RAILROADS (BOARD OF TRADE).—The committee on steam railroads and public safety are making war on steam railroads and endeavoring to bring about certain changes in grade crossings which will protect human life and limb. In their report to the Board they give the following recapitulation of the killed and wounded during the past four years:

BALTIMORE AND POTOMAC RAILROAD.		
	Killed.	Injured.
1892	6	7
1893	10	7
1894	5	11
1895	5	11
Total	26	36

BALTIMORE AND OHIO RAILROAD.		
	Killed.	Injured.
1892	6	5
1893	7	7
1894	1	6
1895	0	1
Total	14	19

Killed, 40; injured, 55; total, 95.

LETTER TO A WASHINGTON PHYSICIAN.—The following letter bearing the stamp of the U. S. Senate, was received a few days ago by a prominent Washington physician:

Dear Doctor:—I enclose cheque for \$—. This I fear (my memory being shy) still leaves a balance. But then it is singularly appropriate that I should have a running account with you, inasmuch as it was always on account of a running that I called to see you. Did you laugh? You get a cigar. Confidentially, it takes a — good natured man to joke about a doctor's bill. Any man who can descend to that, would laugh while his teeth were being pulled.

"Yours very truly, _____"

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 16, 1895, to November 22, 1895.

Major Joseph K. Corson, Surgeon, leave of absence granted is extended twenty days, on surgeon's certificate of disability.

Capt. George McCreery, Asst. Surgeon, is granted leave of absence for four months, to take effect about Dec. 10, 1895.

First Lieut. Irving Wallace Rand, Asst. Surgeon, will report in person without delay to the President of the Army Medical School, for the course of instruction prescribed in General Order No. 78, Sept. 22, 1893, from Adjutant General's Office.

APPOINTMENTS.

To be Asst. Surgeons with the rank of First Lieut., Nov. 15, 1895: Thomas Jellis Kirkpatrick Jr., John Hamilton Stone, Irving Wallace Rand.

Powell Conrad Fauntleroy, to be Asst. Surgeon with rank of First Lieut., Nov. 15, 1895.

RETIREMENT.

Lieut.-Col. Joseph R. Gibson, Deputy Surgeon General, retired from active service Nov. 15, 1895, on account of disability incident to the service.

PROMOTIONS.

Major Justus M. Brown, Surgeon, to be Deputy Surgeon General with the rank of Lieut.-Col., Nov. 15, 1895.

Capt. Daniel M. Appel, Asst. Surgeon, to be Surgeon with the rank of Major, Nov. 15, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 23, 1895.

Medical Director P. S. Wales, ordered to duty as member of retiring board, Washington, November 25, in addition to his present duties.

P. A. Surgeon R. P. Crandall, detached from the naval laboratory, and ordered to the naval hospital, New York.

P. A. Surgeon Philip Leach, detached from the naval hospital, and ordered to the naval laboratory, New York.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended November 15, 1895.

Surgeon C. S. D. Fesseuden, ordered to proceed from Salem to Boston, Mass., for physical examination, Nov. 14, 1895.

P. A. Surgeon D. A. Carmichael, relieved from duty at St. Louis, Mo., and directed to proceed to Vineyard Haven, Mass., and assume command of Service, Nov. 1, 1895.

P. A. Surgeon S. D. Brooks, relieved from duty at Chicago, Ill., and directed to proceed to St. Louis, Mo., and assume command of Service, Nov. 5, 1895.

P. A. Surgeon J. H. White, granted leave of absence for twenty-three days, Nov. 5, 1895.

P. A. Surgeon T. B. Perry, granted leave of absence for thirty days, Nov. 11, 1895.

P. A. Surgeon J. O. Cobb, to proceed from Pt. Townsend to Port Angeles, Wash., as quarantine inspector, Nov. 1, 1895.

P. A. Surgeon J. B. Stoner, to proceed from Detroit, Mich., to Baltimore, Md., for temporary duty, Nov. 1, 1895.

Asst. Surgeon C. H. Gardner, to proceed from San Francisco, Cal., to Chicago, Ill., for duty, Nov. 5, 1895.

Asst. Surgeon Norman Seaton, to proceed from Baltimore, Md., to New Orleans, La., for duty, Nov. 1, 1895.

Asst. Surgeon A. R. Thomas, to assume temporary command of Service at St. Louis, Mo., Nov. 1, 1895.

Asst. Surgeon J. B. Greene, to proceed from Vineyard Haven, Mass., to Baltimore, Md., for duty, Nov. 1, 1895.

Change of Address.

Beckett, J., from 879 Lake St. to 283 Park Ave., Chicago.

Carmichael, D. A., from St. Louis, Mo. to Vineyard Haven, Mass.

Calowell, J. R., from New Hamburg to Greenville, Pa.

Dunbar, L. L., from 500 Sutter St. to 606 Sutter St., San Francisco, Cal.

Gardner, Mathew, from Sacramento to Southern Pacific Hospital Association, San Francisco, Cal.

Miller, R. E., from 3100 State St., to 3255 State St., Chicago.

McIntyre, J. H., from 623 Locust St. to 710 Olive St., St. Louis, Mo.

Norbury, F. P., from Jacksonville, Ill., to 1006 Olive St., St. Louis, Mo.

Penny, H. T., from Baltimore, Md., to 1016 10th St., Washington, D. C.

Sharpe, W. F., from 500 Sutter St. to 606 Sutter St., San Francisco, Cal.

LETTERS RECEIVED.

Ayres, H. B., (2) Indianapolis, Ind.

Barrett, Joseph E., Wooster, Ohio; Busey, S. C., Washington, D. C.

Bacon, M. W., Chicago, Ill.

Carmichael, D. A., Vineyard Haven, Mass.; Cone, Andrew, New York, N. Y.; Cochran, Jerome, Montgomery, Ala.; Carstens, J. H., Detroit, Mich.

Dodd, F. B., Waucoma, Iowa; Dougan, Peter, New York, N. Y.; Darr, H. H., Caldwell, Texas.

Eastman, Joseph, Indianapolis, Ind.

French, Pinckney, St. Louis, Mo.

Gibson, Albert, New York, N. Y.

Hinsdale, Guy, Philadelphia, Pa.; Hunt, Mary H., Boston, Mass.; Hindenbrant, The C. J. Co., Syracuse, N. Y.; Hahnemann Publishing Co., Chicago, Ill.; Hammond, W. A., Washington, D. C.; Hubbell, Alvin A., Buffalo, N. Y.; Hummel, A. L., Advertising Agency, (8) New York, N. Y.

Instant Cut Off Co., Port Huron, Mich.

Kane, Evan O'Neill, Kane, Pa.; Kober, Geo. M., Washington, D. C.

Kremers, Henry, Holland, Mich.; Keating Wheel Co., Holyoke, Mass.

Loungmans, Green & Co., New York, N. Y.; Lambert Pharmacal Co., St. Louis, Mo.

Mills, Harry Brooker, New York, N. Y.; Marchand, Chas., New York, N. Y.; Mead, F. N., Bristol, Iowa; Marshall, T. E., Union City, Tenn.

Morse, Lyman D., Advertising Agency, New York, N. Y.; Mason, D., Spokane, Wash.

Newman, H. P., Chicago, Ill.

Owen, W. E., Fox Lake, Wis.

Paquin, P., St. Louis, Mo.; Pendleton, Geo. W., Idaho Falls, Idaho.

Reed & Carrick, New York, N. Y.; Risley, S. D., Philadelphia, Pa.

Reed, R. Harvey, Columbus, Ohio.

Smart, Chas., Washington, D. C.; Schering & Glatz, New York, N. Y.

Schimmel, M. S., Baltimore, Md.

Truitt, U. L., Chicago, Ill.; Turnbull, Laurence, Philadelphia, Pa.

Tabb, W. R. & Co., New York, N. Y.; Thomas, D. R., Tennille, Ga.

Van Horn, A. K., Jerseyville, Ill.

White, Frank, (2) Elwyn, Pa.; Willard, De Forrest, Philadelphia, Pa.

Western Pennsylvania Medical College, Pittsburgh, Pa.; Wire, G. E., Chicago, Ill.; Würdemann, H. V., Milwaukee, Wis.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, DECEMBER 7, 1895.

No. 23.

ORIGINAL ARTICLES.

ESOPHAGEAL STRICTURE AND ITS SUCCESS- FUL TREATMENT BY ELECTROLYSIS AFTER FORTY YEARS STANDING.

Read in the Section on Neurology and Medical Jurisprudence, at the
Forty-sixth Annual Meeting of the American Medical Association,
at Baltimore, Md., May 7-10, 1895.

BY W. S. WATSON, M.D.

(RIVERVIEW HOME SANATORIUM), FISHKILL-ON-HUDSON, N.Y.

The symptoms of esophageal stricture are pretty generally known to the profession; the symptoms may and very often do exist for some time before the patient or the medical attendant realizes the gravity of the existing condition; they begin with difficulty in swallowing solids, especially meats, and when eating hurriedly; the trouble increases from day to day until only liquids can be swallowed with great difficulty. After the stricture has existed for some time, the space above the point of stricture becomes dilated in the effort to swallow or retain food, and often the patient is led to believe that he has swallowed food when it will suddenly return. If the stricture be low down, the food will remain much longer than if high up; persons suffering from esophageal stricture are always lean and emaciated. The health gradually declines.

In diagnosis of stricture of the esophagus, great care should be taken to determine the cause, for, if cancerous, no treatment can do much for the sufferer; hence in giving a prognosis we should know that we are not dealing with a cancerous obstruction.

A stricture differs from a spasmodic closure; one taking months and sometimes years to develop so as to interfere greatly with the swallowing, while the other, the spasmodic, comes suddenly and disappears in like manner. In the spasmodic form anti-spasmodics relieve; in the other, medication does no good; in the spasmodic closure of the esophagus, a bougie passes to the stomach with but little or no resistance; if it does meet with any resistance, moderate pressure soon overcomes that resistance; with a fibrous or cicatricial stricture it is not so. The bougie can with great difficulty be passed, if at all; paralysis will impede the swallowing and food may become lodged for want of power to swallow and be regurgitated; the passage of an ordinary bougie will readily determine this; in cancerous obstructions, the passage of a small bougie determines the fact by blood being upon the returned bougie and upon food regurgitated. Once satisfied that we have a stricture to deal with, a cure may be assured, the patient being determined and having a reasonable amount of strength to endure a course of electrical treatment, which is not without some pain; a cure requiring from two to six months' treatment by electrical dilators once or twice a week.

In the treatment it is necessary to have a good reli-

able galvanic apparatus with an evenly graduated rheostat and milliampèremeter; six or eight olive-shaped bulbs of as many different sizes, beginning with a three-eighth inch and increases two-eighths each treatment, made preferably of aluminum and fitted with a deep screw thread to a copper wire that is covered with hard rubber insulation to protect the mouth and throat; shaft about sixteen inches in length, sufficiently flexible to admit of some bending, the better to enable one to follow the curves of the throat, yet sufficiently stiff to support some pressure; the bulbs or tips need be a perfect oval or olive, from the largest diameter in both directions, otherwise they are very difficult to withdraw and occasion unnecessary pain.

Miss S., aged 62 years, had suffered from stricture of the esophagus since about 14 years of age, of a fibrous character, occasioned by a hard bit of apple becoming lodged in the throat and remaining there a considerable length of time, setting up inflammation and cicatricial formations at three different points; first just below the cricoid cartilage, another about one and a half or two inches lower, a third very low down. Treatment was begun in September, 1894, using for exploration a small, somewhat flexible bougie which would not pass the first point of stricture. The closure was so complete and had been for upward of twenty-five years that it was impossible to swallow any kind of solids, and liquids were taken with the greatest difficulty, requiring frequently two or three hours to get enough down to sustain her. The saliva would not take its natural course but was overflowing almost continually from the mouth, requiring the use of a handkerchief to absorb it every few minutes; I found it impossible to pass even the small flexible probe. A small three-eighths-inch electrode was tried with the aid of 6 millimeters of current, attaching a small electrode to the negative side (here let me say that it is highly important that you be able to let on the current gradually to avoid the shock and fright), using a carefully devised rheostat (I find the Williams a most excellent one for the work), placing the pad, which is attached to the positive cord, to the back of the neck.

Pass the bulb down to the first stricture, then have an assistant turn on the current gradually until 6 or 8 millimeters is reached, keeping up a moderate pressure for a few minutes, perhaps three to five, when the bulb is sure to pass. A greater amount of current would probably pass the bulb through the stricture sooner, but it would be at the expense of tissue, by reason of the destructive character of a strong current when attached to the negative pole. It is highly important that a dilating bulb be attached to the negative side, since it is the negative pole that softens by chemic action all tissues in contact; hence it is the one to absorb cicatricial formations and certainly has a salutary effect in cases of cicatricial strictures. Treatment was given once a week for a period of six weeks. At the second visit I succeeded in passing a three-eighths-inch bulb through the three strictures, after which time the saliva did not overflow, nor were there any more spasmodic troubles when attempting to force down liquid foods, as had always or nearly always been the case. At each treatment an eighth-inch larger sized bulb was used and passed, endeavoring at each sitting to pass through the strictures slowly, which was greatly interfered with on some occasions owing to the quite severe retching due to the bulb being passed down the throat. We believe it highly important that a dilating electrode remain for some minutes in contact with the false tissues, in order that the electrical current may have time for action; the time in contact has all to do with the success of the treatment. A rapidly passed electrical dilator is no great

improvement over the old method of using dilators simply.

After the sixth week, treatments were given twice a week, after the third month a one-inch bulb or electrode was passed, and I was informed by the patient, a few days after last Thanksgiving dinner, that she had enjoyed the first Thanksgiving dinner in upward of twenty-eight years. She ate freely and without difficulty all semi-solids, even cake, pie and dressings, but no meats were tried, she being fearful of choking if she did. Treatment was continued once in two weeks, continuing the one-inch electrode, and went no higher than 10 milliamperes of current; five months from date of commencement of treatment she swallows with little or no difficulty; is still afraid of meat, but it could be taken with perfect safety, if well masticated. We are unable to get the patient to continue the treatment longer, as she feels that her ability to swallow is good enough; however, we would prefer to continue the dilatation with the electrode for fully six months longer at greater intervals. It is well to caution the patient as regards eating solids. Abstaining from solid food has unaccustomed the stomach to such articles, so that serious stomach troubles may follow the indulgence of the ravenous appetite which is likely to follow such a long abstinence from solids.

ELECTRO-THERAPEUTIC TECHNIQUE IN THE TREATMENT OF NEURASTHENIA AND NERVOUS PROSTRATION.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1896.

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The proximate purpose of electrical treatment in the group of conditions known as neurasthenia has been somewhat vaguely understood by different investigators, resulting in quite a variety of methods being employed. Remembering the multiform phases of the affection itself, this is by no means strange, particularly when it is recalled that our knowledge of the pathologic processes underlying it is extremely imperfect and based mainly on deductions from therapeutic empiricism.

Judging from published utterances and from the methods of treatment recommended, it is evident that most of the authorities agree with the original investigator, Beard, in regarding the disease as a perversion of function of the cerebro-spinal system of nerves. Benedikt, Weir Mitchell and Rockwell, for instance, rely almost entirely on general faradic applications, apparently for tonic and revulsive effects, while Morton, Vigoroux and others employ static applications. The currents used by them expend their force on the external moist layers of tissue, having insufficient density for effective penetration to deeper structures, and hence the therapeutic results must be due mainly to their action on the cerebro-spinal nerves and voluntary muscles.

While it is likely that the Beard hypothesis of the nervous origin of neurasthenia adequately explains the secondary mechanism of these pathologic nerve fatigues, it is not so clear that the initial pathologic conditions arise in the cerebro-spinal system in any cases except those suddenly following mental shock or strain. It is extremely probable that deficient innervation of the sympathetic system is a more important factor. But whether primary or secondary, sympathetic nervous insufficiency may be constructively regarded as present in the majority of cases, accompanied by functional derangement of the organs that maintain a pure and healthful condition of the blood. Flowing from this, come auto-intoxications, abnormal organic sensitiveness, etc.

It is by no means denied that faradic currents

may not produce effective results of therapeutic value on central organs and nerve structures, but it is clearly evident to the physician that a sufficient density of either current can not be conveyed to them from the small electrodes and imperfect skin contacts still incorrectly employed by many neurologists in percutaneous applications of electricity. The inch and inch-and-a-half disk electrodes are intended for localizing the current near the periphery, and are therefore properly employed in picking out and exercising groups of muscles in the limbs and trunk, but they are totally inadequate to convey any effective currents into organs situated in the cavities of the body.

To reach and remedy these primary and secondary inactivities and pathologic fatigues of the abdominal nervous system, we need currents of volume and penetration, preferably galvanic currents; and that they may be carried painlessly to these deep-seated structures, large conducting pads must be used. Fifty to 80 milliamperes may be an ordinary application with such pads, and considering the rapid diffusion of the lines of current beneath the electrode, nothing less is likely to convey a sufficient density to the points desired. By the large pads we are also enabled to use the most effectively stimulant faradic current, the primary; the large conducting surfaces minimizing the resistance to a point enabling low pressure and large volume inductions to be transmitted through the skin. The method is monopolar, the indifferent electrode being applied to the back.

An excellent form of electrode for both general and abdominal applications is made of brass wire sewn in a flat spiral to the upper surface of a piece of muslin. The concentric turns of wire are about half an inch apart, the outermost turn ending in a free piece of wire which is coiled about a rheophore tip to make a friction attachment. On the upper side of the muslin, and covering the wire, six layers of absorbent cotton are placed, covered with muslin or linen, the whole being then quilted through to make a compact pad. The size of the indifferent pad should be about ten by fourteen inches. The pad for the active pole is round and about seven inches in diameter. When thoroughly moistened and with surfaces soaped, these electrodes furnish an ideal contact, so elastic as to fit any portion of the body surface, and when used for more than one patient they may be kept aseptic by daily immersion in boiling water.

The maintenance of a thoroughly moist condition of the electrodes is an essential, in transmitting considerable currents through the skin with least resistance and pain, and if the active electrode, particularly, is kept well lathered with a soap like ivory soap, which I find to be the best lather-making soap on the market, as tested by comparative sensations under labile applications, the active electrode may be made to pass freely and almost painlessly over nerve points in a labile manner, evoking as full contractions of muscle groups as the faradic current, with added metabolic stimulation. The same electrode is used for producing muscular contraction in the limbs and for abdominal applications, its extreme elasticity permitting a proper contact with the limb surface without the whole pad touching.

The various procedures in general galvanic stimulation are as follows: the patient, having disrobed,

lies upon a blanket or sheet, both ends of which can be folded over the person. The indifferent pad, lying on a piece of water-proof sheeting, is placed under the small of the back and connected with the positive pole of the battery. The active electrode, connected with the negative pole, is first placed on the abdomen, a lather is raised by moving it about, and 40 or 50 milliamperes turned on through the controller. Slow movements are made in the direction of the colon for several minutes, when the galvanic current is turned off and a primary faradic current turned on, also through the controller, and the same movements kept up for an equal time. The arms and legs next require attention in regular order with the galvanic current, the active pad being placed in contact with the limb before turning the current on at the controller (and kept in contact until the limb has been finished and the current turned off), from 15 to 30 milliamperes being enough to produce contractions if the pads be passed quickly over the nerve points.

The immediate effect of this treatment varies with the condition of the patient. If the case be one of great prostration it is advisable to have him or her rest awhile afterward until reaction has occurred, as there is apt to be increased weakness for a time in such cases, though even in these the exhilarating effect which always attends the treatment will follow in about an hour. The extremities become warm and there is a sense of greater strength.

Distinct effects upon the liver and kidneys can be traced to the treatment in many cases, the bowels become regular and the volume of urine greater. It is also probable, though not yet demonstrated with precision, that these bulky currents produce functional stimulation of all the nerve centers and organs of the abdomen.

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ELECTRICITY IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Much has been written on Basedow's disease or Graves, as exophthalmic goitre is often called. Notwithstanding the large amount of literature on the subject since 1835, its etiology and pathology is not definitely understood or settled. Most authors believe that it is a disease of the sympathetic system, having its origin in the cervical branch. Treatment therefore has been more empirical and unsatisfactory. The conclusion is, that exophthalmic goitre ends generally in death, usually caused by complications, of which a general nervous exhaustion and marasmus are prominent. Recovery, however, may occur, even without treatment.

While we have on record, reports of cures, the treatment by therapeutic means has not been satisfactory. It is conceded that some remedies, like iron and digitalis, have allayed symptoms, but they scarcely cured the disease. The ground of therapeutics is so well covered in reports that this paper will not touch on it and will only consider the treatment by electricity, which has promised to do more

than medicines. Successes have been reported by different authors who have given applications in different ways, but most agree that galvanism is the proper selection to be used in the disease under consideration.

Galvanization has been used by v. Dusch, who, in one case, after many sances, succeeded in lowering the pulse from 130 to 70, and reduced somewhat the exophthalmus.

Eulenburg galvanized the cervical sympathetic with similar results in 1867, using the negative pole. He also used galvano-puncture without any appreciable result.

M. Meyer¹ reported four cases and Chvostek,² who is a pioneer in the observation of this disease, has given much labor, and reports thirteen cases with galvanism in the same manner. These observers report improvements in all cases in which they used galvanism, but do not pronounce decided cures.

A. D. Rockwell³ has treated cases in a similar manner with galvanism to the sympathetic. He applied the negative pole over the cilio-spinal center above the seventh cervical vertebra, and the positive in the auriculo-maxillary fossa, gradually drawing the positive along the inner border of the sterno-cleido-mastoid to its lower extremity. The second step consists of removing the positive pole to the position occupied by the negative, and placing the latter over the solar plexus, using for a minute a greatly increased strength of current.

Galvanization of the sympathetic has also been practiced by Nettel.

Eichorst uses the negative pole high up in the neck and the positive pole between the scapulae, a current of five to ten cells for two minutes. Then he applies the positive pole upon the cervical spine, the negative over the sympathetic and pneumogastric upon each side for two minutes, from auriculo-maxillary fossa down the inner edge of the sterno-cleido-mastoid to the clavicle.

As the affection probably begins in the medulla, currents have been passed through the back of the head above the spine. Transverse currents have been passed through the goitre. Several friends tell me they have reduced the size of the goitre by placing both poles near the thyroid, but it is evident they ignored other symptoms of the disease.

Erb has tried very mild currents to the eyes with an uncertainty of benefit.

Ziemssen recommends strong galvanic currents, and at the same time contradicts his own advice by urging caution in their use.

Hunter McGuire uses the following galvanic application: Positive cup-shaped electrode containing iodine on cotton over the gland, and the negative pole on the back of the neck.

Frank D. Boyd,⁴ of San Antonio, Texas, reports improvement of one case in which he used very judicious treatment of therapeutics and daily galvanic application, but does not state how the galvanism was applied.

There are reports from Vizioli⁵ in 1878.

Needles in goitre by electro-puncture have been

¹ M. Meyer: Berl. Medic-Gesellsch, 1871-73.

² T. Chvostek: Wien Med. Presse, 1869-1875.

³ A. D. Rockwell: The electric treatment of exophthalmic goitre. Trans. AMER. MED. ASSOC. Philadelphia, 1880, XXXI, 177.

⁴ Frank D. Boyd: Report of a case of exophthalmic goitre, Medical Record, N. Y., March 30, 1895.

⁵ Vizioli: Elettoterapia pratica Morgagni, Germajo, p. 69, 1878.

used by Duncan,⁶ of Edinburgh, and others with unsatisfactory results. It seems that all surgical applications of electricity as galvano-cautery, electrolysis, cataphoresis, as well as electro-puncture, have given no beneficial or curative results. Even the cataphoresis of Adamkiewicz, an electric anesthetic by diffusion, has given slight and very temporary relief of neuralgia.

From these reports it seems that all operators gave particular attention to the sympathetic nerves, but differed in the selection of the poles to certain regions and the way of application. Some placed the positive pole to a region where others used the negative pole. Some applied the galvanism with the apparent intention to allay only one symptom of the disease, while there are several symptoms to be looked after.

The writer has treated within the last two years three cases of Basedow's disease with apparent good results, which can be called *cured*. All three patients were females.

The first case was a very aggravated one, who was ten years under electric treatment by one of the best authorities and practitioners in electricity. During those years, in which the life of the patient was despaired of, slow progress was made under very careful and judicious treatment. After the treatment had been suspended during a sojourn in the country, symptoms grew worse, and then in the fall of 1893 the patient came under the writer's care. It needed one year's treatment before the patient declared herself well, and she has remained so up to date.

A detailed history of this case is annexed here, from notes and observations by the writer's assistant, as follows:

Case 1.—W. C., age 40, single. She had been under treatment for nearly ten years with an authority in electricity and nervous diseases. During that time she improved considerably, but was not cured. An interruption of treatment was due to a sojourn in the mountains; during which time a relapse took place. In November, 1893, she came under Dr. Newman's care. She then had all the symptoms of exophthalmic goitre; was very anemic, nervous system was unstrung; a great uneasiness, a general nervous prostration, insomnia, sometimes nausea, anxiety, bowels disordered, with dyspeptic symptoms and all symptoms of neurasthenia. The heart action was irregular, pulse varying between 120 to 150, temperature 100. Emaciation prevailed with scarcely any appetite. The thyroid gland was enlarged—the circumference of the neck being thirteen and one-sixteenth inches. The eyes protruded very much, which gave the expression of anxiety to her face. The case was very aggravated, so that her relations were alarmed about her life. Her family history is good, but her father had heart trouble and her mother, who is still alive, has always had symptoms of dyspepsia.

The treatment consisted of galvanism in various ways, three or four times a week. In order to cause an absorption of the new tissue formed behind the eyeball, a medical electrolysis was used. For the negative pole, a solution of chlorid of sodium was applied directly to the eyes, while the positive sponge electrode was held in the hand. Only a very weak current was borne and the electrolysis was caused by the solution—like an eye-bath through which the negative pole acted—as an absorbent. To the enlarged thyroid gland the negative pole was also applied in the form of a sponge pad, and in this the result expected was the diminishing of the size of the goitre by the chemic action of electrolysis. The application to the nervous system, in which the sympathetic was included, was varied according to indications and the solar plexus received its share of attention. One of the applications consisted of a helmet to the head, while the other pole was placed over the solar plexus. This helmet was made of strips of German silver fastened to a circle, which corresponded to the circumference of the head. To have an even action to the head the hair was wet with water,

and a wet felt cap placed between the head and the helmet. The result of this treatment was satisfactory in every respect and all symptoms of the disease improved.

May 1, 1894. Improvement in every respect. Patient felt more rested, the unpleasant nervous excitement was calmed, and sleep procured. Heart had a more steady action; pulse was reduced and the measurement around the neck was twelve and seven-sixteenths inches in circumference, five-eighths of an inch reduction. Patient left in July, 1894, for a sojourn in the mountains, which interrupted the treatment, *pro tem*. Sept. 6, 1894. Slight relapse has occurred while being without treatment. The thyroid gland has increased, and the measurement is twelve and five-eighths inches around the neck. September 20. Treatment in the same manner as before, with galvanism, has made rapid improvement. Heart is more regular; pulse is reduced; eyes still prominent. October 2. Thyroid gland is reduced so that the circumference of the neck measured twelve and one-half inches. November 30. Thyroid still lessened—measurement twelve and seven-sixteenths inches. Treatment continued; no medicine given, only galvanic applications. March 22, 1895. Neck's circumference normal size—twelve and three-eighths inches—the patient when in perfect health wears a twelve and one-half inch collar. The eyes have resumed a natural look, without having any protuberance. Heart's action is normal; pulse 76; temperature 98.5; all nervous symptoms subsided; good natural sleep procured. Patient considers herself well; takes part in all the pleasures of life and enjoys all in an active way.

Case 2.—Had many symptoms like the first, but was not as aggravated. The treatment was similar and has been pursued for nine months. The patient, a female, 30 years old, has improved so much that a cure may be pronounced, but is still under observation with galvanic applications at irregular intervals.

Case 3.—The third patient was a young lady who sang a principal part in an opera company. A question arises here if heredity has an influence, as her mother died of Basedow's disease. This patient had an exophthalmic goitre which was correctly diagnosed, and different physicians treated her with medicines for over two years, during which time she grew gradually worse, until at last, at a performance after reëntering the wings, she fell prostrated and unconscious, ending her operatic career for a time. The patient came under the writer's treatment in December, 1894. The electrical treatment was carefully but vigorously pursued; on an average, five sances per week were held. In less than four months this very aggravated case was entirely cured. All symptoms have disappeared, the constitution improved, weight increased, and features restored. Patient considers herself well and is ready to enter another opera company. (Since the above has been written, patient has appeared on the stage, and feels very well.)

In this case were complications of severe oöphoritis and endocervicitis. There was hemorrhage from the uterine cavity which increased on the slightest touch, and also a profuse mucous discharge. The region of the ovary, in fact, the whole hypogastrium was painful, and the sensitiveness was increased on any pressure. These uterine troubles have been treated locally at intervals. The only therapeutic agent given this patient has been peptonate of iron to improve the quality of her blood on account of the anemic state, which was very marked. The iron was given when the nervous symptoms were improved, and then it acted well.

The electric treatment of this case consisted of galvanism, given in different ways and places. The galvanic treatment was assisted by the spray of the static machine. The spray was given twice a week very cautiously over the spine, head and over the sensitive parts of the ovaries with very good effect.

The history of this case has been written up by the patient herself, in which is embodied notes about her mother, who died of Basedow's disease. The interest is in the question of heredity. The diagnosis in both cases of mother and daughter had been made by several eminent physicians with an unfavorable prognosis. These notes are here annexed:

⁶ Duncan: Brit. Medic. Jour., Nov. 3, 1888, p. 986.

History of the Third Case: The patient, Z. R., writes as follows:

NEW YORK, April 6, 1895.

At the age of 16 I had just returned from Europe, it being a pleasure trip only. After being home but a short time I was taken seriously ill. The palpitation of my heart troubled me dreadfully, and occasionally a spasmodic pain of the heart which was severe while it lasted. My feet began to swell and I was so prostrated, physically, that it was impossible to go the shortest distance without great exertion and fatigue. Dr. Loomis, the great authority on lung and heart diseases, pronounced me incurable and warned my mother not to allow me to go anywhere without an escort, as I was liable to drop dead at any moment. My mother shortly afterward was advised to put me under the care of Dr. Louis Conrad. He said I had a defect in the heart which was incurable, but if I took care of myself and led a quiet life that it would not bother me. He also informed my mother that I was subject to a disease called "chlorosis," or "poverty of the blood." Nevertheless, under his treatment I survived, not being very strong at any time—naturally delicate. About three years later my mother, having enjoyed good health up to the date making her forty-eighth year, began to complain; being of a bright, strong temperament and was subject to very severe, nervous headaches.

I wish to say that she was a great business woman, having as many as 300 hands under her employ at one time, which made a great deal of brain work for her, but at the time of which I speak, from that period, she seemed to fail gradually. She grew more excitable, easily fatigued, excessively nervous, gave way to temper at the slightest provocation, which would terminate in a severe nervous headache, and the only cure was perfect quiet in her room in complete darkness. A year later, she complained of increased fatigue, but I presume the Basedow's disease was gaining more hold on her system. Her heart beat so tumultuously that she felt the pulsation in her throat, but her neck did not increase very much in circumference. The inflammation of the eyelids and bulging of the eyeballs—this last being made more prominent by a staring expression. Her knees gave way, but being of a determined disposition she would not go to bed.

Shortly afterward, I went away on business. My mother became annoyed at a servant, gave way to a fit of temper, and the excitement was too much for her. She fainted, and from that day to the day of her death was confined to her bed. As she had previously used up her strength worrying about domestic affairs, business was a thing of the past.

From that time her heart beat faster and more irregular; marked pulsation was felt in the throat, ends of fingers, in fact, all over her body. Under the optician's examination there was found a pulsation in the eye. She had a hacking cough, at times violent, especially after eating, which would make it almost impossible for her to keep any food on her stomach, but that did not surprise me as each doctor would give her a new dose of medicine, and between the various ones and the medicine that would be given after each consultation, I do not wonder at her digestion being ruined.

Mother suffered all her life with constipation, the treatment of which she neglected. The doctors gave her some medicine which made her bowels so loose that it made her very weak. Three weeks before she died I had to take her to a hospital, one of the best in the city. The doctors there gave her champagne, and it made her delirious. After one of the delirious attacks she was put to bed by four doctors. They told me she asked after me, required my presence, turned over and died. She was 50 years old.

I was sleeping, and as I was exhausted with the care and worry about her; I was not called until too late. She died of exhaustion and with a pulse of 180. I have always had a doubt in my mind as to her death being easy—I suppose the doctors wanted to spare my feelings, but the truth would have been preferable. I nursed and attended her through her entire sickness—the serious period being about seven months. During the above period she lost flesh rapidly and was very much emaciated.

A few months after my mother's death I was married. My married life was a failure from a domestic and physical standpoint. My husband abused me, which run my health down dreadfully, and combined with the shock of my mother's death, which I will never survive, I became a bunch of nerves.

I have been doctoring for two and a half years and no relief. In June I shall have been married three years, and will be 25 years old the 30th of next October.

The doctors have not helped me one particle. All they did was to fill me with opiates and chloral which almost killed me—in fact, I was in a state of complete collapse. Four months ago I called in Dr. Newman—having all the symptoms of Basedow's disease previously mentioned: nervousness, sleeplessness, melancholia, loss of appetite, irregular action of the heart, very excitable irritable temper, general fatigue at the slightest exercise, a feeling of numbness in the limbs, swollen feet and puffing out of the flesh in which the finger could make an impression. After four months of galvanic electricity, I feel better than I have for years and consider myself well enough to discontinue treatment. Occasional application from the static machine often relieved me of a nervous headache; in fact, relieved a pain in the spinal column which was for a period continuous and very painful.

REPORTS OF CASES.

On record are reports of cures by medicines, electricity, both combined, and even spontaneous cures. These results, however, are exceptions, and the rule in the treatment of exophthalmic goitre is that they are failures, often ending in death. It is also conceded by most authors that electricity, in this disease, gives better results than medicines. This, however, does not prove that electricity in any form, and even given by specialists, always cures.

There are failures and unsatisfactory results reported. The writer has made diligent inquiries among reliable specialists in electricity and been told of cures, benefits, as also of indifferent and unsatisfactory results and even failures. Such results must be expected, as the *modus operandi* of electricity has been conducted differently by the operators, and it seems even on entirely opposite plans.

TREATMENT.

Electrical specialists in the treatment of exophthalmic goitre have mostly given galvanism to the sympathetic, and in this they all agree. They differ, however, in the selection of the poles, the direction of the current, the size of the electrodes, the duration of the séance and the intervals.

It seems, further, a mistake to treat solely the sympathetic system and to overlook other important points of this disease. Most European authorities give the electric applications too short, being from one to two minutes' duration, while in America such séances are prolonged to about twenty minutes, which tires the patient and gives too great stimulation. The question arises, if it would not give better results to arrange the electric applications more rationally to symptoms and complications, as with our present knowledge neither etiology nor pathology of this disease is settled.

PROMINENT SYMPTOMS.

Beside complications and natural consequences, exophthalmic goitre has three prominent symptoms to which the treatment should be directed. These are:

- (a.) Irregular heart action with all kinds of nervous symptoms.
- (b.) Enlargement of the thyroid gland.
- (c.) Protrusion of the eyeballs.

Complications are anemia, emaciation, insomnia, uterine diseases, irritability, edema, fainting spells, etc.

The Indications for Treatment are: (a), to reduce the pulse, regulate the heart action, produce rest and sleep and allay the nervous symptoms. Beside the sympathetic system it is necessary to regulate and treat the pneumogastric and vagus; (b), to diminish

the size of the thyroid gland; (c), to remove the plastic new formations behind the eyeballs.

The Treatment, therefore, would be:

1. Galvanism to the sympathicus, vagus and pneumogastric, in such form as to reduce the pulse and stimulate the heart's action. In other diseases, galvanism quiets to such a degree that patients fall asleep while the application is given.

The Strength of the Current must be regulated according to the toleration of the patient in every case. The operator must exercise great care in slowly increasing the electro-motive force of the current, till the exact amperage is found, and every step of increase and decrease must be made with care and without any accidental shake or jerks of the current. The exact measure in milliamperes can not be advised and depends entirely on the sensation in each individual case. Some patients may be so irritable that even 2 milliamperes may be too much, while others can endure 20 or even 30. It is also essential to regulate the strength of the current in the same patient according to the region to be galvanized, to the size of the electrodes and the resistance between the two poles.

The *Static Electricity* will assist to regulate the vascular circulation, allay nervous irritation, creating a sedative to the heart and a more refreshing sleep.

2. The thyroid gland will be reduced with almost a certainty by the negative pole of the galvanic battery. Some report good results by applying both poles near the gland, one on each side. While this may have result the method is harsh and not rational. Surgical means have not been successful.

3. The protrusion of the eyeballs can only be cured by diminishing the new formations of tissues, grown behind the eyeballs, by which the eyes have been pushed forward. This can be done by the use of the negative pole to the eyes, which acts like an electrolysis absorbing the foreign tissues. The complications have to be treated according to indications.

The static electricity is here recommended only as an assistant and must be given with care. Sparks are contra-indicated, as they are too severe and will create often more nervousness and even pain. Breeze or spray will act well, allaying pain and regulating the circulation.

There Should be Avoided: Too strong currents, too long séances, which tire the patient and over-stimulate internal electrolysis, and surgical electricity. The faradic current has been used and recommended, given with certain precautions, but it seems it is contra-indicated, as a severe measure, which over-stimulates and disturbs more the diseased nerves.

With regard to general rules, avoid also excitement, over-exertion, stimulants, strong tea and coffee. It is evident that the treatment, and especially the application of the electricity, must be intrusted to an expert, and that the family battery for self-use (or abuse) is entirely out of the question.

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ELECTRICITY IN THE TREATMENT OF OCULAR NEURALGIAS.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY HORACE M. STARKEY, M.D.

CHICAGO.

It is with much diffidence that the writer responds to the invitation of your chairman to present a paper to this Section; for if there is any class of men for whom he has the most profound respect and before whom he is inclined to stand in silent awe it is those who are solving the complex problems presented in the study of the construction, functions and diseases of the nervous system. He is, however, the more willing to present a very simple and practical fragment to this symposium, because he is not aware that much has been written on this particular phase of the subject, and because he finds no reference to it in the very able paper on "Electro-Therapeutics of Diseases of the Eye," read before the last meeting of the American Electro-Therapeutic Association, by Dr. L. A. W. Alleman, of Brooklyn.

The intimate relation between eye-strain and disease of the nervous system is so well known as not to require mention. Many persons with weak and unstable nervous system are kept for years in a condition of invalidism, and suffering because of a constant excess of expenditure of nervous energy in some particular direction. Probably the most frequent source of such excess of expenditure is to be found in the eye and its appendages. It is the duty of the ophthalmologist to seek out and endeavor to correct these various sources of irritation, whether due to faulty shape of the eyeball, to irregular action of the eye muscles, to defective nerve impulses or to inflammatory diseases. Many patients are found in whom an error of refraction, or difficulty in maintaining the eyes in position for single binocular vision, or weakness of the external and internal muscles of the eye, or all these combined, have been for years the cause and source of headaches and pains in and about the eyes. Most of these cases are relieved with more or less promptness by removing the cause. A certain number of them, however, are not so relieved. The long-continued over-stimulation and irritation of the nerves seem to have induced a hypersensitive condition and a habit, as it were, so that, after the most careful correction of refraction and of muscular balance the neuralgia continues.

Many of these persons just described, whose condition is truly pitiable, appear to be relieved by the systematic and careful use of electricity. But while many are so relieved, some unfortunately are not, and continue to have almost constant pain, more severe on use of the eyes, notwithstanding all that we can do for them. As we are more careful and exact in diagnosis, however, the number of such unrelieved cases becomes smaller.

There are two classes of the patients mentioned above, to whom electricity may be advantageously

applied: 1, those with weak extrinsic muscles who may receive the primary faradic current for its direct effect upon those muscles; and 2, those in whom neuralgia persists after removal of the exciting cause, and who should receive the galvanic or the secondary faradic current.

A brief description of the method of application may be serviceable. First, as to time. The time required for a treatment is from two to eight minutes, with a probable average of four or five minutes, depending upon individual peculiarities. We probably all begin any electrical treatment with a minimum of time and current, and then increase both as we find indications for so doing. The indifferent electrode of absorbent cotton, three inches in diameter, is held by the patient to the mastoid, and neck just below the mastoid on one side the first half of the application, and on the other side the last half. In applying the faradic current a double-eye electrode may be used over the eyes, but the operator's hand makes altogether the best electrode, because the fingers can be used to single out the different muscles and convey the current more directly to them. The current employed should be mild, so as to produce a sense of tingling with little or no actual pain. Unfortunately we have as yet no practical means of measuring the faradic current. For the persistent neuralgias the secondary faradic current should, from theoretical grounds, be most useful, but practically, the weakest application of this current about the eyelids is often so painful that it will not be tolerated. The sinusoidal current would probably be better borne. Very decided and immediate relief is frequently obtained from the galvanic current with the anode as the active pole. In this application, the time and the position of the indifferent electrode are as stated above, while the active positive electrode, which is preferably double, is applied by a gentle massage motion to the lids, cheeks, brows and temples. The amount of current required is but from 2 to 5 milliampères, though in some cases even this very small current is too great for comfortable use. The current is usually very soothing and grateful, and patients frequently express surprise at the rapidity with which the pain is relieved and at the calm content and drowsiness that steals over them. This effect is very likely due in part to the action of the current on the cervical sympathetic. The duration of relief from pain is quite variable; it may at first be but a few minutes and it may continue for several hours. Usually, where benefit is to be secured, the time of relief increases as the treatment progresses, so that in a case where the first application gave relief for one hour, the third may give relief for two hours, and so on, until the pain is absent from one day to another, when the time between treatments may be lengthened and ultimately the pain is entirely relieved. A few cases were briefly summarized, but the limit of papers in this symposium will not permit their introduction.

NOTE.—A time limit of four minutes was placed upon these papers.

DISCUSSION ON PAPERS READ BY DRs. WATSON, MASSEY, NEWMAN, AND STARKEY.

DR. WILLIAM J. HERDMAN, of Ann Arbor, Mich.—I was sorry that Dr. Watson did not more specifically state the nature of the esophageal strictures with which he had been dealing. His experience has certainly been very satisfactory. The procedure he adopted is that which I have generally found, from examining the literature of the subject, to be most likely to result satisfactorily, that is, the gradual dilatation

of the stricture with the assistance of the negative electrolytic action. What I believe to be the fact as demonstrated by laboratory tests on living tissues with negative electrolysis, is that by a cataphoresis we have drawn to the spot, when the negative pole comes in contact with the issue, an increased fluidity. Not only is the fluidity increased, but at the same time we have an alkalinity produced by negative electrolysis. You have there the conditions for gradual disintegration of fibrous tissue. Where you have a purely spasmodic stricture, as possibly was the case in some of the instances mentioned this morning, it is overcome by action through the nervous system. By passing the current from above downward and producing the natural order of esophageal contraction, you habituate that part of the esophagus to pursue the normal peristaltic action. Peristalsis in the esophagus is reversed in a good many of these cases and much of the difficulty arises from some part contracting below while the upper part is dilating; in other words an irregular distribution of nerve impulse to the muscular tissue occurs, and you can gradually overcome that by the electric current. It matters not in that case whether it is the positive or negative pole. But when you have fibrous tissue to deal with, you have a pathologic barrier which is not spasmodic, but genuine and real to overcome, and there electrolytic action by means of a negative pole is essential. To my mind it is the only rational procedure we have. A surgical procedure leaves only another cicatricial band. By the cataphoric action of the electricity you increase the fluidity of the part and this fluidity distends the fibers in the cicatrix; then, by means of the alkalies which are drawn there by electrolytic action the tissues are dissolved. You are practically using an alkalin caustic. This is the same process that Dr. Newman has adopted for the removal of cicatricial bands in the urethra. It will serve the same purpose for the ophthalmologist who attempts to dilate a stricture of the nasal duct, and it will dissolve cicatricial bands in the neck of the uterus. I have used this method over and over again in esophageal stricture and frequently in urethral stricture. It is a physical process which can be demonstrated at any time upon living tissue in the lower animals.

There is one thing that was said by the author of that paper which causes me to doubt the efficacy of his method. He makes use of aluminum electrodes. Now aluminum is the only metal which is dissolved by the alkalies or by use as the negative pole, and his electrode is not only dissolved away in this manner, but there is a question as to whether he does not get an irritating effect from the sodium aluminate and the potassium aluminate which is formed at the point. That these substances are formed at the negative electrode during electrolytic action when aluminum is the material employed, I am quite satisfied from tests. I have had made for me some sodium and potassium aluminate in the pure state, with the view of testing its action on the tissues. It is very acrid to the taste, but I have not as yet investigated its action on living tissue to determine to what extent it is irritating. There is no question that certain substances are carried into the body by means of the negative electrode. There are those who hold that cataphoresis is carried on solely at the positive pole, but there is a cathodal diffusion as well. It is just as well to make use of steel electrodes as those of aluminum. Dr. Newman has taken up the interesting and perplexing subject of exophthalmic goitre. This one fact has come out from all recent methods of treatment advised for exophthalmic goitre, that galvanism is an indispensable element in the treatment. I have had occasion to look over the literature of exophthalmic goitre during the past eight or ten years pretty thoroughly, and during that period I do not think there is an author speaking of it or a writer writing concerning it, who does not put galvanism in a prominent place in the method of treatment; but it is amusing to see what a variety of methods they have employed for applying galvanism. Some make use of the negative pole over the thyroid, some the positive. Some treat the cervical sympathetic, putting one electrode underneath the ear and the other on the sternum, with a view to bring as much of the cervical sympathetic under the influence of the current as possible. Others adopt a transverse method. There is very little that can be inferred from this, as to what value or what particular effect it is that galvanism produces in this treatment. Every one has this idea as to the pathology of exophthalmic goitre, and I have had mine for a good many years. The notion of the pathology differs almost as much as the persons speaking of it, each one seeming to have a different conception. This only indicates to us how little we know about it as yet. I have now had twenty-three cases of exophthalmic goitre;

every one of these, although some of them seemed to be desperate at the outstart, are well to-day. The worst case I can recollect is that of a woman in Kansas who was bedridden and very extensively edematous. Her respirations were 40 to 45 per second and her pulse rate was 140. She was unable to bear a teaspoonful of any nourishment on her stomach. That woman is perfectly well. Others have not been so serious in their conditions, but some of them were certainly very low. Galvanism was in all of these a very prominent part of the treatment. I would not regard galvanism of itself as the only method to be employed; in fact, I regard it as absolutely essential to make use of accessory measures, such as cardiac stimulants and measures for promoting nutrition. My experience may not be different from others, because I think other measures of treatment of this malady are more successful than those of a few decades ago. I am presumptuous enough to regard this disease as always curable.

As to static electricity in exophthalmic goitre, I think its effects are good. It acts as a vasomotor stimulant and assists in that way. I was extremely interested in the paper read by Dr. Kellogg upon the physiologic effects of the sinusoidal current. In the treatment of that subject, Dr. Kellogg has made considerable progress toward accuracy in the use of electricity. D'Arsonville, some few years ago, made the statement that the physiologic action of electricity depended upon the "curve of excitation" produced by the instrument employed. We have in static electricity an alternating current of extreme rapidity. Billions of alternations take place in the course of a second during the passage of the spark. The current, however, is very minute in quantity. The electro-motive force of the current is enormous; it is sometimes millions of volts. The amount of electro-motive force required to cross six or seven inches of dry air would need to be enormous. The effect produced physiologically by such an electro-motive force, with a very small current, but a current which is rapidly alternating, must differ much from that of an induction coil which is alternating perhaps only two or three hundred times in a second, where the electro-motive force does not exceed 30 volts and where the current as compared with the static machine is greatly in excess. The static machine may have only .1 of a milliampère of current, where the induction coil may have 10 milliampères or more. All forms of electric apparatus differ in the character of the curve which is produced. D'Arsonville called that the "characteristic of excitation," and the "characteristic of excitation" has its relationship to physiologic action. Dr. Kellogg brought out this fact in regard to the action of the sinusoidal current. This, he says, has extreme penetrating power, so that its action upon the muscular system is very decided; in other words, that it does not act upon the sensory nerves to any extent, but it does act markedly upon the muscular tissues, and for that reason serves a great variety of purposes that no other current serves so well. I think the reason for this lies in its peculiar "characteristic of excitation." In other words, that the sensory nerve terminals do not respond to an alternation of that character while muscular tissue does. It is not probably due so much to the penetrating power, as to the character of response which a sensory nerve is capable of making. He finds, for instance, that this current will produce no sensation at the temple, whereas there will be sensations of light excited in the optic nerve or in the retina. Now we know there is a great deal of difference in sensitiveness between the retina and the skin, and the reason it excites the retina when it does not in any way cause sensation on the skin is not, in my opinion, due to the penetrating powers but to the fact that the nerve distribution in the skin differs in the manner in which it responds to external excitations from that which we find in the retina. The retina is capable of responding to light, which, as we all know, has billions of vibrations per second. I believe that in our investigations concerning electric action we will eventually have for one purpose one form of current, and for another purpose a different form, according as the tissues respond to one or the other. We all know that we can get such a rapid vibration and high voltage of current that it can be passed through the system without our knowing anything about it. In the atmosphere of Tesla's laboratory you have vibrations passing through you and at such voltage which, if slower and lower, would kill instantly, but being so rapid they have no appreciable influence on the economy. In our therapeutic applications of these various forms of electricity, we must eventually know what is the "characteristic of excitation" of every machine we make use of, and in that way we will get a scientific application of electricity that will have its physiologic and therapeutic counterpart, and I think toward that result we are rapidly tending.

DR. G. BETTON MASSEY, of Philadelphia—One point in Dr. Herdman's remarks I might take exception to, in regard to the excitation of the sense of vision by the sinusoidal current. Heretofore the sense of vision has been excited only by the galvanic current and not by the faradic. It has occurred to me that the reason why the sinusoidal current causes a response by the retina is on account of its larger amperage. I can not say what the amperage of this machine is; it is somewhat difficult to find out as it is an alternating current. It is well known that it is not a direct excitation that necessarily causes the sense of light, but a reflex one. That was a matter under considerable discussion some years ago, and I myself, in 1885, contributed to the American Neurological Association the report of a case of anesthesia in which the absence of the galvanic test was marked in an area of anesthesia about the size of a dollar over one eye; no matter how strong the galvanic current we could localize in that point, although within an inch and a half of the retina itself. Yet, anywhere outside of that area, galvanic currents with interruptions would produce both taste and sight. One of the uses of the sinusoidal current will be the power of giving rapid alternations of practically slight galvanic currents of such regularity and gradation as to cause muscular contraction without pain, since the variation is not quite acute enough or irregular enough to cause sensation.

DR. HUGH T. PATRICK, of Chicago—I would like to differ with Dr. Herdman when he says the galvanic current is an indispensable means of treatment in Graves' disease. I would like to make the point that in many different varieties of treatment of this disease, it improves and pursues a favorable course, although not generally to complete recovery. I happen to have seen in the last three or four years, about sixty cases of Graves' disease. These were seen under the care of various observers and were consequently under various methods of treatment; some of them purely hydrotherapeutic, some purely faradic, some purely galvanic, some purely dietetic, some purely rest treatment, and so on. I do not think that among all these cases I saw one which was treated for a length of time, sufficient to judge of the treatment, that did not improve. The only thing which I saw in common in the treatment was repose, rest and general hygienic measures. Now I beg leave to offer the opinion that the rest treatment and general treatment alone may give exceedingly favorable results in the treatment of this affection, equal to any that have been produced by the galvanic current; and I do not think that our enthusiasm for electrical treatment should carry us so far as to say that galvanism is indispensable in the treatment of Graves' disease.

DR. GEORGE J. PRESTON, of Baltimore—One little point concerning exophthalmic goitre, and that is the immense loss of electrical resistance. That was called to my attention some ten years ago by Vigarow, who was, I think, the first observer of the phenomenon, that in cases of this disease there was practically no electrical resistance. In the somewhat limited experience I have had in such cases, I have been able to confirm this, that the electrical resistance is practically *nil*. I have been quite at a loss for any satisfactory explanation of this point. I asked my friend, William J. Morton of New York, an authority on such matters, and he said that he thought it was due largely to excessive moisture of the skin. My own experience would not bear that out. There is evidently some special susceptibility to the negative current in these cases. It is a noteworthy fact that when the thyroid has been removed, surgically, the same loss of electrical resistance results, and this brings out a curious similarity between the removal of the thyroid surgically and exophthalmic goitre, which seems to bear some remote relation to the thyroid gland.

DR. G. B. MASSEY—Can the Doctor tell us what the resistance was in these cases? It is startling to hear that there is no resistance; even a copper wire has resistance.

DR. PRESTON—I did not expect to be taken literally when I said that the resistance was lost. I frequently measured the resistance and found it down as low as about 500 ohms and in one case as low as 300 ohms, using an electrode about 4 cm. in diameter. I used an electro-motive force of perhaps 20 to 30 milliampères. I used an ordinary Wait & Bartlett machine. Normal cases under like conditions would give a resistance of about 2,000 ohms.

DR. CHAS. G. HILL, of Baltimore—Speaking generally of electro-therapy, I wish to say that we have much to learn in that line, notwithstanding the rapid advancement recently made, as evidenced by the excellent scientific papers read before this Section. I recall many cases of the application of electricity for the reduction of the thyroid in exoph-

thalmic goitre, and some cases would melt away like magic while in others there was practically no effect. I have applied electricity in other lines, in surgery for instance, and sometimes with very good results. I recall one case of a small fibroid beneath the skin which would have caused no inconvenience except for the pressure upon it of the dress sleeve. The patient, a nervous woman, objected to the knife. I applied the constant current, not expecting much from it, and was very much surprised in two or three applications to find that the tumor disappeared entirely. There is another point which was not brought out to-day, and that is one of the peculiar effects of the electrical current in the production of ozone in the tissues. We never apply an electrical current, constant or faradic, that we do not develop in the tissues a certain amount of ozone, and probably it is through this agent that we often get the effects which are realized by the application of the current.

DR. THEODORE DILLER, of Pittsburg—Regarding the lessened resistance in Graves' disease, it seems to me that the explanation offered is a rather reasonable one. The increased moisture of the skin, together with the capillary dilatation would seem to me to be sufficient to account for the phenomenon. This opens up another thought, which is, that this lessened resistance being so constantly present in Graves' disease may be useful as a diagnostic feature. For instance, I have on two occasions seen cases of tachycardia. Very often this increased heart's action is the first symptom of Graves' disease, and I quite agree with Dr. Herdman that it is the most constant symptom. In cases of tachycardia, therefore, it would be well to measure the resistance, and it might lead to important indications. I would like also to record my experience with the constant current in Graves' disease. It has been exceptionally unsatisfactory. I have never seen it do much good. Only recently, after a six weeks' course of treatment, the patient coming to my office, there was no good result whatever. The patient was then put upon some medication, and three or four weeks later was sent to a hospital and remained in bed for six weeks without medicine of any kind. Under the rest treatment there was marked improvement. I believe that of all forms of treatment known to me that rest is the most efficacious. I would like to ask these gentlemen who have recorded observations, in what condition the patients were who were receiving galvanism; whether they were in bed or going about.

DR. HUGH T. PATRICK—I am sorry that my personal experience can not contribute to our knowledge of the decrease in resistance to the electrical current. In most of the cases in which it was tested, there was undoubted diminution. The explanations which are thus far produced hold good for some but not for all of the cases. Regarding the conditions of the patients I saw treated, most of them were able to be about, but some of them were in bed. The worst case I saw was that of a woman whom I observed almost constantly during the better part of a year. She was better and worse, better and worse under galvanic treatment, and finally she was decidedly worse. She was then put into a hospital and was there so bad that she could not turn over in bed. She had hallucinations, her chest expansion was about three-fourths of an inch and her pulse at times could not be felt at the wrist. We all expected her death. She went home, however, and within six weeks after leaving the hospital had gained almost fifty pounds in weight under practically no treatment at all but rest at home, whereas before she had grown worse at home under galvanic treatment.

OBSERVATIONS ON SOME CHARACTERISTICS AND RELATIONS OF THE DYNAMIC AND STATIC FORMS OF ELECTRICITY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. D. ROCKWELL, M.D.

NEW YORK.

The more thoroughly one studies electro-therapeutics in all its relations, medical and surgical, the clearer it becomes that the real scientific basis for the use of electricity in medicine and surgery is found in electro-physics more than in electro-physiology; and therefore in studying the therapeutic characteristics of electricity, and the relations of its various

forms to each other, we can not be too well grounded in the laws of electro-physics.

One of the most perplexing questions to the tyro in electro-therapeutics relates to the differential indications for its use, but if one is well equipped with a knowledge of physics, with a well directed clinical experience, the various special problems that arise in practice, whether of a theoretical or a practical character, very quickly resolve themselves. Often in discussing the subject with members of the profession more or less interested in electro-therapeutics, I have noticed a manifest tendency to use one form to the exclusion of the others, and an especial tendency to discard the faradic current, in favor either of the galvanic or static electricity.

The contention is, on the one hand, that its quantity is so small as compared with the current direct from the cells, that to mechanical influences alone must be attributed whatever beneficial effects follow its use; and, on the other, that its nutritional effects are inferior to the static form of electricity because of the tremendous electro-motive force or voltage of the latter. Broadly speaking, seeing that static electricity is all voltage with little amperage or quantity, and that the galvanic current is all amperage with little voltage—while the faradic current occupies a position between the two—there are in these conclusions a manifest contradiction. The truth is that each has, in some respects, a special field of its own, and no one of the manifestations of electricity can be dispensed with, if one expects to get all the results that it is capable of giving. In regard to the faradic current therefore, it has been urged that other mechanical methods—massage, tapping, and contrivances for producing rapid vibratory movements are equally serviceable. Those, however, who hold these views have but a very incorrect appreciation of the true action of the faradic current, and have certainly fallen far short of completeness in their practical experience with it.

Many years ago, when I first began to use electricity in practice, my efforts were of necessity confined to the faradic current. Galvanic apparatus was not obtainable, and whenever it was desired to use the galvanic current one had to resort to the inconvenient and ill-smelling voltaic pile. This necessity was not altogether without its advantages, however, since it, for the time being, relieved me of the somewhat perplexing problem of current differentiation and enabled me to give undivided attention to the faradic current. One of the most common observations as to the effects of a thorough general application was a relief of muscular tire after prolonged activity, and an increase in the flexibility of limbs that had become sore and stiff after the rest following excessive and unaccustomed muscular exertion. One does not have to search far for a rational explanation of these well-known effects of electricity, although at the time a general want of appreciation of the physical characteristics of the current gave to most of the explanations offered a fanciful rather than a scientific and practical basis.

Mechanical influences were undoubtedly predominant, not, however, as manifested by vigorous muscular contraction, but through molecular agitation, sufficient to give passive exercise to both the superficial and the deeper lying tissue. In these cases we get, associated with cell exhaustion, a condition of circulatory sluggishness with a deposit of the toxic

products of metabolism, conditions which are well adapted to appreciate the corrective and exhilarating effects of molecular agitation.

It is on the selfsame principle that the faradic current is now applied with such admirable results in chronic congestions and indurations of the uterus and affords such instantaneous relief in some of the simple non-mechanical varieties of dysmenorrhea. The blood-flow in the over-congested organ is accelerated. A sort of circulatory drainage is established and a healthy local action more quickly and effectually brought about than by any known method. If, therefore, we obtain from the faradic current effects that were simply mechanical and nothing more, we would still find it a very good thing to aid us in our therapeutic efforts. We do not get from it, to be sure, any marked chemic or endosmotic or exosmotic effects, but we do get physiologic effects of the most pronounced character; and as the physiologic effects of electricity take place in living tissue alone, while all other effects are observed in the dead as well as in the living—in inorganic as well as organic substances—these physiologic effects are of chief concern to us as physicians in the consideration of the nutritional effects of electricity. We find, then, that this current accelerates the circulation, influences the secretory and excretory processes of the body and hastens absorption. To what extent these physiologic effects are of mechanical origin no one, I am sure, is yet quite prepared to say, but the results which follow this method of treatment render it reasonably certain that we get upon the nerve structure itself, together with medical effects, influences of an entirely different character.

The claims made as to the advances in electrotherapeutics during the past few years are large, perhaps too large, but yet in some directions—especially in the realm of gynecology—much has been accomplished. Interstitial electrolysis, as suggested by Gautier, is a method of considerable interest, and although it may not fulfill the expectations of its author, yet some promising results have been reported and more may be hoped for. By this method the chemic action of the positive pole is utilized, not only for its effects upon the tissue itself, but upon the metal electrodes, mainly copper or zinc, that are applied directly to, or inserted into, the diseased part. In this way, new salts are formed and deposited in the tissues, oxychlorid of zinc when zinc, and oxychlorid of copper, when copper electrodes are used. It is the cataphoric property of the current, however, which carries or forces these salts, the product of electrolytic action, through the surrounding tissues to a greater or less depth according to the strength of current and treatment. The technique of this treatment can not be entered into here, further than to say that the positive pole is always the active pole and that the necessary current strength is from 20 to 40 milliamperes. The best results seem to have been obtained in diseases of the endometrium, although the method is applicable to various other diseases of the uterus and appendages.

Another advance in the utilization of the galvanic current is by what may be termed the depolarizing method. In 1892 I described the depolarizing electrode, with experimental observations, and in 1893 some suggestive clinical results following the use of the method in various forms of disease. Briefly stated, the idea is to altogether eliminate either one

or the other pole, according to the indications for treatment. By using an electrode with resistance in ohms equal to or greater than the resistance offered by that portion of the body between the electrodes, the neutral point is thrown outside the body, which may at will be brought under the influence alone of either the negative or positive pole.

It would not have occurred to me to consider the possibility of any special therapeutic effect being associated with this simple and well-known fact of electro-physics, had I not been led to make some experiments that revealed a number of exceedingly interesting and suggestive phenomena—and quite new so far as I can find out—in the realms of electro-physiologic experimentation.

If two needles connected with either pole of a galvanic battery are thrust into a piece of raw beef and a current of sufficient strength allowed to pass for a few minutes, litmus paper applied at the point of entrance of the positive pole shows the regulation acid reaction and at the negative pole an alkalin reaction. If now we intercalate on the negative side a properly constructed electrode, having a resistance sufficient to throw the neutral point outside the body, a very different condition of things is seen. At the positive pole the same strong acid reaction is obtained, but under the negative pole there is little if any observable reaction. On testing the liquid, however, inside the electrode, the seat of the neutral point, the alkalin reaction is obtained, the same as at the point of contact on the body when the ordinary electrode was used.

The most interesting experiments, however, were those made on the legs of a frog, which, as is well known, retain their irritability to stimuli for a long time after death. If, after decapitation, the hind legs of a frog are subjected to the influence of either the positive or negative pole by the use of ordinary electrodes, the changes in irritability are imperceptible. If, however, they are subjected to the influence of the positive pole alone, the action of the negative pole being eliminated in the usual manner, the muscles of the thigh will exhibit very decided diminished irritability. If, on the other hand, the action of the positive pole is eliminated, and the limb is subjected to the action of the negative pole, we get the characteristic phenomenon of cataelectrotonos or increased irritability, and the muscles readily respond to currents much weaker than when they are in their normal condition.

These phenomena and various others are all readily verifiable, and for a more detailed account I refer to former articles.¹

Utilizing the suggestions offered by these interesting physiologic observations, I have not unfrequently found it possible to favorably modify and even permanently relieve various conditions that formerly were not relieved by the ordinary methods of application. So far as the faradic current is concerned, the great utility of currents of high tension when applied through low resistance in the human body and especially by the bipolar method can not be overestimated. As an analgesic in uterine and abdominal pain, when passed through the low resistance of the mucous membrane, these induced currents of tension are of the greatest value, but so far as outward applications of the faradic current are concerned, I doubt whether we have made much practical ad-

¹ New York Medical Record, May 14, 1892 and May 6, 1893.

vancement, either in the methods of application or in the efficiency of apparatus; and in saying this, I do not forget the alternating sinussoidal currents introduced into electro-therapy by D'Arsonval, the essential nature of which is that it has a uniform rise and fall of potential from zero to the maximum and back again in both directions. For this current it is asserted that it possesses greater penetrating power than the ordinary faradic current, and that less pain attends the vigorous muscular contractions that it produces. In comparing the effects of this and other modes of electrization, D'Arsonval says: 1, that the continuous current does not show any immediate influence on nutrition; 2, Franklinization increases respiratory combustion, but in a less manner than sinussoidal currents; 3, ordinary faradization with a very feeble non-sinussoidal alternating current can increase respiratory combustion without pain, but with a strong non-sinussoidal current produces a fatal electrical tetanus.

My own experience, however, teaches me that, for most practical purposes, the old continuous coil with its 2,000 feet of wire and its perfect rheotome attachment, yields a current the essential character of which, as an aid to nutrition and for general tonic effect when applied externally, has not yet been surpassed. It has always seemed to me that the most important thing in electricity in medicine, the fundamental idea upon which all its therapeutics is based, is its nutritional power. It is this idea, which, in connection with Dr. Beard, I enunciated many years ago, and upon which I have based almost everything I have said or written upon the subject since. As to which of the various manifestations of electricity possesses the greatest efficiency in this direction, ideas will differ according to the extent and character of one's experience. Static electricity is undoubtedly a most valuable addition to our armamentarium. I could not afford to do without it. No one who expects to meet the demands of all the varying idiosyncrasies of the nervous system can afford to be deficient in the completeness of his electrical outfit. And yet the introduction and popularization of static electricity is responsible for a vast amount of unscientific and inefficient work in electro-therapy among those who confine their efforts to this form of electricity, with little knowledge of the subject in its entirety. With a magnificent static apparatus in all its pyrotechnic glory, set in motion and readily controlled by an electric motor, the treatment of a patient becomes the simplest and easiest thing in the world, both for physician and patient, and I should be glad to assure myself that it is the most efficient method of securing the tonic and nutritional effects of electricity. But after years of observation and comparative trial, I regret that I can not come to this conclusion. I regret it, because it has the great advantage of ease and simplicity of application over the general use of the faradic and galvanic currents. For other reasons, however, it is not to be regretted. It would indeed be a misfortune if in order to obtain satisfactory nutritional effects from electricity, the costly static apparatus which few can possess was an absolute necessity. Static electricity must ever be considered as an adjunct, merely, to the dynamic form of electricity, and this truth will always be taught by those who combine both an honest purpose and a thorough experimental knowledge of the subject.

IMPURE MILK IN RELATION TO INFANTILE MORTALITY.

Read before the Medical Society of the District of Columbia Nov. 13, 1895.

BY GEORGE M. KOBER, M.D.

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Last winter I had the pleasure of assisting our respected President in the collection of evidence on milk infections; the task proved so profitable that, by his encouragement, the investigation was extended in other directions and I present to you the results in one of these fields.

According to Oesterlein's statistics, it is safe to assert that the average death rate during the first year of life is 188 out of 1000 infants born. In England the average is 141.8; in France 223.2; in Italy 273.3. (Farr). These are mean rates for rural and urban districts. In towns and cities the mortality is always higher, amounting to 33.6 per cent., as compared with a rural mortality of 27.8 per cent. In some of the large cities the infantile mortality is simply frightful, having reached as high as:

480	per 1,000	at Chemnitz,
360	"	" " St. Olave,
320	"	" " Glauchau,
290	"	" " Paris,
277	"	" " New York,
276	"	" " Brooklyn,
268	"	" " Baltimore,
261	"	" " Boston,
256	"	" " Washington,
250	"	" " Liverpool,
230	"	" " Philadelphia.

The still-births are excluded in the American statistics. From these figures it appears, that, in many cities, out of every 100 children born alive, over one-fourth perish before the completion of the first year, but fortunately for the perpetuation of the human race, the average infant mortality all over the world is only about one-sixth of those born.

Of the twelve months during the first year of life, the first month furnishes the highest mortality, followed by the second, third and fourth month, next, by the twelfth month; this jump from the fourth to the twelfth month is quite suggestive, as it is the usual period of weaning with its attending danger from digestive diseases incident to artificial feeding; next to the twelfth month comes the fifth, sixth, seventh, eighth, ninth, tenth and eleventh months. During the second and subsequent years the mortality gradually decreases, and of children between the age of 1 and 5 years, there die annually 37 out of 1000; a loss of 188 during the first year, with 148 during the next four years, making a total loss of 336 out of every 1000 children born.

The mortality is greatly influenced by climate and seasons, as shown by a higher rate in the polar and equatorial regions with extremes of heat and cold. Generally speaking, the mortality is higher during the cold months than during the moderate months, on account of the greater prevalence of diseases of the respiratory organs, but the hot months like June, July and August are the most dangerous, at least, in this country and Europe, on account of the disastrous attacks of gastro-enteric diseases. The fatal influence of heat and cold upon infantile mortality is well illustrated by the tables published in Dr. Busey's essay on the "Mortality of Young Children," and while they apply to the city of Baltimore, because the essay was written at the request of the

trustees of the Thomas Wilson Sanitarium for Children of that city, they are no less true of other large manufacturing cities.

It would lead me too far to consider the various meteorologic conditions which influence the mortality rates as shown in these tables; but we should at least bear in mind, that sudden changes in temperature are especially liable to offend the peripheral nerves and thus cause an irritation, which is transmitted by reflex action to other parts of the body, where it may induce congestions, especially in the respiratory and digestive tracts. During the heated term the blood too, owing to an excessive function of the skin, is deprived of some of its constituents; it is taken away too much and too long from the internal organs; the proper distribution of the blood supply is interfered with; in consequence the tone of the stomach, heart, brain and other tissues is lowered, appetite and digestion suffer, the red corpuscles are decreased and not only infants, but adults experience languor and general debility; but apart, from this, and more intimately connected with the subject, remains the fact that heat not only tends to diminish the power of resistance of every cell to disease, but also favors the development of germ life in the milk.

This excessive infantile mortality has always been considered the opprobrium of the healing art. Dickson asked in vain: "How shall we prevent the early extinction of half the new-born children of men?" West truthfully asserts: "At least a third of all your patients will be children, and so serious are their diseases that one child in five dies within a year after birth and one in three before the completion of the fifth year;" and Swayne pathetically exclaims: "May it fall to the lot of some reader ere long to solve this startling problem."

While powerless to solve the mysteries connected with this subject, many of which are doubtless connected with the mortality laws in general, an attempt will be made to answer the practical question, Can they be reduced? I can not enter into details of infant hygiene, but must at least point out the fact that the mortality can be greatly reduced by improving the original stock, *i. e.*, the physique and habits of the parents, and placing them as well as their offspring under more suitable environments, especially with reference to fresh air, sunlight, exercise, suitable clothing and habitations and, last, but not least, proper food. The influence of favorable hygienic conditions is demonstrated by Casper's statistics published in 1825, showing that the mortality rate among royal children was only 57 per 1,000, as compared with 345 per 1,000 among the infants of the poor. Clay calculates that of every 100 children born in England, 90 will be alive of those born in aristocratic families, 79 in the mercantile class and 68 among the laboring classes. The difference in the mortality of legitimate and illegitimate children is very great, and varies according to Uffelmann as follows:

	Legitimate children	Illegitimate children
In France, mortality of	15 per cent.	30 per cent.
" Austria, " "	22.9 " "	35.1 " "
" Sweden, " "	13.0 " "	24.8 " "
" England, " "	14.0 " "	35.0 " "

But the most frightful mortality rates are everywhere furnished by the hand or bottle-fed children, amounting in Berlin 40 to 47 per cent., in Hamburg 29.4 per cent., and in Paris, according to Monat, it

has reached as 70 to 75 per cent. Professor Kehrer informs us that of 8,329 infants six months of age and under, that died in Munich between 1868-1870, 1,231, or nearly 15 per cent., had been suckled from the breast, and 7,098, or over 85 per cent., had been hand or bottle-fed.

If we stop to inquire into the immediate cause of the excessive infantile mortality during the first twelve months, we find that about 40 per cent. perish from diseases of the digestive system, about 21 per cent. die from affections of the respiratory organs; next in frequency are the infectious diseases like diphtheria, scarlet fever, measles, whooping cough, mumps, scrofulosis and tubercular affections, rickets, etc. The extreme incident of a mortality of 40 per cent. from gastro-enteric disorders and the mortality of 2.5 per 1,000 from primary tubercular diseases of the abdominal lymphatics, can not fail to force themselves on our attention, and certainly points with more than mere suspicion to the fact that the morbid agent in these cases is introduced into the body with the food.

Notwithstanding these startling arguments against artificial feeding, the facts are that there will always be a large percentage of infants deprived of their natural food, and the question therefore confronts us, What is the best possible substitute for human milk, the requirements of which are:

1. That it must offer the same character and amount of nutritive elements, and in the same proportion as human milk.

2. The nutritive elements must be present in the same assimilable form, of the same consistency, and should be introduced into the stomach at a temperature not less than 98 degrees F. by means of suction and at proper intervals.

3. This substitute must not contain any morbid or infective agent, whether originally present or introduced during the preparation or keeping of the same. A moment's reflection upon the physiology of infantile digestion will at once suggest the propriety of rejecting all farinaceous foods before the expiration of the tenth month, except in very limited quantities, and previously converted into maltose by boiling as in barley water, but as milk is the natural food of all mammalia, few will be disposed to doubt that some modification of cow's milk offers the best possible substitute.

Comparison of cows' milk and human milk: the average composition of

	Albuminoids.	Fat.	Sugar.	Salts.
Cows' milk is	3.76	3.75	4.42	0.68
Human milk	2.00	4.13	7.00	0.20

Human milk contains, therefore, less albuminoids and salts and more sugars and fats; there is also a decided difference in the quality of the casein of the two secretions. The addition of dilute acid to cow's milk precipitates the casein in hard coagula or lumps, while in human milk it separates into a fine powder giving the appearance of light flocculent curds, which readily dissolve in an excess of acid. Since the coagulum in the same quantity of human milk is but one-fifth as large as that of cow's milk, this difference, which is solely one of compactness and solubility, can not fail to influence the digestibility of the two secretions, and explains at once why even moderate quantities of undiluted cow's milk are liable to overtax the digestive apparatus of the infant. (Leeds, Starr, etc.) In addition to this, and perhaps greater in importance, is the fact that human milk

from a healthy subject rarely contains any micro-organisms, while cow's milk is never free from bacteria and may moreover be the vehicle of infectious germs and other morbid agents. Apart from the fact that unscrupulous dealers not infrequently lower the nutritive value by skimming or watering the milk, Dr. Busey and myself in a joint contribution have elsewhere pointed out how the quality of the milk may be impaired by improper food and care of the animals, and how the milk may produce mischief if derived from animals while being treated with strong remedial agents, or as the product of diseased animals, especially those suffering from inflammatory lesions of the udder, tuberculosis and other communicable diseases. We have collected 138 epidemics of typhoid fever, 74 of scarlet fever and 28 of diphtheria, which have been caused by infected milk, and indicated the various ways by which it is possible for disease germs to be carried in this way. Permit me to direct your attention to a very common milk fault, which may be considered a source of constant danger in infant feeding and perhaps the most important factor in swelling the mortality rates of our helpless babes.

Every consumer of milk has doubtless observed the presence of more or less foreign matter found at the bottom of the vessel or bottle in which it is kept—indeed it is a matter of such common occurrence that it hardly excites our attention. Professor Soxhlet was perhaps the first to point out that these deposits are largely made up of excrementitious matter from the cow which, adhering to the udder of the animal, gained access to the bucket in the act of milking. Professor Renk, of Halle, brought this subject to the attention of the Section of Hygiene at the International Medical Congress in 1890, and few of his audience are likely to forget the valuable object lesson presented by him, consisting of filtrates of milk samples from different German cities, each representing the amount of filth contained in a liter of milk, and furnished at once a positive index of the degree of cleanliness observed at the various milk farms. The average weight dried at a temperature of 212 degrees F., of these sediments was 3.8 mgrs. at Leipzig, 9.0 mgrs. at Munich, 10.3 mgrs. at Berlin, and 12.2 mgrs. at Halle. These filtrates were so disgusting in appearance that we were not disposed to accept them as a standard for American milk, and with the courteous consent of the Health Officer, Dr. Woodward, Professor Hurd prepared filters from twenty-four specimens of Washington milk, taken at random, with the result that they presented even a greater amount of impurities, weighing all the way from 5 to 30 mgrs. per pint or quart, and as fecal matter contains about 85 per cent. of moisture, the weight of undried filth in the maximum specimen would have been about 180 mgrs. per quart.

Now it is not at all likely that the average American housewife would permit any one to throw this amount of filth into her milk pitcher and yet, practically, we suffer it to be done, and there is no law to prevent it. If these sediments are subjected to microscopic examination, we will find, as shown in the micro-photographs, prepared through the kindness of Dr. Reed by Dr. Gray, of the Army Medical Museum, that they are composed of epithelial debris, hairs of the cow, excrementitious matter, vegetable cells and fibers, organic and inorganic dust particles, bacteria, fungi and spores of every description; fully

90 per cent. of the bacteria found in such specimens are fecal bacilli, all of which is not only disgusting but extremely suggestive of danger. We know that the number of microorganisms in such milk is largely increased and bacterial development and consequent decomposition is materially hastened in such a medium. Dr. Plant, of Leipzig, found, as a rule, that in warm weather the so-called fresh milk delivered in the morning has already passed the period of incubation and is unfit for use by young children on account of the germ development, and of forty-seven infants whose milk supply was carefully investigated by him, eighteen developed digestive disorders and six died.

The greatest danger from milk of this class is the possible presence of tyrotoxicon and other bacterial products. Professor Vaughan believes that the former poison is developed by the growth of a germ which, under favorable conditions, multiplies very rapidly. The presence of the very filth referred to, a summer heat, and the pernicious habit of placing the milk before cooling in covered cans or bottles, perhaps dirty beside, constitute favorable environments for the production of bacterial toxins. The relation of this poison and of milk bacteria to cholera infantum and the summer diarrheas in bottle-fed children is gaining ground and will doubtless result in a great reform of our milk establishments.

Cow's milk, no matter how great the care exercised in milking, contains the germs which bring about fermentation and decomposition. These bacteria of different species abound in the atmosphere whenever the temperature is above 60 degrees F., cling to the udder and teats and even invade the lacteal ducts and finding there an excellent culture tube, multiply with great rapidity. Dr. Schultz has shown that the first half gill or so of milk obtained from the cow may contain 1,360,000 germs per cubic inch, while the milk drawn later is free from bacteria, hence we may safely conclude that the bulk of these organisms get into the milk from external sources, such as the air and dust of the stable, the hands and clothing of the milker, the hair or udder of the cow, the hay and straw, and last, but not least, the water, in which the milk vessels are washed, and with which the milk is not infrequently diluted.

Sedgwick and Batchelder have shown that with special precautions on the part of the milkman, the number of bacteria in fresh milk may not exceed 500 to 1000 per c.c., but when he uses the ordinary flaring milk pail, with more or less rough disturbance of the bedding and shaking of the udder, as many as 30,500 have been counted in 1 c.c. When we recall the fact that these germs during the heated term multiply with alarming rapidity, so that the average sample of Boston milk contains as many as 2,300,000 bacteria per teaspoonful, many of which are capable of evolving poisons, we can readily appreciate how the injection of such milk may give rise to the so-called summer diarrheas of infants and swell their mortality.

It has been proved, bacteriologically, that milk is not only a favorable culture medium for many saprophytic germs, but also for the germs of typhoid fever, erysipelas, tuberculosis, glanders, diphtheria, pneumonia streptococci and other pyogenic organisms, and this fact alone points at once to the necessity of a rigid control of our milk supply.

A review of the evidence on milk contamination.

both in this country and Europe, shows that the laws which have been enacted to protect the public, deal largely with the prevention of milk sophistication, and even in this respect have fallen short of their aim. Indeed, it is doubtful whether legislation in matters of this kind is as effective as public education. The importance of a pure milk supply was recognized as early as 1878 in connection with some of the milk-cure institutes in Germany. The system then originated has been improved by time and experience, and lately introduced into Boston, New York and Philadelphia, and appears to offer, by trade competition, the best solution of an important problem; those of you who are familiar with the surroundings of our milk farms and the habits of the average dairy employes need no arguments for the necessity of sanitary reform. No family ever thinks of employing or keeping a cook afflicted with a communicable disease, and yet not the slightest restriction is placed, or question asked, about the persons who handle our milk supply, which is notoriously one of the most sensitive and susceptible articles of food to contaminating influences, but the absolute necessity of such milk laboratories are based upon the following facts:

1. It has been demonstrated that milk may be morbid by reason of an abnormal number of ordinary milk-bacteria and the presence of saprophytic germs capable of producing toxins, such as tyrotoxin, resulting in cholera infantum and other gastro-enteric diseases.

2. Milk may be rendered unfit for use by reason of improper food and care of the animal, or while the animal is being treated with arsenic, copper, iodine, lead, mercury, tartar emetic, aloes, atropia, colchicum, croton oil, senna, strychnin, salicylic acid, turpentine, veratrum viridis and other remedial agents.

3. Milk itself may be morbid as the product of a diseased animal. Dr. Busey and myself have elsewhere pointed out that inflammatory conditions of the udder and teats, especially the condition known as garget, are doubtless responsible for a large number of cases of pseudo-membranous diphtheria and other septic infections. The milk of animals suffering from acute specific enteritis, puerperal and other septic fevers, foot-and-mouth disease, cowpox, anthrax, pleuro-pneumonia, rabies and tetanus has also been known to prove injurious to the consumer.

4. It has been proved by Ernst, of Harvard, that three out of twenty-five samples of Boston milk transmitted the germs of tuberculosis in the animals experimented upon, and Dr. Fries found that the ordinary market milk of Copenhagen proved infectious in six out of twenty-eight rabbits, showing a corresponding degree of danger to delicate infants, and of which Dr. Busey and myself have collected a large amount of clinical evidence.

5. Milk may acquire infective properties after it leaves the udder of the animal, in support of which Dr. Busey and the speaker have tabulated 138 epidemics of typhoid fever, 74 of scarlet fever and 28 of diphtheria, the analysis of which showed that the poison may reach the milk by soakage of the germs into the well water with which the utensils are washed, or by the intentional dilution with infected water; that the infection can be conveyed by animals wading in sewage polluted water, or by the dairy employes acting as nurses, or suffering themselves from some mild infection while continuing their usual duties, or are convalescents from the dis-

ease; that infection has taken place through the agency of scrubbing brushes, flies and other insects, exposure of the milk in sick rooms, or washing the patients with the same cloth used in wiping the dairy utensils. Surely this is sufficient evidence, enough to show that something should be done to protect the public; and I believe this can best be accomplished by encouraging the establishment of milk depots, like the Walker-Gordon Laboratory of Boston, and of which Dr. T. M. Rotch, of Boston, and Dr. R. T. Taylor speak so approvingly.

"The farm and herd are under the absolute control of the laboratory and are used for laboratory purposes only; the cows, their food, their stables, their pasture and their drinking water are subjected to the frequent, paid, critical examination of the best veterinary surgeon that can be procured in Boston. The dairymen dress in white suits before milking, having each previously had a bath. The milk pails are of glass, and the milk, after being aerated and cooled to about 44 degrees F. in a tank of ice and water, is delivered at the laboratory in Boston within four hours after the milking. The average and almost stable analysis of this original milk shows a percentage of:

Fat	3.90
Milk sugar	4.30
Proteids	4.00
Salts	0.65
Total solids	12.85
Total liquids	87.15

"At the laboratory a ventilating engine keeps up a constant change of air and a hose keeps the enameled brick walls and stone floors wet to prevent contamination of the milk from dust, while it is being modified.

"The whole milk, after being pasteurized, passes through a Stockholm separator, which makes 6,800 revolutions a minute and yields a cream of an almost constant 16 per cent. fat. It not only does this, but it removes all dirt that, from unavoidable causes, has gained access to the milk, thus yielding a clean skimmed milk practically free from fat, only 0.13 per cent. remaining.

"The modifier has, as a result, stable component parts of the original milk to work with, made up by analysis as follows:

	Fat.	Sugar.	Protoids.
Cream giving	16.00	4.00	3.60
Skimmed milk giving	0.13	4.40	4.00

"In addition to this, the modifier has a 20 per cent. solution of sugar of milk, freshly prepared with distilled water each day, and is therefore able to put up correctly a prescription which calls for certain percentages of fat, sugar and the albuminoids. After copying the formula or prescription in a book kept for that purpose, the "modifier" picks up a basket with as many compartments as meals are ordered, and fills each compartment with a tubular bottle holding the number of ounces ordered for each feeding. After mixing the ingredients *en masse*, as ordered, each bottle is filled and the basket passed to the stopper, who plugs it with cotton. The whole is then pasteurized for half an hour, and after proper labeling the basket is ready for delivery. The delivery wagon is divided into two compartments; the back which is lined with zinc and easily cleaned is for the fresh milk and baskets, and the front for soiled tubes, baskets, etc., which are sterilized at the laboratory

before being taken into the modifying room." (R. F. Taylor).

For a long time it was assumed that the composition of human milk varied with the age of the child, but Professor Leeds' long series of analyses show that after the function of lactation is once fairly established, the composition of woman's milk remains practically the same; and while the child receives more nutriment, day by day, it is in consequence of larger doses, rather than of a stronger quality. This is quite in harmony with reason and common sense.

Now if we wish to order a humanized milk as prepared at these laboratories, say for a child one month old, we would order the following mixture:

Cream	f3vi	180
Milk sugar solut. 20 per cent.	3vi	180
Skimmed milk	3ivss	135
Lime water, 1-20.	f3i	30
Distilled water	f3vi	180

This is divided into twelve feedings, 2 ounces each. As the infant grows older, the intervals are lengthened and the doses increased. A child from two to five months old should receive eight feedings of 4 ounces each, and a strong child from five to eight months old, may receive from 6 to 7 ounces at each of the eight feedings, according to the indications which are best studied by the weight chart. Professor Rotch uses lime water for the purpose of partially neutralizing the acidity of the gastric juice, in consequence of which the casein coagulates more slowly and the formation of firm undigestible curds is thus prevented. Professor Leeds, instead of lime water, strongly recommends the addition of peptogenic milk-powder, which is a preparation of pancreatic lactose and alkan milk salts, originated by Fairchild Brothers & Foster of New York.

There is nothing strained in the requirement of an ideal milk supply, as good and sufficient reasons have been given, and by means of which we may hope to obtain such a standard of milk as will not only effect a decided reduction in infantile mortality, but will render the dissemination of infectious diseases through the milk supply a matter of history only. Apart from these advantages the proper way to manufacture condensed milk suitable for infant feeding is to modify the milk before evaporation, a plan which, as far as I know, has not been attempted and is urgently called for.

In the meantime, it will be well to educate the public in the matter of milk sediments, which can readily be seen at the bottom of the bottle after a few hours standing. If we tell our dairyman the source of this pollution and how it can be prevented, something will be accomplished. No milk supply is absolutely safe without pasteurization; and for infant feeding, until we can do better, I advise the following combination recommended by Professor Leeds:

Milk	$\frac{1}{2}$ pint	240
Water	$\frac{1}{2}$ pint	240
Cream	2 ounces.	60

Peptogenic milk powder one large measure. This mixture should be placed on a hot range or gas stove and with constant stirring slowly heated for ten minutes to bring it to the boiling point; it is then removed and quickly cooled, and should be kept on ice and again pasteurized before feeding. While milk thus prepared can never take the place of breast-milk from a healthy mother, it is very near in all respects to human milk and is perfectly sterile, as far as the ordinary disease germs are concerned.

Prevention of disease is perhaps the central idea and object of sanitarians, but as hygiene also deals with the art of improving health, the question of a pure milk supply is not only important in the feeding of infants, but also the sick and invalids, and I trust, therefore, one of general interest to the profession.

A CONTRIBUTION TO THE STUDY OF ATRESIA OF THE UTERINE CANAL AFTER THE MENOPAUSE, WITH A REPORT OF THREE CASES.

Read before the Medical Society of the District of Columbia, June 12, 1895.

BY HENRY L. E. JOHNSON, M.D.

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Some years ago, when I was learning my first lessons in clinical gynecologic practice in a hospital devoted especially to that department of medicine, I had the good fortune to see and make the diagnosis of atresia of the vagina with retention of menses in a young woman, and later on, a case of atresia of the cervix uteri in an old lady who had passed the climacteric period several years. In the first case, operation was had, which resulted in cure. The second case presented many symptoms, some local, but particularly manifested in the nervous system. She was treated by medicines only and was not accorded an operation, and because no improvement followed was discharged from the hospital as a malingerer. After several years of invalidism she died of some "obscure disease."

I was taught that operation in such cases was contra-indicated, because menstruation had ceased, fluid accumulation being impossible, and surgical interference was attended with much danger and a high mortality. I will ask the society to bear with me while I give the history of some cases in which atresia of the cervical canal existed and for the relief of which operative interference was instituted with good results. The bibliography on the subject is also presented for your consideration, and you will see that the subject has not received the attention which it deserves when you learn the number and standing of the writers who make no mention of the condition.

HISTORY OF CASES.

Case 1.—On March 21 of the present year, I was consulted in my clinic at the Central Dispensary and Emergency Hospital by Mrs. L., age 54 years, white, married, one child, no miscarriages. She was born January, 1840, enjoyed good health until 1866, though always thin and never very strong. Family history excellent. First menstruated during the thirteenth year, that function being normal in every particular. Married in 1863, and in due time was delivered of a healthy child. Labor and puerperium normal. Shortly after death of child, three years later, she first complained of "womb trouble" and consulted a number of physicians with more or less relief but was never entirely cured. Menses ceased in 1886, since which time she has never been well. In July, 1887, after investigation and consultation she was committed to the United States Hospital for the Insane, and there treated for acute melancholia with hallucinations of persecution. She was shortly discharged, relieved but not cured. At that time she was very fleshy and bloated, notwithstanding the fact that she frequently refused her food. One year later she returned voluntarily to the hospital seeking admission in order to escape imaginary persecutors. She was not re-admitted because of lack of authority. She was at that time very thin and anemic. Since the cessation of the menses she has complained almost constantly of

backache, pain in lower abdominal region, bearing down, frequent and painful urination, constant leucorrhœa with irritation and excoriation of external genitals. Loss of appetite, coated tongue, indigestion, nausea, vomiting, meteorism and constipation, palpitation of heart, irregular pulse and vertigo. Occasional fever, chills, and sweatings, nervousness, insomnia, prostration, loss of flesh, alteration in functions of special senses (sight and hearing), slowness of speech and mental operations. Numbness, trembling and twitching in limbs. Hysteria, hallucinations of impending danger and persecution and of sight and hearing.

Examination: very fat, color bad, pale and sallow; tongue coated and trembling, hands trembling, pulse rapid. Is very nervous. Abdomen enlarged and distended with gas; perineum lacerated to second degree; prolapse of mucous membrane of urethra; vagina inflamed; muco-purulent discharge, and prolapse of anterior and posterior wall. Cervix uteri not discoverable by sight, entirely obliterated; no trace of os can be found; the supravaginal portion of cervix, however, can be determined by touch. Uterus small, but larger than normal at her age, soft, retroverted, fixed, tender on pressure. Both tubes enlarged, fluctuating, fixed and tender on pressure. Diagnosis: atresia of cervical canal, with retained fluid. Operation decided upon.

On March 24, in presence of some of the college class, I seized the vault of the vagina at the site of the cervix with a volsellum forceps and introduced a curved bistoury about two inches and a half deep, into the tissues where I had located the cervical canal. This was followed by an evacuation of about two or more ounces of greenish pus more or less offensive in odor. Subsequently irrigating the vagina with antiseptic solution and applying antiseptic applications on pledgets of sterilized cotton. Drainage of pus continued for two weeks with the occasional passage of hard inspissated lumps of pus and epithelium. Marked improvement in symptoms followed, with reduction in size of the tubes and uterus.

April 4, in the presence of some of the hospital assistants, I removed a ring of cervical tissue from around the incision, making an oval opening considerably larger than a normal os. The mucus membrane intra and extracervical not stitched together, but the space allowed to heal by granulation. Shortly afterward all nervous intestinal and circulatory symptoms disappeared, and patient felt quite well. The local condition was much improved, though the uterus is still retroverted and somewhat fixed. This condition had evidently existed for a long period and has been a most important factor in the causation of her varied and numerous symptoms; in fact, it might be no exaggeration to infer that the local condition has been the only lesion. Within a few weeks, a prominent gynecologist here, after local examination, pronounced her free from any uterine disease and transferred her for treatment to a specialist in nervous diseases.

It is interesting to note the number and skill of the physicians who have at different times had charge of this case, none of whom, however, discovered the nature of the malady. This failure to recognize the lesion is due almost entirely to the lack of, or faulty teaching in, the text-books, and it is hoped that this contribution will stimulate special study of these post-menopause cases.

Case 2.—Consulted me at the hospital on June 6 last, Mrs. W. H., white, age 50 years; widow about one year; one child after marriage about thirty years ago. Labor normal, no miscarriage; menstruated between fourteenth and fifteenth year. Always strong and healthy and never had any womb trouble, so far as she knows. Never had a vaginal examination made since the birth of her child. Menses absent about four years and been sick during that time. Complaints of backache, soreness in walking, bearing down pains, frequent urination and leucorrhœa, loss of appetite, indigestion and constipation. Is very nervous and hysterical, with numbness and twitching in limbs; has been losing flesh for some time and can not sleep at night; has been having convulsions at intervals of two or three months for the past two years. During the past four years she has consulted a number of physicians, all of whom told her she had no womb trouble and none of them thought it necessary to make a vaginal examination, because "she had passed the change of life," and as they thought, gave no symptom of womb disease. Examination: partial laceration of perineum, vagina inflamed, uterus small, soft and boggy; atresia of canal at

internal os. Sound forced through obstruction and two or three ounces of muco-pus evacuated. Patient felt relief at once and described her sensation as if some tension or pressure had been removed. She has continued to improve and now feels better than she has for years. The same subsequent treatment was followed in this as in the preceding case.

It is fair to assume that this condition exists more frequently than is usually supposed, and many similar cases may be under treatment to-day in the asylums for the insane. The menopause being unquestionably a physiologic process should not be attended with the extraordinary symptoms which we witness in so many cases, the exception being found, I believe, in those where the normal changes are interrupted or modified by pathologic conditions.

Clinically, all women passing through the change of life or menopause, do not have serious symptoms, and when exceptional cases are observed, we should conclude there is a cause for their complaints, and a thorough local examination should be instituted. In this department of medicine we should always bear in mind the possibility of this condition and its importance, when the lesion itself will be easily discovered and cured.

PATHOLOGIC SPECIMEN.

The unusual growth which I removed to-day, I will present for your consideration, because it presents an atresia of the cervical canal and obliteration of the infravaginal portion of the cervix and, practically, an atresia of the vagina at its extreme upper portion.

Mrs. B., age 58 years, married, several miscarriages. Been in ill health for sixteen years. Never had any flooding spells. Has had an enlargement of the abdomen for years but never knew until now she had a tumor. Has not menstruated for five years and was very irregular for five years previous. Had a slight muco-sanguinous discharge two months ago, which lasted two or three days. Has been confined to bed for six months on account of pain in abdomen and neuralgia of face. Examination: abdomen enlarged to size of nine months' pregnancy by a large irregular fluctuating nodular mass, which is almost entirely confined to the right lateral portion of the abdomen and extending from deepest pelvic region to diaphragm. No trace of the cervix or os can be found. From absence of flooding, the soft, irregular and fluctuating character of the mass and its location, principally in the right side and absence of cervix and canal, I diagnosed a multilocular cyst of right ovary, and excluded the probability of fibroma. Just before making the incision, however, I gave reasons for excluding fibroid tumor, extraperitoneal (so-called abdominal) pregnancy, but admitted the possibility of the uterus being distended with fluid because of atresia of the cervical canal; though from the general character of the growth I did not believe it uterine, thinking that organ was atrophied. On section mistake in diagnoses noted.

Enlarged multiple fibroid was found with degenerated interior containing fluid, about two quarts offensive pus. A soft, stringy, friable mass was discovered growing from posterior surface of uterus, completely filling up the pelvic cavity and forcing the viscera above. The right Fallopian tube was about ten inches long, having attached to its fibrillated extremity a large fibroid ovary. Two large soft masses containing fluid were next reached. The first attached to the fundus uteri, the other superimposed upon the first, and attached firmly to the diaphragm above. The peritoneal cavity was distended with a large quantity of cherry-colored fluid. The masses were attached or adherent to themselves, the parietal, back, and pelvic walls, omentum, liver and intestines. The adhesions were freed; in some places thin layers of the cyst wall were removed and left attached to the intestines, complete separation being impossible. Notwithstanding the extensive adhesions neither omentum or intestines were injured. The tumor was delivered and the uterine and ovarian arteries ligated. The mass was then easily excised, no hemorrhage following. A very excellent intraperitoneal stump was formed and covered by peritoneum, a small fibroid being removed from the

stamp, posterior to the bladder. The cavity was perfectly dry when the incision was closed, and the patient was placed in bed. Profound shock followed, patient dying within an hour, never regaining consciousness. The operation lasted one hour and forty minutes. Tumor weighed exclusive of fluid thirty-seven pounds.

After opening the abdomen the operation might have been abandoned, but the patient requested that the growth should be removed at all hazards. This case is a most instructive one, and shows how atresia with obliteration of the cervix may prevent an accurate diagnosis being made; and it is a particularly fit specimen to accompany this contribution. After its removal the uterine cavity was found very much distended, presumably with gas, physometra, contained no fluid and measured nine inches in diameter. But for the atresia and obliterated cervix the sound would have been of great assistance in diagnosis, and would have cleared up considerable doubt.

The report of the pathologists of the hospital, Drs. Gray and Parker, and that of Dr. Walter Reed, U.S.A., Curator of the Army Medical Museum, is herewith appended, together with the photographs of the growth made by Dr. Church, the resident physician.



FIG. 1.—View from under side.
A. Fundus of uterus. B. Pelvic mass, from dotted line. C. Left broad ligament, and ovary. D. D. Masses attached to uterine fundus, and containing fluid.

LIONEL LABORATORY, WASHINGTON, D. C., June 28, 1895.
Dr. H. L. E. Johnson.

Dear Doctor:—The sections from the tumor of uterus removed from Mrs. B. prove to be malignant in character. The growth is a sarcoma of a mixed variety; it is composed of round and spindle cells of various sizes.

The round white tumor which occupied the position of one of the ovaries is not malignant; it is a soft myxofibroma.

Yours truly, W. M. GRAY.

Pathologist Central Dispensary and Emergency Hospital.

WAR DEPARTMENT.

SURGEON-GENERAL'S OFFICE, U. S. ARMY MEDICAL MUSEUM AND LIBRARY.

WASHINGTON, D. C., July 3, 1895.

Dr. H. L. E. Johnson, 1400 I. St. N. W., Washington, D. C.

Dear Doctor:—I beg to submit the following report of an examination of the specimen of uterus and appendages with tumor mass, which was received at the Museum on June 26, 1895.

Dr. Lamb furnishes me with the following gross description of the specimen; the uterus, which has been removed at the internal os, is somewhat pyramidal in shape, and measures 6.5 x 6.5 x 7. The enlargement is due partly to hypertrophy and partly to the fibroid growth, which latter is situated in the left wall and projects into the flattened uterine cavity. Within this fibroid there is a large cavity, with rough inner surface, filled with a recent blood clot. Projecting upward from the fundus are several large tumor masses,

one of which is hollowed out into a cyst, with thick wall and rough inner surface, the latter being overspread with blood vessels. The right tube is adherent by its fimbriated end to the ovary; left tube normal. Right ovary converted into a firm fibrous-looking mass, 3 x 2 x 2 inches in diameter; left ovary normal in size and structure; shows remains of corpora lutea. Posterior to the lower end of the uterus is a large shredded and brittle mass, covered on its upper side by the peritoneum of Douglas's cul-de-sac.

Microscopic examination of sections taken from different parts of the tumor mass show the structure of a mixed cell sarcoma, richly supplied with blood vessels. In several parts of the section there are seen cross sections of blood vessels with intact intima, and which are surrounded by dense masses of round and spindle-shaped cells, giving the picture of an angiosarcoma. Microscopic examination of



FIG. 2.—Left lateral view.
A. Cervix at point of amputation and atresia. B. Cavity of uterus laid open. C. Pelvic mass, from dotted line. D. D. Masses attached to uterine wall and containing fluid. E. Cavity of abscess, containing about two quarts pus. F. Pedicle attached to diaphragm.

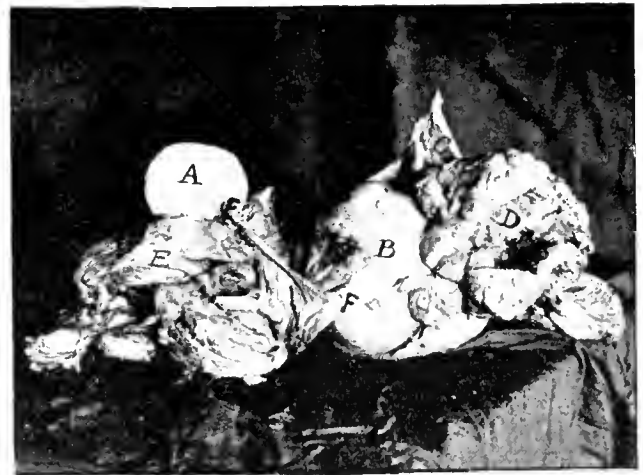


FIG. 3.—Right lateral view.
A. Fibroid ovary. B. Uterus. C. Normal ovary and broad ligament. D. Cavity of abscess. E. Pelvic mass, from dotted line. F. Long fallopian tube.

the small tumor mass occupying the position of the right ovary proves it to be a myxofibroma; there are no remains of ovarian structure to be seen. Very respectfully,

WALTER REED,
Surgeon U. S. Army, Curator.

CAUSE AND FREQUENCY.

The question will be asked, How is the atresia produced, and how often does it occur? It is caused physiologically by the reduction in size of the uterus which takes place in normal atrophy, where the organ is reduced in some cases to a mere nodule. Patho-

logically, from cancer, tumors, such as fibroids, catarrhal and other inflammations of cervical endometrium, extension of vaginitis into cervix (particularly senile vaginitis), small polyps causing endocervicitis, post-diphtheritic inflammations, the use of strong caustics, actual or electric cautery, trauma, and contraction or cicatrization following trachelorrhaphy.

VARIETIES.

The atresia may occur at the external os or internal os, or may include the entire cervical canal, and in some instances, the cervical canal is obliterated, together with the vaginal portion of the cervix, so that no trace of the cervix is to be found through the speculum, and its site is with difficulty found upon digital examination.

DIAGNOSIS.

The diagnosis is based upon the age and history of the patient, the size and consistency of the uterus and tubes, and the obstruction discovered by the sound, or the absence of the cervix and os as described above.

TREATMENT.

Open the canal with sound or knife, followed by antiseptic irrigation and douches; keep the canal patulous, by dilation, or excision of cervical tissue when necessary. Operate under strict modern methods. Treat the cavity of the uterus locally with antiseptic applications and irrigations.

DANGER.

Danger arises from faulty asepsis, and perforation of organ by careless or bungling operators. Failure to determine accurately the size of the uterus and direction of the canal will lead to error.

Maryland and Virginia Medical Journal, Richmond, 1860, vol. xv, pages 292-295, Art. 4. Report from the Infirmary of the Medical College of Virginia (service of Dr. McCaw), by Dr. Thomas Hunter, resident physician. "Case of Occlusion of Os Uteri." A negro named Agnes, age 47, attempted an operation by a long curved trocar introduced by Dr. McCaw through the speculum and made to enter the uterus about the center of its os; was pushed to depth of one and one-half inches without entering the cavity of the womb. No further attempts were made, "and moreover, as that period of life had arrived when the menstrual function ceased, Nature herself might relieve her without the pain and risk of an operation." Had two attacks after this. Ends article as follows: "In a few days after her last attack she left the Infirmary. She has not been heard from since, but in all probability she has been relieved from all further trouble by the total disappearance of the menstrual function."

Transactions Obstetrical Society of London for the year 1877, vol. xix, pages 176-177. "A Case of Suppuration of the Uterine Cavity resulting from Occlusion of the Cervix." Dr. Albert Lewis Galabin. "Mary K., 63 years old, had been widow thirteen years. Has had eight children and two miscarriages. Menstruation ceased ten years ago. Punctured from the vagina by a small trocar and fluid evacuated was pure pus. Symptoms of general peritonitis soon came on, and the patient died after a few days."

The specimen exhibited shows the occlusion to have been due to the presence of cancerous deposit beginning about the internal os and not manifestly affecting the external part of the cervix.

Transactions of the American Gynecological Society for the year 1879, Boston, 1880, vol. iv, pages 428-432. "Premature Senile Obliteration of the Uterine Cervical Canal," by Dr. Henry Campbell, Augusta, Ga.

Case 1.—Senile obliteration of the cervical canal with accumulation within and distension of the uterine cavity. Evacuation by incision and dilatation. The patient a virgin. Called Aug. 4, 1876, to Miss N. H., age 55, in consultation with Dr. Amory Coffin, of Aiken, S. C. Operated. Discharge intolerably offensive; it more nearly resembled rotten egg effluvia than anything else; amounted to nearly eight ounces. Jan. 26, 1877, Miss N. H. came to Augusta for further treatment. Stated the offensive discharge from vagina had continued but a few days after operation. Jan. 26 operated again; in ten days uterus appeared to be normal. July 7, 1877, she was in an extremely low condition. Died from irritative fever and exhaustion soon after.

Case 2.—Senile obliteration of cervical canal. Patient a multipara. April 4, 1878. Mrs. L. Z., of South Carolina, age about 58 years; mother of eight or ten children. Youngest about 16. June 26, 1878. Operated; evacuated fluid nearly sixteen ounces, about consistence of thickened milk, closely resembling in its offensive odor that previously described. Recovery. Health perfect in every particular.

Atlanta Medical Register, 1881-82, N. S., vol. i, pages 65-73. "Atresia of the Vagina and Uterus." A Clinical Lecture by Dr. A. F. Erich, Baltimore, Md. Professor of Diseases of Women, College of Physicians and Surgeons, Baltimore. Surgeon in charge of the Maryland Woman's Hospital, etc., says: "Women who have passed the menopause sometimes suffer from an accumulation of mucus or muco-purulent fluid in the uterus, due to the atresia of the os following endometritis or the application of caustics to the cervical canal. In other cases the os may be closed by the formation of an epithelial stratum resembling a false membrane, completely occluding the os. This condition is not infrequently seen in prolapse of the uterus. A sound can generally be pushed through the obstruction and the passage afterward dilated." The indications in all cases of atresia accompanied by symptoms, are to empty the retained fluid, keep the tract pervious and restore if possible the functional capacity of the sexual organs.

Chicago Medical Journal and Examiner, 1883, vol. xlv, pages 394-396. "Two Cases of Stenosis Uteri with Symptoms of Locomotor Ataxia," by Dr. O. Stroinski.

Case 1.—Mrs. M. N., 52 years of age. Operated. Perforated cervix with trocar and dilated with laminaria tents, then introduced intra-uterine pessary. After six weeks the phenomena of locomotor disturbance began to disappear and micturition was normal.

Case 2.—Mrs. Anna W., 53 years old, unable to leave bed for the last three months. Operated. Improvement was more rapid in this case; able to do housework after two months. Ends as follows: "It is probable that pressure on the uterine nerves, caused by the agglutination of the uterine walls acts reciprocally on the nervous system of the abdominal part of the body and on that of the spinal cord."

Transactions of Obstetrical Society of London for 1885. London, 1886. Vol. xxvii, pages 81-83. "Distension of Uterus from Partial Obstruction of Cervix." Dr. A. L. Galabin showed the uterus of a woman, age 61, in which distension of the body with muco-sanguineous fluid was found in association with a partial obstruction of the cervix. The patient died six days after the operation for cancer of the breast. The canal was obstructed by a median septum about three-quarters of an inch long, occupying the lower part of the cervix and the summit of the vagina."

Clinical Lectures on the Diseases of Women, delivered in Saint Bartholomew's Hospital, by Dr. J. Matthews Duncan; 4th edition, London, 1889. J. & A. Churchill. Lecture II, "On Retention of Mucus," page 65. "Atresia may occur at any part of the course of the genital passage; and I show you here an example of what happens to be the commonest acquired atresia—stresia of the internal os uteri—coming on in old age, and producing in the specimen I show you, a pyometra, the body of the uterus being distended so as to be a hollow globe capable of containing a small apple."

Zeitschrift für Medizin, Chirurgie und Geburtshilfe, n. f. v., 1866, pages 22-34, 91, 100, by Prof. Dr. C. Hennig, Leipzig, "On Atresia of the Uterus," says: "But exceptionally one meets atresia after the climacteric period. Although in old age cases occur very often in which the internal os comes together, but does not close entirely (*hydrometra ex involuntione orinunda*). Of 100 females who have passed the fiftieth year, one will find about twenty-eight with atresia of the internal os, and, doubtless the period between 60 and 70 years as the most prolific for the above-named anomaly to make its appearance. Notwithstanding, I do not mean that one dare perceive senile atresia as a physiologic condition."

Allgemeine Wiener Medizinische Zeitung, 1878, vol. xxviii, pages 257-258, 270-271, 280. "On the Impassableness of the Cervical Canal and Its Treatment," by Dr. A. Tripiet, of Paris: "That the internal os of the cervix is commonly completely obliterated, which Moyer has already laid stress on; that this growing together appears to be normal in old women. Guyon found it thirteen times in twenty uteri of women from 60 to 70 years old."

"Ueber Atresia der Nichtschwangeren Gebärmutter," by Franz Reder, University of Reibstock, 1860 (laugural Dissertation). Mentions senile atrophy of the cervix producing atresia.

"Ueber Atresia der Vagina und des Uterus," by Wright Barnum, University of Jena, 1891 (laugural Dissertation). Under "Results and Symptoms" he divides them into three groups, in the last of which (c). "Results of Atresia After the Menopause," he says: "In the third period we have as a sequel an accumulation of mucus or pus. This is the favorite time for hydrometra. This accumulation is a serious, mucus, etc." He advises operations in such cases.

"De L'Atresie du Col de L'Uterus." Thesis by Elise Ribard, Montpellier, 1869. Gives two cases: Female aged 55 years, atresia internal os, operation complete cure. Female aged 58, atresia due to abuse of coitus; she died and an autopsy was held, when condition was found.

"Sur les Rétrécissements de L'Uterus." Thesis by Dr. J. Henri Pouillot, Paris, 1861. Mentions senile atrophy as a cause of atresia. Gives a case in a woman of 50, but does not say that she had ceased menstruating.

"Essai sur la Rétrécissement du Conduit Uterin, Considéré Principalement au Point de vue du Traitement." Par Godefroy Thermea, Paris, 1867. Gives a case of a woman aged 53 years who was suffering from stricture of the neck of the uterus, due to a fibroid tumor of the body which extended to the neck.

Klinische Mittheilungen aus der ersten Geburtshilflich-Gynäkologischen Universitäts-Klinik in Buda-Pesth, über die Jahre 1874-82, Mit Kurzer Übersicht über die Jahre, 1869-74. Herausgegeben von Dr. Theodor von Kezmarzky, Stuttgart, 1884, page 237, under "Gynäkologische Poliklinik," had 666 cases. Gynecological cases, 608. Uterine affections, 421, of which 4 were senile atrophy of the uterus.

Die Königliche Universitäts-Frauenklinik in München in den Jahren, 1884-1890. Berichte und Studien. Herausgegeben von Dr. F. von Wunckel, Direktor der Klinik, Leipzig, 1892.

For 1884-1890 inclusive 896 patients in gynecologic portion. In 1884, 56; 1885, 128; 1886, 171; 1887, 163; 1888, 169; 1889, 202; 1890, 191. No cases.

OUT-DOOR SERVICE.

Jan. 1, 1885, to Jan. 1, 1886, 358 persons; 1886-1890, 2,135 patients treated; in 1886, 446; 1887, 394; 1888, 311; 1889, 433; 1890, 551. No cases.

Rendiconto delle Sale di Ostetricia e di Ginecologia (Anno Scolastico, 1882-83) dirette dal Dr. Giovanni Cosentino, Professore Parggiato di Ostetricia nella R. Università di Palermo e Ginecologo Primario dell'Ospedale Civico. Redatto dal Dr. Giuseppe Giglio, Palermo, 1884. Consultazione Nell'Ambulatorio Di Ginecologia. Treated 419 cases. No cases of atresia after menopause.

"Manual of Gynecology," Hart and Barbour, 4th edition, London, 1890, pages 266-267: "Atresia of cervix is rare as a congenital condition. It is more frequently acquired, and results from the following causes: Adhesion of granulations in cervical catarrh (after menopause) and round the base of tumors. The practical point for the practitioner to remember is that it occurs also as part of the physiologic changes which take place after the menopause; 25 per cent of women above 60 years of age have atresia of the cervix (Hennig)." Page 319: "Senile atresia of the cervical canal is the result of a localized chronic endometritis. This is one of the physiologic changes which occur after the menopause. In some cases, however, it becomes pathologic; accumulation of mucus, more rarely of blood, takes place above the obstruction."

"Diseases of Women," by Dr. Alfred L. Galabin, 5th edition, London, 1893. Page 80: "Acquired uterine atresia usually affects some portion of the cervical canal. It may also be the effect of cervical catarrh through adhesion of the granulations formed on opposite sides of the canal, especially when the passage is no longer kept patent by the flow of menstrual blood. It is not uncommon, therefore, in old women, espe-

cially when prolapse of the uterus exists." Page 82: "After the menopause the uterus may be filled by mucus fluid (hydrometra), a condition usually resulting from acquired atresia of the cervical canal. I have met with one instance in which the uterus became largely distended by pus in consequence of an atresia produced by cancer about the internal os. Advises operation."

"Treatise on Gynecology—Medical and Surgical," by Dr. S. Pozzi, New York, 1892, 2 vols. Vol. I, pages 582-583: "Acquired atresia. It may also follow the cicatrization of ulcers of the cervix coincident with senile atrophy of the uterus; finally, it may in old women, be due to a tumor in the cervix or lower portion of the body of the uterus. It may occur spontaneously in old age. The results of this obliteration vary as the patient has or has not reached the menopause. If she has ceased menstruation the lesion usually causes no disturbance unless some cause of septic infection exists in the uterine cavity, causing an accumulation of pus (pyometra) or gas (physometra). I have seen two cases of pyometra from cancer of the body of the uterus and fibroma in aged women. The treatment in such a case consists in incising or puncturing the cervix if it be necessary to disinfect the uterine cavity and then in meeting the indications called for by an existing fibroma or cancer."

"A Practical Treatise on the Diseases of Women," by T. G. Thomas, 6th edition. Enlarged and thoroughly revised by Dr. P. T. Munde, Philadelphia, 1891. Page 229 gives as a cause of acquired atresia, senile atrophy: "The second is so very common in old age that Hennig declares that out of 100 women who had passed 50 years of age about 28 (over a quarter) suffered from it. Results: It might at first thought be supposed that uterine atresia occurring after the menopause would be as it usually is before puberty, a matter of no moment. As a rule this is so, but there are exceptions to both rules. In the old women a watery secretion sometimes takes place, giving rise to hydrometra; suppurative action may occur, creating pyometra." Advises operation.

"A Practical Treatise on Diseases of Women," by Dr. J. Thorburn, London, 1885. Pages 151-152: "It also occasionally happens that, menstruation having ceased, the occluded uterus continues to secrete a quantity of mucus fluid, more or less watery, which distends the organ, giving rise to the same physical signs as hematometra (hydrometra), and in still rarer cases this fluid is or becomes purulent (pyometra) or decomposes, giving rise to the presence of gases (physometra)." Advises operation.

"A Manual of Gynecological Practice," by Dr. A. Duhrssen. Translated by J. Taylor, F. R. C. S., and F. Edge, M. R. C. P., F. R. C. S., London, 1895. Page 85: "In old women an atresia of the internal os is found analogous to the colpitis adhesiva. This leads to the collection of mucus or pus." (Hydro and pyometra.) Page 88: "Atresia of the internal os is treated by simply passing a sound or trocar through the obstruction."

"Practical Manual of Diseases of Women and Uterine Therapeutics," by H. MacNaughton Jones, M. D., M. Ch., F. R. C. S. I., and E., New York, 1884. Page 356: 1, causation; 2, acquired. The causes producing acquired atresia are: cervical endometritis, senile atrophy. Advises operation if hydrometra, etc.

"An American Text-Book of Gynecology—Medical and Surgical," edited by Dr. J. M. Baldy, Philadelphia, 1894. Page 585: "Hydrometra, which is more likely to take place in women of advanced age, is due to the retention of the secretions from obliteration of the canal."

"Landmarks in Gynecology," by Dr. Byron Robinson, Detroit, 1894. Vol. II, page 190: "Hydrometra—it is a condition of late life, when senile or other degeneration arise in the cervix."

"Hand-Book of Gynecological Operations," by A. H. G. Doran, F. R. C. S., Philadelphia, 1887. Page 338 gives Brelsky's operation for atresia of the cervix.

"Diseases of Women," by Lawson Tait, F. R. C. S., 2d edition, 1886. Page 75, in speaking of hydrometra, says: "It is a condition almost entirely confined *ex necessitate* to women who have passed the climacteric period of life, and it very rarely causes the uterus to reach any great size, because the greater part of the secretion of the internal mucus surface is capable of resorption, leaving behind only the more solid elements of the mucus. Simpson narrates a case unusual for it, in which he drew off large quantities of serous fluid from the cavity of the uterus which had been distended to the size of the fifth or sixth month of pregnancy, the fluid being due to a canceroid tumor at the fundus. In such a case the symptoms would be severe and would necessitate a careful examination. The first thought would be to eliminate the possibility of pregnancy and then to open up the canal."

"A Text-Book of the Diseases of Women," by Dr. H. J. Garrigues, Philadelphia, 1894. Page 407: "Closure of the uterus (acquired atresia), but the uterus may also be closed later in life; acquired atresia. Although not so rare as the congenital form, the acquired is still a rare affection. Etiology: sometimes it is simply due to old age and is especially found in old women suffering from prolapse of the uterus. After the menopause the atresia hardly gives rise to any symptoms unless it is complicated with some other disease of the womb, especially cancer or fibroma."

"A Hand-Book of the Diseases of Women, Including Diseases of the Bladder and Urethra," by Dr. F. Winckel, of Munich. Authorized translation. Edited by Dr. T. Parvyn, of Philadelphia, 1889. Page 462: "Among the numerous causes of these are advanced age." Page 465: "Or if there is a retention of the uterine secretion after the menopause, the uterine walls are sometimes thickened but not infrequently they are much thinner than usual." Page 471 recommends operation. Does not cite any cases.

"Encyclopaedia of the Practice of Medicine," edited by Dr. H. von Ziemssen, vol. x, 1875. "Diseases of the Female Sexual Organs," by Prof. C. Schroeder, Erlanger, Bavaria. Senile atresia is mentioned.

Hand-Buch der Krankheiten des Weibes nebst einer einleitung in die Physiologie und Psychologie des Weiblichen Organismus, von Dr. Johann C. G. Jorg, Leipzig, 1831. Page 325 mentions hydrometra as occurring in women after the climacteric, due to stenosis and atresia; recommends operation.

Lehrbuch der Gynäkologie, von Carl G. Carus, Wien, 1829. Vol. I, page 277, same as above.

Spiegelbilder der Gesunden und Kranken Vaginal Portion und Vagina, von Dr. J. Heitzmann, Wien, 1883. Page 173 mentions it as producing hydrometra in women after the menopause.

Die Frauenkrankheiten. Ihre Erkennung und Heilung, von Dr. R. Flechsig, Leipzig, 1885. Page 124, under stenosis and atresia of the uterus, mentions hydrometra as occurring after the menopause.

Frauenkrankheiten, von Dr. C. G. Rothe, Leipzig, 1890. Page 243: "Atresia due to senile atrophy of the internal os, is not pathological." Page 184: "Hydrometra occurs mostly in old women who, after the menopause, have atresia of the uterus."

Die Krankheiten der Frauen, von Dr. Heinrich Fritsch, Braunschweig, 1886, 3d edition. Page 191: "In old women cervical atresia occurs but seldom at the internal os. But here menstruation has ceased, so back of the atresia we have an accumulation of either mucus or pus." (Pyo-

metra senilis.) Advises operation. (First edition translated by Isidore Furst, Wood's Library, 1883.)

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FIG. 4.—The uterus has been opened through the posterior wall.

A. Wall of abscess cavity separating the cavity from the canal below.

fourth inch in diameter. Ovaries atrophied, smooth. Some pelvic peritoneal adhesions. This is a case attended by Dr. Mary Parsons, the skeleton of which is in the Army Medical Museum, catalogued as No. 10,000, Pathological Section. Its entire weight is only two pounds and thirteen ounces. The patient was a white woman, single and about 69 years old at death, July 10, 1889. She had been sick twenty-six years and confined to bed about twenty-one years. The uterine specimen is catalogued No. 10,011.

NOTE.—June 25, 1895: The abscess cavity is the much dilated upper portion of the uterine canal, separated from the lower patulous and normal portion by the boundary wall of the abscess cavity; in other words, there is atresia of the canal, caused by the formation of the abscess cavity wall as shown in the diagram. D. S. LAMB, M. D.

(I would suggest that in the above-mentioned case the atresia was not produced by the abscess, but on the contrary the abscess was produced by the atresia. H. L. E. J.)

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CONCLUSIONS.

From what has appeared above we may draw the following conclusions:

1. Pathologic atresia of the uterine canal after the menopause is a condition which exists more frequently than is usually supposed, produces symptoms which have not been thoroughly appreciated, and may lead to error in diagnosis in some cases.

2. The subject has not been carefully studied, or correctly treated in the past.

3. The symptoms mislead by directing attention to the nervous system more particularly than to the true seat of disease.

4. Atresia, or more correctly speaking, obliteration of the uterine canal, is a physiologic condition, only after complete atrophy of the body of the uterus and its endometrium.

5. The uterus, during the menopause, and until completely atrophied, should be kept under careful observation, all inflammatory, catarrhal, and other abnormal conditions treated and cured, and the canal kept pervious by the passage of a suitable sound to facilitate drainage.

6. All cases of atresia of the cervix, where complete atrophy of the uterus has not taken place, should be operated upon at once, even in advance of symptoms.

7. Operation is beneficial by preventing or relieving distressing symptoms, and is absolutely free from danger when performed with modern surgical precautions.

8. Many obscure symptoms occurring during, and after, the menopause, are produced by retention of fluid and débris from atresia of the cervical canal, which can be promptly relieved by the treatment advised.

9. This subject is of the greatest importance and deserves a thorough investigation by the medical profession.

PECULIARITIES OF COLOMBIAN LEPROSY.

BY ALBERT S. ASHMEAD, M.D.

NEW YORK.

Leprosy in Colombia dates from very remote times, though no light is thrown over its origin. According to Father Velasco, in the middle of the last century a lazaretto was founded in Cali.

I find in an article of the *Anales de la Academia Nacional de Medicina*, Bogota, 1894, under the signature of Dr. Alfredo Garcés, several points which represent Colombian leprosy in a rather peculiar manner.

1. According to the information obtained from patients, and the opinion of the Doctor himself, the disease originates mostly, if not always, in a cold; exposure to rain, sudden cooling after strong perspiration, sojourn in damp rooms, especially during confinement, bathing in a brook being heated, passing from a warm climate to colder altitudes, etc. These accidents are all followed by the wheals of urticaria. From the urticaria, leprosy is developed. Most of the patients attribute their malady to a cold. Some say that they went out into the cold air; that they have been exposed to a draught, to a shower; that they have gone into the water while heated. One of them said to me: "I was sleeping in the evening; I was awakened suddenly and went out at once, heated and perspiring, into a cold hallway; I got a spasm

(urticaria); my skin thickened and my blood was corrupted." Another said: "While pregnant I lived in a damp room and was caught by a shower in crossing a courtyard; in the night my body was covered with wheals, I had fever and my blood was corrupted." Another said that she was grinding chocolate, and that she wetted her hot hands; that the hands thickened and were benumbed and that she got wheals. Another, on her way, bathed in a brook, being much heated, and from that time she had thick feet and wheals. One was a laundress, another a baker, another tapped liquors, etc. In others the primitive cold is not discovered, but they have lived in contact with elephantiasis, or in rooms which had contained it. Thus we see a mother and two sons affected; a father and three sons; two mothers each with her daughter; uncles with nephews. One goes to the Valle del Cauca; he catches typhus there; he returns to Popayan and leprosy appears. Another goes to the Valle del Patia; he returns to a cold climate and becomes a leper. Others take a bath in Cauca or in Piendamó with their bodies heated; wheals come and the disease appears.

2. In the general pathology of Colombia, scrofula is very common, "as common as tuberculosis is rare." Dr. Garcés says that he can affirm, surely not to exaggerate, that there is not in Colombia a family in which there is not at least one scrofulous individual. In no place did he see so many strumous tumors of the neck, axilla and groin.

"The gnawing lupus," says Dr. Garcés, "of slow and invasive march, appears frequently in its most alarming forms. I have seen three patients in whom nearly the whole face had disappeared under the action of scrofulous ulcers; in another, the whole knee and part of the leg; in another, the face, the elbows and the neck had been invaded by lupus. In the feet, in the legs, etc., are observed affections not unfrequently, and in a practice of six years I have observed not less than twelve lupi gnawing, most of them in women. As to dermatoses of scrofulous nature, it is difficult to find a place where they are more frequent; eczemas, impetigos, purpura, breakings out on children's faces, acnes, are frequently observed. Anemia and the lymphatic temperaments, with thick lips, stout and colorless forms, epistaxis, hemophilia are met at every step; in one word, scrofula reigns in Popayan, and its environs, as reign the paludic fevers in our heated lands (*terras calientes*), cholera in India, and yellow fever in New Orleans."

3. Garcés, while admitting the microbial theory, confesses that there is not one fact in support of it which might not be explained in some other manner.

4. Leprosy is a disease of the nervous system, not engendered by microbes, followed by vasomotor disturbances, offering in a certain state a desired habitat for the bacillus, and afterward, susceptible of being propagated by the same microbe. "We do not mean to evict the parasite from its domain, nor to deny its morbigenous action. We want only to establish this clinical fact: leprosy is a disease of the peripheric nervous system, which reaches the superficial nerves of some mucous membranes, through anatomic relations. We can not be surprised that leprosy, being a disease of the nervous system, makes itself known chiefly by cutaneous lesions, for we see many of its affections accompanied by zona, pemphigo, trophic lesions, glossy skin, patches of anesthesia, etc."

5. In Colombia, scrofula is very often mistaken for leprosy, but the total absence of nervous disturbance is sufficient for the physician to make the right diagnosis.

6. "There remains a disease rather common in Popayan which fills the public with terror, and gives to the subject the appearance of a leper; it is characterized by atrophies and reabsorption of the phalanges of some fingers and toes, by deformations, more or less important, which sometimes give to the extremities the form of a spider, of a claw, of an onion head, pes varus, globular in form, etc., mutilations which present zones of anesthesia and analgesia in distinct points of the extremities. The lesions affect a certain symmetry and never pass from the foot, from the hand, or from the forearm; in no other part of the body is there observed anything abnormal, and those who suffer of such affection live long years without their disease advancing or generalizing itself. They attribute their condition to a cold taken in their feet or hands when the body was heated. I am not unaware that some of these subjects have become leprous afterward; but from this fact to the declaration that all do the same, there is a wide distance; patients like those of whom I have spoken are not lepers for me, as long as the microscope does not show in them the trophic lesions due to the bacillus of Hansen." Here is a case in point:

DYSTROPHY OF EXTREMITIES.

M. P., aged 34, presents in the cheeks and on the forehead a rubicund color, and at that level the skin is rather thick. Neither in the ears, nor on the face, nor in any other part does it show tubercles nor even spots. On the arms there are broad spots of a yellowish pink. The right hand presents the following anomalies: the interosseous muscles and the abductors of the thumb are in great part atrophied; the finger is almost without phalanx, and of the nail there remains only small fragments of the lunula; the finger seems thickened in its free extremity, looking like an onion's head; over the annular and middle fingers there is a pink spot, covered by some epidermic scabs, and over the nail of the middle there are well pronounced ulcerations; the annular and the little finger show a slight retraction of the flexor muscles of the phalanx; the hand presents in general the undulated aspect, perceptible in subjects who have suffered for some time of paralysis agitans. The left hand has suffered the same atrophies as the other; the thumb has its phalange retracted, while the other fingers are turned toward the back of the hand in their first phalanges, and doubled, claw-like, in the others, looking like a tiger's paw.

In the inferior extremities there are callous patches in the anterior extremity of the metatarsians, where there exist also some pink spots, as well as in the trunk. Points of anesthesia are not observed, except in the superior limbs, especially where the skin is a little callous, as is the case in the inferior extremity of the metacarpians; the left hand is almost useless, as it can not hold small objects, and, in general, its touch is imperfect¹.

"M. V., 22 years old, was grinding chocolate, got wet, and from that moment felt his hands benumbed, and pains with swelling in the feet. He has on his body neither spots or tubercles and his brows are intact. He has now four fingers of the right hand twisted and partly atrophied; in the left, the lesions are similar, but less pronounced; he feels much dryness in the hands and slight ulcerations are visible on the fingers. On the right foot he presents toes—the first and the last—much retracted, while the others are raised; the skin in that region is thick; in the left these lesions are less pronounced; but it shows cicatrices of old lesions. Sensibility is very obtuse in the feet." (Garcés.)

7. We come now to the essential point of leprous diagnosis. Is it a parasitic disease? All the micrographers answer affirmatively; but it must be observed that in various cases of anesthetic leprosy the

¹ This man has been ill for twenty-two years and offers no other symptoms, but those mentioned in this observation.

leptogenous microörganism has not been discovered. (Cornil and Babés.) I do not know whether in Colombia the microphyte has been found in our patients, and, in spite of that, I doubt no wise of its existence. I believe that in most lepers the bacillus of Armauer Hansen exists; but I am very far from thinking that the same is the initial phenomenon, the agent *sine qua non* of leprosy. What, then, opens the play? In my opinion the same thing happens with leprosy as with pulmonia, typhoid and other microbial diseases. We live in close contact with them, we take them in our aliments and drinks, we carry them in our clothes, and we respire them continually, and in spite of all that, they do us no harm; unless some external cause puts us into a condition to be influenced by them. In pulmonia and typhoid fever there is a perfect relation of cause and effect which is very well explained by Friedlander's and Eberth's microbes, but it is not the case in leprosy.

The initial phenomena is a vasomotor paralysis, a shock to the peripheric nervous system, which prepares it for receiving the microphyte encountered in leprosy, but which alone does not constitute the disease. The latter may exist, in the anesthetic form without microbes, and perhaps likewise in the initial stages of the other forms; in all, the nervous lesion and the local circulatory disturbance precede, and when these exist the microbe establishes itself, as a swarm of bees alights in the hollow tree which can contain them. The microbe once admitted, helps to foster the disease, the nervous lesions continue being produced, new colonies appear and help the leprosy forward.

"We are induced to make this observation by the following consideration: the leprosy microbe is of difficult cultivation, but once cultivated it develops with a rapidity which is in strong contrast with the slowness with which it works in animal economy. On the other hand, the microbe must die in a short time, whenever its development is rapid. Nevertheless, Cornil and Babés affirm that after having been separated ten years, a fragment of leprosy skin was found to contain living bacilli, which is contradictory to their rapid development, unless we admit that, after desiccation, the parasite can remain asleep, like the bed-bug and exists in a latent state for an indefinite time; but such is not the case in the organism, and that is all we have to consider.

"Why does the organism invaded by myriads of microphytes wait so long before it announces their presence? In our opinion, because the soil is not equally well prepared; the affection begins in the territory of certain nerves; it propagates itself, and as long as the nerve is not diseased the bacillus does not establish itself in it; so it goes on spreading, until it reaches a number which can not be contained in the tract of the nerves and in the affected regions; the circulation then takes it up, transports it into all the organs, and the disease from local becomes general. Thus we see that lepers who had lived many years without suffering great pains, nor lesions of rapid progress, suddenly, unexpectedly, present alarming symptoms, which, in a few days carry them to the grave.

"In short, leprosy is a microbial disease, but whose primordial symptoms and lesions are localized in the nervous system and independent of the microbe *sometimes through life*. It is possible to carry the bacillus of Hansen, without being a leper, and *vice*

versa, there are lepers without bacilli." (Cornil and Babés.)

8. "The microphyte," says again Dr. Garcés, "has a very long existence and a power of resistance which protects him against the ordinary climacteric influences. Spread in such profusion, it must, no doubt, surround us everywhere, and if it has not as yet been discovered in the atmosphere, it is because it has not been sought there, and because it is not known well enough. In a land of leprosy we carry all about us the germs of the disease, and all we have to do, is to beware from making ourselves an appropriate soil for it. The contagion can be made by the intermediary of the tainted objects carried by the lepers; but without aptitude for contracting the disease, there is no contagion. The leper will infect us, if we are prepared for that, as the air would do, or any other object conducting the microbe; but without lesions of the peripheric nervous system and of circulation or to speak more clearly, without an entrance door, the disease is impossible. Leprosy, therefore, is a disease which can be caught by contagion, or by contact with lepers, or without it; it is enough to be apt to receive the microbe, which may be caught wherever it is found, and even be carried on the body for a long time.

"An instance is the case quoted by Barber, of a person operated on for a small sarcoma of the face, in which the microbe was discovered, who, in consequence of this operation, became a leper.

9. "Contagion is not common and general, as in small-pox, scarlatina, measles, etc., because these diseases need no initial local lesions; the whole organism is their theater and they find it prepared; for this reason the individuals who escape them are rare. *In leprosy the local lesion is indispensable, and as it is only rarely produced in the required condition, contagion is rare.*" (Garcés.) (Italics my own.)

10. "Heredity of leprosy can not be admitted, unless the disease is admitted as a nervous disturbance; as a microbial disease it has no existence." (Garcés.)

11. Prophylaxis: avoidance of intercourse with lepers, especially those who have reached an advanced stage of the disease, and more than everything else to avoid living in closed places where lepers have resided, and using furniture or other objects which have belonged to them. A guitar, a leprosy dwelling have sufficed once to infect almost a whole family. Insects may transmit the disease: bugs, flies, *pulex penetrans*, baths, beds, etc.

"A young lady of the Department of Santander, traveling with her parents, slept one night at an inn in the same bed in which some nights before a leper had slept. The bed-bugs pricked the young lady that night, and all the prickings were converted in a short time into lepromas and leprosy ulcers. The young lady was seriously ill and died in less than a year with all the symptoms of leprosy perfectly characterized." (Garcés.)

Disinfectants do little harm to Hansen's bacillus, but microbicides like camphor, corrosive sublimate, etc., may be used with advantage to wash contaminated clothing and hands.

12. "In places where leprosy is at home it is necessary to avoid the quick changes of temperature which might stop perspiration; such are, baths in very cold water, being tired, draughts of cold air when coming from a hot room, or when just awakened, or coming

from a dance, or from the neighborhood of a baker's oven or from the ironing board. Don't live in damp places, especially during confinement or any other illness, for experience teaches that after a confinement women predisposed to the disease, acquire it easily, and the same is observed in convalescence from grave diseases, as typhoid, dysentery, etc. We have instances of all these circumstances. It is of the highest importance not to change when you come tired or perspiring from the street, and you must not even enter the rooms before you have arrived at an appropriate temperature; it is better to wait in the hallway." (Garcés.)

13. "Sudden changes of climate in a person already affected by the disease, only precipitate its development, and for that reason travels to *terra caliente*, which are often undertaken by lepers, benefit a few months, that is, as long as they are in the hot country, and exacerbate the disease when the patients return to a temperate and damp climate, like that of Popayan." (Garcés.)

14. "Whatever may be alleged on the other side, sequestration of the lepers is a necessity—for two reasons: the first is that the leper himself flees from a society which hurts his feelings by its loathing and horror; and the second, is the duty of every civilized government, to guard the interests of the community, of which the most important is health. All civilized nations have been alive to this. Leprosy is contagious, contagion is effected by microbes which the leper throws off in his dejections, discharges through his skin, and scatters everywhere, wherever he lives. This fact is sufficiently proved, and requires rigorous measures." (Cornil and Babés.)

But sequestration must not be used by half; to isolate a leper in his own house, in the midst of his family, is only to gild the pill to hide its blackness, without diminishing its effect, and makes us suppose one of these two things: either the nature of the disease and the last observations on it are unknown, or that an official sanction is necessary in order that the sick people continue to live isolated in their houses, as heretofore, and are thus allowed to maintain among the population, centers of infection. On the other hand, to condemn an individual to live cooped up in a room, breathing bad smells and an atmosphere vitiated and infected by those same germs which he discharges from his body, which continually penetrate anew into his organism, and aggravate his condition by auto-infection; to deprive him of exercise and free air is a thousand times worse than to sentence him to the galleys, or to the obscure dungeons of Carthage.

The isolation must be social, not individual, effective and not fictitious, for pity's, duty's, policy's and hygiene's sake, the lepers must be removed from the towns, but provided with all the accommodations required by their condition. They must be considered as sick persons, not as proscribed individuals. They ought to be established in colonies, with hospitals and all the means of living; they must not be disseminated but concentrated in localities where they can work and live in society, without being wounded by the talk of the vulgar, by the repugnance and loathing of friends and acquaintances; in one word, it is necessary to create for them a medium in which they will not be continually provoked to curse their fate, and where their lot will not be made more bitter than it is by itself. It is not at all inhuman to thus

isolate them; it is to give them the greatest boon which they can enjoy; it is to give them liberty, of which they are deprived in our society surrounded by suspicious eyes, victims of cruel speeches, in which the wretches are represented as monstrous beings, engaged in actively communicating to their healthy brothers the horrible plague with which they are stricken, and as guilty of actions so atrocious that the pen refuses to write them down." (Garcés.)

15. The following may give the reader an idea of the way in which this terrible disease affects the feeling of the general public: "Hygiene also commends this measure (isolation); 1, to protect society against a danger which, however far off it may seem, is too terrible to be disregarded, jeopardizes many interests, and is a permanent menace to the people; and 2, because the leper needs air, exercise, liberty, work, tranquillity to lift up his spirit, and removal from all that reminds him of better times and shows him too glaringly his horrible situation. The choice of the site and the regulations for the colony must be carefully considered, so that neither the lepers nor the public have cause for complaint. Each department must have its leper colony well provided with all the necessities and perfectly regulated.

"The lepers, far from being afraid to leave society, will under these circumstances desire to do so, and although their disease will remain, they will have a more tolerable existence than that which they have now, and we shall in this manner stop and cut by the root, a plague which threatens our children and which would put hundreds of families into mourning. Yes, there should be no hesitation. When you least think of it, leprosy may knock at your door, and with or without your consent, cross your threshold. A young, bright lady, 14 or 15 years old, the flower of the family, the mirror in which the father and brothers see themselves, the joy of the whole world, an image of candor and innocence, coming back from a visit, changes imprudently her attire, catches cold, to use the common expression. She soon is covered with wheals, feels her limbs grow heavy, her ears itch and soon begin to swell; reddish or speckled spots invade her lovely face. And now old women's medicine galore; physicians also are consulted, the recommended climates are visited, and, in spite of all that, the spectre pursues her course, he grasps his victim with both arms, consternation spreads in the family; society avoids the victim; slander prepares its arrows, and a hell of horror and suffering succeeds to the gaiety and to the fond illusions of past times. And that is not all; the charming young lady who is the sister of the victim, her interesting brother, are looked at askance, the families shut their doors upon them, nobody will have any relations with a house in which there is a leper; the servants flee, business is paralyzed, sadness and despair reign absolute until comes the moment of separation, if isolation is imposed. To depart! and to depart forever! To become an outcast! To drag out a life of privations, wounded to the very depth of the soul, having no consolation but God; no hope but eternity; exhausted by physical sufferings and tortured by the remembrance of those who were her own, and to whom she leaves a stigma of malediction. It is horrible! It is heartrending! Can such a thing happen in a civilized land, in a Christian society? Can we remain impassive before such a spectacle? And how can we throw such an anathema on the

future generations? Let us cut the evil without hesitation, for we can cut it.

"The lepers who now exist are all Catholics, capable of bearing pain, full of resignation, sufficiently courageous, and virtuous to immolate themselves for their brethren, and suffer alone, the horrors of such a life as has fallen to their miserable lot. All of them will be ready to leave their domestic hearths, when they think of the interests of future generations, and of their own families." (Garcés.)

16. Dr. Garcés recommends the extraction of the tuberculous lepromæ or galvano-cauterization.

CONCLUSIONS.

The most important point which I find in Dr. Garcés article is the fact vouched for by him that leprosy not only very often is not accompanied by bacilli, in its first stage, but that the disease may run its whole course without any microphytic influence or presence. Here again the autochthony of leprosy is raising its head. It seems quite rational to admit that in certain moist climates a condition of nerves is produced, a polyneuritis which results in dystrophia of the peripheral tissues. This would be a quite intelligible origination of the disease. The occurrence of urticarial wheals would imply peripheric nervous disturbance as the very first symptom of leprosy, whether the disturbance be the result of cold, or of some infectious action on the skin, either sound or broken.

The appearance of the bacillus by inoculation directly or through a host, marks a second definite period of the disease. In lupus we have the same trophic loss of tissues as in leprosy, and the bacilli of the two diseases are not distinguishable except by this circumstance, that the leper bacillus is gregarious, while the other is more individual. The microbes presenting themselves so differently may differ in a similar way in their action; this would explain the resemblance which exists certainly between these two diseases, and also the difference. I should think that leprosy and lupus are the same disease with a difference.

FIRE-PROOF ASBESTOS SURGICAL DRESSING.

Read before McKean County Medical Society, Pennsylvania, Oct. 1, 1895.

BY EVAN O'NEILL KANE, M.D.

KANE, PA.

I desire to present for your inspection a number of asbestos materials such as are commonly used in the arts, and to show you how admirably fitted they are to serve as surgical dressings. Their softness to the touch and glistening silkiness of appearance commend them as being unirritating to the skin and soft and cleanly as a covering. I hold that on account of their indestructibility when subjected to high temperature they are the only materials which, as dressings, can be rendered absolutely aseptic, while at the same time the variety of forms in which they can be manufactured enables them to fill all the requirements for which cotton fabrics are used in surgery, and with more satisfactory results.

Appreciating the difficulty one is under in preparing dressings that shall be positively aseptic, and of retaining them so for any length of time, it had always been my custom to have them all thoroughly impregnated with bichlorid of mercury, iodoform, or boracic acid as shortly as possible before using them.

This procedure entailed much loss of valuable time and when operating in accident cases at a distance from my hospital I was always in dread, lest, during transportation to the scene of action or after being spread out among the flies and dirt upon the table of the farmhouse, or lumber shanty, or upon the cushion of a cabin car, a new horde of germs find entrance to them. I am, therefore, satisfied that my present method of only using fire-proof dressings, beside saving much valuable time is the only safe one to pursue, and the results which I have obtained since making use of them have more than justified me, I am sure, in so believing.

Asbestos dressings of all kinds can be kept as carelessly as if they were germ proof. They may be carried in any parcel, paper bag or hand satchel, may be handled by dirty hands, may be spattered with blood, matter, the ejecta from the stomach, or any sort of filth; might be literally crawling with all the worst forms of germ life and yet can be rendered absolutely pure in less than two minutes by tossing them upon the coals or into the blaze of an ordinary kitchen stove or fireplace.

My custom is now to carry with me in my buggy case a compact parcel (asbestos materials are very compressible) containing a sufficient supply of dressings of every sort, necessary to meet the requirements of general operative surgery. When preparing for an operation, I lay out upon a table, board or chair, the amount and sort of asbestos material which I expect to use. When the operation is completed and I am ready to apply the dressings, I instruct my assistant to place them upon the coals or in the flames of the nearest stove or fire and allow them to remain there a few moments, usually until they begin to assume a cherry red, and then remove them with a tongs, fork or whatever else is convenient and spread them out beside me on a clean napkin or piece of paper. Then I dust them with iodoform, aristol or other antiseptic powder, should such be desired, and, as they cool rapidly, proceed at once to apply them to the wound.

When working in my operating room I have a specially constructed receptacle made of wire netting, not unlike a griddle, in which to retain the dressings while subjecting them to heat. I find this unnecessary and cumbersome, however, to carry with me about the country, observing that an ordinary tongs or toasting fork answers the purpose.

Asbestos goods are now manufactured in such a variety of forms that even from a country hardware store the surgeon can supply himself with the materials necessary to dress every kind of wound or injury.

The form of asbestos most largely used by me as a dressing, because most nearly like absorbent cotton of any of the preparations made from asbestos, is asbestos fiber. It is the same substance which is used to make luster in the back of fireplaces. This material is as soft as floss silk or eiderdown, and its absorbent properties are much greater than those of absorbent cotton, an advantage which, aside from any other, recommends its use. The only objection I have yet found to it is that its fiber is not as long as that of cotton, yet after all in many respects this is an advantage. When thoroughly saturated with fluid, the surface of a mass of this material becomes as slippery as soap, a condition which I can not explain, as it is insoluble, but this certainly enhances its value as an application to sensitive surfaces, such for in-

stance, as the inside of the orbit after the removal of an eye, or to the anus after an operation for hemorrhoids. It is certainly the very best substance to apply as a first dressing after laparotomies, or as a covering to the stump after amputations.

Next among the asbestos materials in usefulness will be found asbestos paper, or felt, as the manufacturers call it, which can be purchased by the yard for little more than ordinary wrapping paper. It is manufactured in various thicknesses, from that of newspaper up to that of the heaviest binder's board. Its quality also varies greatly, the texture of some being much smoother than that of others. This paper may be made use of for bandages by cutting it in long strips of the desired width and length; for light wrapping paper it is sold by the pound in rolls of any length desired. Such bandages are not strong enough to stand a great strain, as muscular contraction or the retention of a heavy weight, but will answer all ordinary purposes as a means of retaining dressings in position. They are well adapted for holding inner dressings in place and wherever an aseptic bandage is necessary. Being in fiber not unlike strong parchment paper, these bandages are more easily removed by the scissors than are those made by cotton cloth. It is also useful in most instances where absorbent lint or gauze generally find their place. It will prove valuable as an application or covering to raw surfaces, such as those of open granulating wounds. Its texture and tendency to become slippery render it unirritating, while its absorbent properties, which are equal to those of the best blotting paper, enable it to take up and carry away discharges and exudations which under rubber tissue, lister protective, wax paper or waterproof material would be retained. For dressing wounds, I generally lay it directly upon the raw surface without previously dusting it with any antiseptic powder, in order to retain its full value as a non-irritant, it being already aseptic, and if there is much exudation I cover it with a layer of asbestos fiber which I dust thoroughly with iodoform or boracic acid. By this means the discharge from the surface beneath being rapidly absorbed through the paper which has no irritating antiseptic in it, is completely taken up, carried away and disposed of by the overlying layer of fiber which, containing as it does an antiseptic among its meshes, prevents decomposition taking place.

Asbestos wicking, packing and cord which are sold by the pound in rolls or balls are all admirably adapted for drainage tubes or wicks. They are soft, pliable and smooth, slippery when thoroughly wet, and very absorbent. I use them largely as a packing for abscess cavities and have found them answer admirably as a wick packing in the excavations left after the removal of dead bone, as within the shaft of the tibia, etc. In such an event they should be thoroughly impregnated with iodoform or boracic acid and fed into the cavity with a dressing forceps, in the same manner as in tamponing with absorbent gauze. They will be found to fill more closely every interstice and with much greater ease of application than the latter. They are also more absorbent.

As an aseptic sponge or swab, I have not given asbestos a thorough trial as yet. The fiber, however, takes up moisture so readily and is so smooth and slippery when wet that I believe, were it made in little bunches covered with asbestos cloth, in the same manner that we now make cotton or wood wool swabs,

it would be found most serviceable as a sponge, one which could be relied upon and absolutely free from septic material.

Asbestos cloth, as at present manufactured, is too coarse for surgical uses. I see no reason, however, why it can not be made sufficiently fine to answer all purposes for which cotton cloth is now utilized. It would be found softer, more absorbent, and less likely to adhere to raw surfaces.

My method of application of asbestos dressings does not differ materially from that resorted to in applying those ordinarily used, except that on account of their greater absorbent properties, they can be retained in position for a longer time without fear of sepsis or the collection of discharges about the surface of the wound.

I will not enter into the details of my *modus operandi* in the application of these dressings, making use of them as I do, precisely in the same manner as of other materials for the same purpose.

It is not my wish to urge the superiority of asbestos dressings either on account of their soft, unirritating texture or for their remarkable absorbent power, but simply because, as I have already pointed out, they are more readily, more rapidly and more certainly rendered aseptic than any other dressing materials.

I have recently made use of asbestos materials largely, both in my hospital and outdoor practice, having applied them to a great variety of wounds among which were laparotomies and various other capital operations. In all cases the dressings were first subjected to great heat, usually until their edges became incandescent, before they were applied. Frequently, it was not considered necessary to impregnate them with antiseptic powder, but in all cases the results proved equally gratifying. Much time and annoyance in preparation heretofore necessary has been saved; a hot fire being always within reach. When attending patients in the country I have, a number of times, re-dressed with the same dressing when by some neglect new material had not been brought with me for the purpose. It only became necessary to wash them thoroughly to rid them of the more tenacious of the discharges and to then subject them to a cherry red heat to restore them to purity. Repeated heating, however, seems to injure the pliability of the fiber, rendering it friable. Still to the country surgeon, there is an advantage sometimes in being able to use the same dressing more than once, even if it is not as silky after its second heating.

It must be admitted that asbestos materials, roughly manufactured as they now are, chiefly for the use of builders and mechanics, do not look as attractive as our snow-white surgical cotton, absorbent lint and the like. Yet if Keen, Morton, Parke and other leading surgeons were to become convinced of their superiority, the makers of surgical supplies would soon manufacture a line of them which would in every respect be superior to the ordinary cotton dressings now in use.

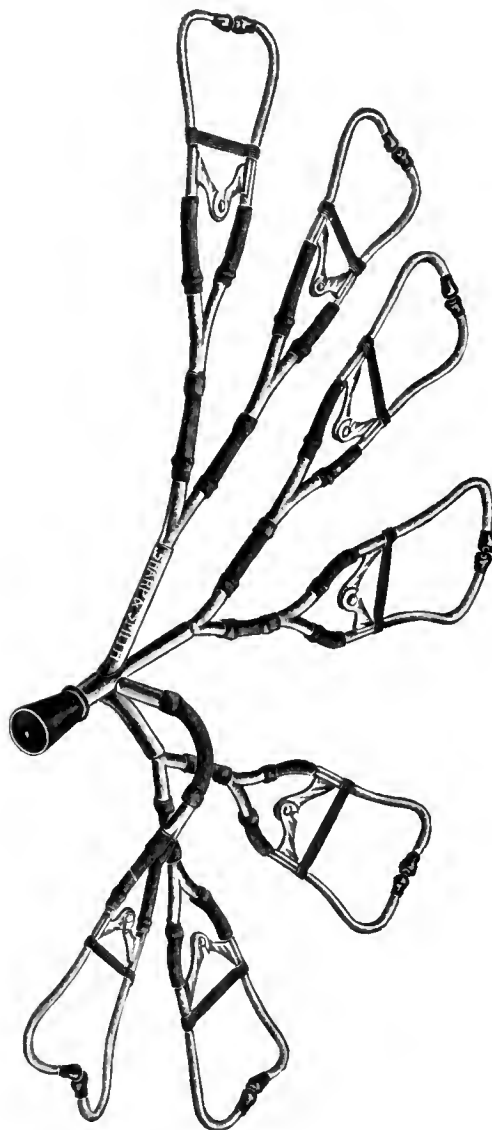
Sterilization of Catheters.—A new apparatus has recently been demonstrated, depending upon the action of the vapor of formalin. Sterilization is complete; the instruments remain aseptic so long as they are kept in the apparatus; gum, silk and metal catheters and a cystoscope were so treated and remained uninjured by the process during eight months, and no irritation of the mucous membrane of the urethra resulted.—*Therapeutische Wochenschrift*, Oct. 6, 1895.

NEW INSTRUMENTS.

A MULTIPLEX STETHOSCOPE.

BY A. M. CORWIN, M.D.
CHICAGO.

In the February number of the JOURNAL I described a double stethoscope which I have employed during the past three years for class demonstration of physical diagnosis in Rush College. In a later number of the JOURNAL, Dr. H. A. Hare, of Philadelphia, described a multiplex stethoscope upon the same principle, but using tubes long enough to allow some sixteen individuals to listen at once.



The double stethoscope makes possible the accurate demonstration of sounds which both instructor and student hear together—a multiplex stethoscope, if properly constructed, not only has this in view, but more, in the saving of time. I have devised a multiplex stethoscope as represented in the accompanying cut, kindly furnished by Sharp & Smith, of this city. I first experimented with long tubes. A semicircle of twelve chairs, placed side by side, will bring a patient at a radial distance of about five feet; while the ordinary sounds of the heart and of normal bronchial breathing can be fairly well heard through

this length of tubing, the less distinct sounds, as those of vesicular breathing and most of the adventitious sounds, râles, etc., are but poorly transmitted.

After trying several shorter lengths and lessening the number of listeners, I have found that two feet is about the limit. Tubes of greater length than this do not satisfactorily carry many of the sounds perfectly accessible to the ordinary stethoscope, and are therefore not applicable in the construction of a practical instrument for the class room.

The instrument here represented will accommodate six students seated in a semicircle close about the patient, who, if occupying a revolving seat, may be rotated as desired to make all parts of the chest conveniently accessible. The demonstrator stands behind the patient and by a seventh stethoscope, connected at right angles to the main chest piece, is enabled to listen with the others and to manipulate both instrument and subject. When the ear pieces are all in place there need be no handling of the apparatus by the students. Necessary questions are readily heard and answered without the removal of ear pieces, so that there is no more difficulty in avoiding extraneous friction sounds than in the use of a single stethoscope.

As to the size of the tubes used, all stethoscopes should be constructed so that the internal caliber of ear pieces and main arms of the instrument is about that of the external auditory canal, as exemplified in the ordinary Knight's stethoscope, after which the metallic arms of my instrument are patterned.

In my experience, no better results can be obtained by a larger caliber than this. If the caliber is smaller, there is to my ear a decided decrease in the distinctness with which sounds may be heard.

Short pieces of stiff rubber tubing are used in connecting the metallic parts of the multiplex instrument. The distance from the extremity of the chest piece to each ear piece is about 22 inches. Further than this the relations of the parts is too obvious to need description.

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Seventh Annual Meeting held in Chattanooga, Tenn.

(Continued from page 960.)

DR. WILLIS F. WESTMORELAND read a paper on
REPORT OF CASES; *a*, TRACHEOTOMY FOR FOREIGN BODIES; *b*,
CYSTOTOMY FOR STONE.

He reported twenty-seven successful operations for foreign bodies. In all the first ring of the trachea was cut and the opening enlarged down as necessary. Operated as early as possible. The external incision was made large. Muscles were separated, the fascia divided, vessels were ligated, so that no forceps were in the road. If necessary the isthmus of the thyroid was divided and ligated. No tenaculum was used in the trachea. Instead of trachea forceps, the opening was held open with silk introduced with a needle having no cutting edge. The foreign body was not probed for, but if necessary the wound was left open, in one case (cockle bur) for three days. The mucus will sometimes prevent closure of the wound. In closing the latter, the tissue under the mucous membrane is brought together with silk, using a needle having no cutting edge and the Halsted or mattress suture. Thus the layers were all brought together. In cystotomy for stone, he avoids rectal dilatation. Hydrostatic pressure is used to distend the bladder, raising the water two feet. This causes the bladder to bulge through the opening. No tenaculum is used to steady the bladder, but it is held with two artery forceps, between which the inci-

sion is made as high as possible. After removing the stone and flushing the bladder, the opening is closed with the Halsted suture and the closure tested by raising the water (an instant) three feet.

Dr. G. A. BAXTER indorsed the position of the writer, but was attached to the medio-lateral operation. Stone is rare in this section, there not having been a dozen operations in fifteen years. The trouble is more frequent in Middle Tennessee.

Dr. J. A. GOGGANS related a case in which the larynx was almost occluded at the site of the thyroid cartilage by a new growth, so that he had to operate rapidly to save the patient. Throwing the head back increased the difficulty of breathing, and the head had to be held forward and the larynx steadied with the tenaculum. He said that suprapubic cystotomy was the operation *par excellence* for stone. He was prejudiced against the low operations, as he was once called on to sew up a large fistulous opening between the bladder and the rectum in a case sent him. He had attempted to sew up the opening by silkworm gut, operating through the rectum. At the third operation he had divided the sphincter ani muscle and almost closed the fistula.

Dr. W. E. B. DAVIS said that he was glad that both operations were fairly considered. The results of the older surgeons were good. They performed the low operation. He found that statistics of the suprapubic operation were bad, because bad cases were selected for the operation. A distinguished surgeon had so operated in a bad case to save his statistics for the low operation. This shows how statistics can be doctored. He thought it well to leave the wound open for drainage, for there is always disease of the bladder and we may have a new stone in a few weeks.

Dr. R. J. TRIPLE said that his experience was limited to a few cases operated on for disease, and advocated leaving the wound open for drainage. As a guide he used a sound. Did not fill the bladder with water, but washed it out before the operation. In tracheotomy, he uses long scissors forceps and does not stop to ligate the vessels. These held the wound open and saved an assistant.

Dr. WESTMORELAND, in closing the discussion, said that time was an important item, but that we had two minutes after the child quit breathing, for he could be resuscitated after that time. He advocated cutting high in suprapubic cystotomy as the bladder was near the surface, being quite deep at the pubis. The tenaculum was avoided, as the urine might be voided through the small opening. The buried silver wire was used, owing to the fact that it took several weeks for muscular tissue to unite and no other suture would last that long. According to Gregg-Smith, without this suture 20 per cent. of cases of laparotomy had hernia.

It would make no difference if the peritoneum were cut in the high operation. In these cases the wound was not left open, as they were not cases of disease.

Dr. J. A. GOGGANS, of Alexander City, Ala., read a paper entitled: "Early Diagnosis and Vaginal Hysterectomy in Cancer of the Uterus," dwelling on the importance of prophylaxis, early diagnosis and early operative treatment by vaginal hysterectomy.

Dr. A. R. ROBINSON, of New York, read a paper on

THE TREATMENT OF MALIGNANT CUTANEOUS EPITHELIOMATA.

In cases where the diagnosis is not positive, iodids and mercury should be used. The elements extend much further than is generally supposed, when they are excised, pathologic cells are left and we have so-called recurrence which is really a reappearance, when the wound has been treated antiseptically. Suppuration should be encouraged, as the toxin of the pus is more destructive to the epithelioma cells than the erysipelas toxin. He opposed cutting and advocated the use of caustics. The toxins had cured no cases, though some may have been benefited. The caustic should destroy the tissue quickly and thoroughly. Mild caustics, as nitrate of silver, should not be used. Caustic potash liquefies the tissue as much as would be removed with the knife; beyond this there is an inflammatory exudate which destroys the pathologic elements. The cancer cells may extend deeper than could be reached with the knife; here the potash is preferable. There is less deformity than with the knife; more than with arsenious acid. Chlorid of zinc acts more slowly, suitable only in certain locations as near the eye, also in the papillary form previous to the use of arsenious acid. Pain may be avoided by mixing it in a 20 per cent. solution of cocain. Arsenious acid has a more elective action on the cancer cells and should, as a rule, be used weaker than in Marsden's paste (2 parts to 1 of gum arabic). It may be used 2 to 1 or 1 to 1. This will not at-

tack normal tissue in twenty-four hours. It should then be removed, and if there is not sufficient necrosis, applied immediately for sixteen to eighteen hours. Cases should be watched for a year or two, as there may be a reappearance. Arsenious acid may be applied to the lips if care is taken to prevent getting it into the mouth, but on the nose it is especially valuable on account of deformity.

These papers were discussed together.

Dr. R. R. KIME said that it was unfortunate that cancer of the uterus is not diagnosed early. Often the symptoms are not well defined and are very insidious, not being detected sometimes until the disease is so far advanced as to preclude operative measures. It was not possible to get women to submit to repeated examinations as recommended by some gynecologists. Every physician should insist on proper examination of all women near the menopause that present symptoms or indications of cancerous disease.

Dr. W. E. B. DAVIS thought that these cases were overlooked as they were so insidious in their development. Every case of diseased cervix should be treated and cured. He advised removal of the uterus and appendages for cancer.

Dr. P. L. BROUILLET asked as to the danger of systemic effects from arsenious acid.

Dr. GOGGANS said that wherever there was cancer there had been irritation, hence the necessity of removing every source of irritation and every pathologic condition as prophylactic.

Dr. ROBINSON had applied arsenious acid on a surface as large as the hand and had seen no systemic effect. Marsden advised not over an inch square. If seen early, caustics are all that is necessary in cancer of the skin.

Dr. J. P. STEWART, of Attala, Ala., read a paper on

HEMORRHOIDS.

in which he dwelt on the necessity of an examination under chloroform if necessary. Where tumors are small, he used a solution of red gum as an injection into the rectum; if larger, they are destroyed with the clamp and cautery.

Dr. E. P. JOHNSON had treated cases successfully with injections of carbolic acid, 2 parts to 1 of olive oil, to which was added one-fourth grain of morphin to each injection.

Dr. J. B. COWAN alluded to the new operation of excising all the hemorrhoidal tissue. These cases often fall into the hands of quacks who inject carbolic acid and give temporary relief. He likes the old method of tying the tumors. In a bad case, where there was no distinct tumor, he caught the tissue with a tenaculum and thus tied it, putting in fourteen ligatures. The result was perfect.

Dr. R. R. KIME said that many hemorrhoids can be dissected out entire, and the wound closed by over-and-over catgut stitch with excellent results, leaving no raw surface to granulate. Where blood supply is marked, will require ligature at base. Has devised a speculum by which rectum can be ballooned in knee chest position in the same manner as the vagina in gynecologic work.

Dr. G. A. BAXTER insisted on varying the treatment in different cases. Carbolic acid he considered dangerous. Could not examine without paralyzing sphincter. Was always able to find a distinct tumor.

Dr. R. P. JOHNSON said that the tumors are destroyed if the solution is strong enough and they are completely killed.

Dr. R. R. KIME read a paper on "Synthetic Perineotomy in Lacerations of the Perineum," using the term to designate a method of dividing and dissecting without loss of tissue. The redundancy is due to hyperplasia, a subinvolution, which will disappear when the cause of the laceration is removed. The method was described in detail and cases cited.

Dr. W. E. B. DAVIS said there was more in the man being familiar with the method he adopted than the operation. It was important to differentiate between perineal tears and those of the posterior vaginal wall.

Dr. W. E. B. DAVIS, of Birmingham, read a paper on "Bile in the Peritoneal Cavity and How to Deal with It." He presented an experimental and clinical study of the subject. The experiments confirmed the position taken before the AMERICAN MEDICAL ASSOCIATION in 1892. The constant extravasation produced peritonitis unless there was satisfactory drainage. A considerable quantity would be walled off, just as would any other irritating fluid. It was noted that where gauze was packed around the openings in the gall bladder or ducts, the animal recovered, as a rule. The field of operation was walled off completely and there was no evidence of general peritonitis. Numbers were reopened in twenty-four to forty-eight hours and this condition found. He took the position that in obstruction of the common duct

by stone, an incision should be made, the obstruction removed and drainage established without an attempt being made to close the opening, as these cases will not stand long operation.

DR. E. J. TRIPPE, of Chattanooga, reported several cases of "Appendicitis," illustrating the necessity of early operation and the fact that some die, no matter when operated on, and the technique.

These two papers were discussed together.

DR. R. R. KIME said that many cases would get well without operation, but it is very difficult to tell which. By use of salines and disinfectants many can be relieved by unloading the colon, relieving the hyperemia and establishing drainage. If a case is progressing nicely for some days and gets worse suddenly and seriously, then operate without delay. Would advise against an attempt to remove the appendix when an abscess cavity was opened, which is walled off from the general peritoneal cavity.

DR. C. HOLTZCLAW had had fifteen cases of appendicitis but had never been called on to operate. They recovered with an ice-pack over the inflamed area. Operation should be performed if there was any evidence of suppuration, elevation of temperature or collapse.

DR. G. A. BAXTER said that the danger was not in operating but in delay. The question lies in a diagnosis between obstructive and catarrhal peritonitis. When we have a distinct enlargement and induration we have obstruction.

DR. R. M. CUNNINGHAM said that Dr. Davis was departing from his usual teaching, as he had maintained that normal bile would not produce peritonitis. In a large number of post-mortems the appendix was not found inflamed once in a hundred times. Operation is indicated where there is pus, swelling and induration.

DR. J. P. STEWART always cures his cases with salines. He related a case of injury to the gall duct, followed by distension of the gall bladder. He aspirated and got five pints of fluid and bile, the next day two pints, later one pint; the obstruction then gave way and the same fluid passed per rectum.

DR. J. B. MURFREE said that no operation should be made for appendicitis unless there was some indication, such as recurrence or gross local changes.

DR. P. D. SIMS did not recall a case of death from appendicitis which had not been operated on. It might be required, but swelling and obstruction did not indicate an operation.

DR. R. H. HAYES praised the high stand taken by Dr. Davis in the surgery of the duct, and asked as to the preliminary and after-treatment. In regard to appendicitis Telamon, of Paris, had published statistics giving 90 to 95 per cent. of cures without operation. An English author gave similar statistics; whether these are reliable or not he can not say. Many claim that when one has an attack of appendicitis he has a constant source of danger in his belly. A few years back this was the main indication for the operation, and in this view it seemed that the operation should be performed at any opportune time.

DR. DAVIS thought the case of Dr. Stewart not a case of distension of the bladder, but that a cyst had formed. It was saved by the operation. The after-treatment was the same as in other cases of abdominal surgery. He thought catarrhal cases of appendicitis were common. When there is obstruction, there is pain. Each case should be treated on its merits. Some need operation. In general septic peritonitis the patient will die if operated on.

THIRD DAY.

DR. J. R. RATHMELL, of Chattanooga, read a paper entitled "Acromegaly—Report of a Case." He stated that Paul Marde first described the disease in 1886, his theory being that enlargement of the pituitary gland was the cause of the disease. In the case reported, with the symptoms common to the disorder, there were two uncommon symptoms. These were long continued abnormal rhythm of the Cheyne-Stokes variety, and the inability to retain food or drink on his stomach for three months before. Both symptoms were accounted for by the enlarged pituitary body, which weighed 475 grains instead of 5 or 10 normally. The author believes the disease to be one of trophic origin, producing changes in the bony system, especially of the feet, face and hands; that the enlargement of the pituitary body and the other ductless glands was the result, not the cause, of the disease.

DR. W. C. TOWNES, of Chattanooga, read a paper on "Acromegaly," exhibiting specimens from Dr. Rathmell's case, the enlarged pituitary gland and a part of the ileum with a diverticulum. He reported a case now under treatment, a marked feature of which was that although 52 years

old, there was no impairment of the sexual function. He believed the disease to be due to the pressure on the brain produced by the enlarged pituitary body.

DR. W. G. BOGART said that these cases were rare. He had seen Dr. Rathmell's case. The enlarged tongue made articulation difficult, the labored breathing gave evidence of suffering. The points of interest were the length of time required for the development of the disease, four years, and the question whether anything could be done if the diagnosis were made early.

DR. E. A. COBLEIGH asked if it were not possible that the condition was a persistent accentuation of a normal process and, if so, as to the cause. He reported a case presenting some of the symptoms.

DR. J. BERRIEN LINDSLEY said that the paper was an evidence that the profession was advancing, and in this respect second to none. A disorder was being discussed, the name of which had not yet got into the dictionaries.

DR. J. R. RATHMELL said that the first evidence of the disease was loss of strength and enlargement of the extremities. He believed it a disease of the osseous system, especially of the feet, face and hands; but it affects the whole bony system, just as we have a pseudo-hypertrophic muscular paralysis. The line of treatment was to build up the system, and use electricity. He had got some comfort from the latter.

DR. J. B. COWAN, of Tullahoma, Tenn., read a paper on "Water versus Atmosphere the Cause of Malignant Malarial Fever," and related observations where water from clear springs was evidently the cause of malarial fevers. One case, where there were two springs connected under ground, the upper was healthful while those who used the lower had the disease. A marsh between the two formed a nidus for the development of the miasm. In almost every instance where well and spring water had been abandoned for cistern water, malarial fevers had disappeared. In a village supplied by a well, all had the disease except one family who used other water. So many similar instances had come under his notice that he invariably changed the water in his malarial cases. If sterilized water were used malarial fever would be unknown.

DR. E. T. CAMP could not agree that malaria was in the water alone; some of the poison might be so absorbed. But it was said that in the tropics one would get a chill by sleeping in the open air. He believed the air was the principal medium.

DR. C. HOLTZCLAW differed from Dr. Cowan, and related a case where there was no improvement on removing to a location where there had been no malaria for eight years.

DR. W. G. BOGART said that water was one of the means of introducing the poison into the system, but not the only means. In a certain neighborhood where different waters were used, all were affected, whether they were cleanly or not.

DR. Y. L. ABERNETHY observed that when we have a wet summer we do not have much malarial fever. The paper seemed conclusive that we get the disease from water; but why don't we have it every year and why don't we have it all the time? The old theory was that it was due to the heat, moisture and decomposition. Bowling's theory was that it was due to water so confined as to prevent evaporation. Now it is said to be due to a germ. Whichever is correct, it is true that nineteen-twentieths of the diseases of the West and South are due to malaria, so that we have to give quinin, iron, arsenic, mercury, etc.

DR. COWAN said that the reason we did not have the disease every summer was because the heat did not develop the germ. All cases of malignant malarial fever were due to drinking water. In parts of the South, where malaria was formerly prevalent but now unknown, it was due to the use of cisterns. In one case a party camped several years on a lake and had malaria every year; they escaped by taking their water with them, although sleeping in the open air as before.

DR. J. BERRIEN LINDSLEY presented a paper on "Prevention of Smallpox." He did not believe that one-fourth of the people of Tennessee were vaccinated. Doctors were not willing to acknowledge their inability to diagnose smallpox, hence mistakes occur. In Little Rock the disease was under way six weeks before its nature was discovered. A rule of sanitary boards is, in case of doubt to give the public the benefit of the doubt and isolate the case. All suspicious cases should be sent to some public institution. He related several cases where undiagnosed smallpox resulted in spreading the disease and causing death.

DR. A. BERLIN said the microorganism of smallpox was not yet discovered and we were left to empiricism. Jenner had

done more for the race than Napoleon with all his wars. In the Franco-Prussian war more French soldiers died from smallpox than were killed in battle. The disease was unknown in the German army, as the soldiers had been vaccinated.

DR. LINDSLEY said that the reason smallpox was dangerous was because of the neglect of vaccination. This fear did not exist when he was a young man starting in the profession. The profession had not done its duty in the matter of insisting on vaccination.

DR. E. T. CAMP, of Gadsden, Ala., read a paper on "A Complicated Case of Obstetrics with Rupture of the Uterus." It was a transverse presentation. The child was asphyxiated but resuscitated. The placenta not being delivered in an hour, chloroform was administered and the hand introduced into the uterus when the rupture was discovered. The placenta was adherent but torn away; morphin administered but death took place in four hours. He thought rupture took place before the version and was spontaneous. If the placenta could have been gotten away and contraction induced, the patient might have been saved.

DR. Y. D. ABERNATHY thought it possible, if a laparotomy had been performed.

DR. W. G. BOGART said that the three interesting points were: 1, the time of the rupture; 2, the cause; 3, the absence of symptoms. We would expect to have all the well-marked conditions of shock. The strange thing was that that there was no pain, loss of blood or shock. With the complications—mal-position, adherent placenta and rupture of the uterus with bad surroundings, death was inevitable.

DR. S. P. STEWART thought the patient died from hemorrhage, not from shock. A post-mortem would have been of interest.

DR. D. S. MIDDLETON thought the adherent placenta indicated a diseased structure, and this caused the rupture. The administration of chloroform opened the mouths of the vessels and death was from hemorrhage.

DR. C. HOLTZCLAW said the only chance was to sew up the rent after doing a laparotomy.

DR. J. R. RATHMELL said that having a general adherent fibroid placenta, the only thing was to let it alone and remove the entire uterus.

DR. G. A. BAXTER thought that an operation should have been performed quickly and the operator governed by circumstances after opening the abdomen.

DR. R. M. CUNNINGHAM thought the Doctor did the best to conserve his own reputation. The case would have died anyway. To be in line with modern surgery, an operation should have been performed.

DR. CAMP said that there was nothing to indicate the condition until the discovery was made. In a similar case he would not operate, as the adherent placenta would have produced death later.

DR. R. H. HAYES, Union Springs, Ala., read a paper on "The Nucleins and Their Relative Position in Sero-Therapeutics." The nucleins are protoplasmic or bioplastic; cell substance the bioplastic or primal unit of the organism; the cell life, vital and resistant force; a proteid granular, cell life substance in which all vital energy and cell life resistant force originated, and through which all animal nutrition took place. The nucleins are proteid bodies residing in the tissue cells and the yeast of certain plants (animal and yeast nuclein). The former taken from the blood and lymphoid glands of the body, residing principally in the polynuclear blood corpuscles or leucocytes, the proliferation of which they have the power of increasing (leucocytosis). They are natural defenders, arresting and overwhelming all alien or disease germs as they enter the blood stream. Vaughan and McClintock have developed them. They are gotten up in three forms; nuclein solution from the yeast of certain plants, vegetable; nuclein solution from the tissues of the body, thymus, thyroid, liver, spleen, etc., animal; from the tissue direct, protonuclein. The principle difference between the antitoxins and toxins is that the toxins antidote or antagonize the poison or ptomaine formed by the presence of alien or disease germs, they belong to the class of albumin serums and they attack the germs direct as soon as they reach the blood stream. The nucleins are more direct, if less powerful, and have the advantage of attacking through the leucocytes any or all germs entering into the system. Reports are encouraging from eminent men. The author reported an ulcer of sixteen years standing cured in four months. Another case of ulcer of the ankle (both non-tubercular) very greatly relieved in same time. He favors, from limited experience, more general application of the nucleins.

DR. G. W. DRAKE indorsed the use of these agents on theoretical grounds. Intends to use them and await results.

DR. C. HOLTZCLAW cited the transfusion of blood as being the use of nucleins; salt water does as well. The Valentine meat juice injected near an ulcer was found beneficial, but water does better. The whole business was an advertising scheme. These preparations should be under the control of the government.

DR. R. P. JOHNSON, of Chattanooga, read a paper on "Treatment of Diphtheria," and gave his experience with established methods, indorsing especially the benzoate of soda. He read a letter from Professor Klebs, who did not speak favorably of the antitoxin treatment, but asserted better results from anti-diphtherin. He described a method of steaming the patient with quicklime to loosen the membrane by covering him with a sheet.

The following were read by title: *When Consumptives Should go to Colorado and Why?* by J. C. Minor; *The Diagnosis of Incipient Phthisis*, by L. P. Barbour; *Some Simple Procedures in Tedious Labor*, by R. M. Harbin; *Uric Acid as a Factor in Disease*, by E. van Goidtsnoven; *Sympathetic Ophthalmia*, by Frank Trester Smith.

The following officers were elected for the ensuing year:

President, J. B. Murfree, Murfreesboro, Tenn.

Vice-Presidents, R. J. Trippe, Chattanooga; R. R. Kime, Atlanta; R. H. Hayes, Union Springs, Ala.

Treasurer, Geo. R. West, Chattanooga.

Secretary, Frank Trester Smith, Chattanooga.

The next annual meeting will be held in Nashville, Oct. 13, 14 and 15, 1896.

BOOK NOTICES.

A Manual of Syphilis and the Venereal Diseases.—By JAMES NEVINS HYDE, A.M., M.D. and FRANK H. MONTGOMERY, M.D. Illustrated. Philadelphia: W. B. Saunders. 1895. 8vo, el. Price \$2.50.

This volume contains the "essentials" of the subject, and he who masters all that is so clearly expressed in this handbook will have little need for the more elaborate treatises. We are very pleased to note the advanced views of the authors on constitutional infection from the various venereal diseases. On this subject we quote from the introduction, p. 20:

"The proposition once held can no longer be sustained, that gonorrhoea and soft chancre are purely local diseases as contrasted with syphilis, which is admitted to have systemic effects. The generalized results of gonorrhoea are in many instances too striking to admit even of question; and in special cases the perpetuation of the soft chancre for years, with the damage resulting to the rectum, vulva, abdominal wall and thighs, with the production of marked cachexia, often renders that affection one of even greater severity than the milder cases of syphilis."

This concedes about all that was claimed by the "unitarians," except the comparatively unimportant one of identity. That systemic poisoning could occur from the chancreoid ulcer, was a proposition bitterly fought by the "dualists," but in this case the long record of clinical experience has buried them out of sight. The authors also assert that "the evidence of a remote antiquity for the venereal diseases in general, is very strong." The authors speak of the term "gonorrhoea" as a misnomer, and very properly if we mean a specific urethritis, but the ancients used the term to describe the disease which we term spermatorrhoea, and their use of it was entirely correct. Paulus¹ says, "Gonorrhoea is an involuntary discharge of semen, taking place frequently without erection of the privy member, owing to weakness of the retentive faculty." This is the view held by all the ancient writers. When we come to Fracastorius and the writers of the sixteenth century we find that the confusion in the nomenclature commenced in the dark period of literature. The ancients were clear enough on the subject.

Jahrbuch der Practischen Medicin.—Herausgegeben von Dr. J. SCHWALBE. Stuttgart: Ferdinand Enke. 1895.

This annual of practical medicine has undergone since last year an unexpected change. Up to this year it had, in com-

¹ The seven books of Paulus Aegineta, London, 1844.

mon with similar works, continued to increase from year to year in size so that it threatened to gain pathologic dimensions. The present editor, Dr. J. Schwalbe, so well known as the editor of the *Deutsche Medicinische Wochenschrift*, saw the necessity of instituting certain changes in the make-up of the *Jahrbuch*, in the interests of the practitioner for whom it is published. So judiciously have these changes been carried out, that it is in its new form probably the best handbook of current medicine that is anywhere published for the use of the practitioner. While it fails to crowd all that has appeared in the previous year—good, bad and indifferent—into one voluminous book, or even into several volumes, it is far from being a short and limited compilation of only the most important publications, condensed within the scope of a convenient little volume. On the contrary, on 625 octavo pages we find such a thorough and critical review of last year's medical literature, that probably few, if any, really important publications have been overlooked. Much has been gained by the omission of special chapters on Anatomy and Physiology, as not pertaining to the requirements of a book of this character; but, while there has been some limit to the endless variety of publications in the different specialties, referring to compromises not yet settled among the specialists, to new theories, preliminary communications, etc., nothing has been omitted of the methods of specialism that have been or are likely to become of value in aiding the diagnostic or therapeutic resources of the practitioner.

It would be going too far to give a detailed account of the contents of this book. A glance at them and the editorial staff will show what can be expected. Following are the headings of the principal chapters: General Pathology. Pathologic Anatomy, and Bacteriology, by Professor Ribbert (Zurich); Diseases of the Nervous System, by Professor Seeligmüller (Halle); Psychiatry, by Dr. Lewald (Berlin); Diseases of the Respiratory Organs, and Diseases of the Circulatory Organs, by Dr. J. Schwalbe (Berlin); Diseases of the Digestive Organs, by Dr. Rosenheim (Berlin); Diseases of the Urinary Organs, by Professor Fürbringer (Berlin); Infectious Diseases, by Dr. Freyhan (Berlin); Anomalies of Constitution, by Dr. Freyhan (Berlin); Surgery, by Professor Kolaczek (Breslau); Obstetrics and Gynecology, by Dr. Czempin (Berlin); Ophthalmology, by Professor Horstmann (Berlin); Otology, by Dr. Koch (Braunschweig); Laryngology and Rhinology, by Dr. Michael (Hamburg); Skin and Venereal Diseases, by Dr. Joseph (Berlin); Diseases of Children, by Dr. H. Neumann (Berlin); Climatology and Balneology, by Dr. Butz (Munich); *Materia Medica* and Toxicology, by Professor Harnack (Halle); Forensic Medicine, by Professor Strassmann (Berlin); Hygiene, by Dr. Pfeiffer (Wiesbaden).

The book is exceptionally complete, and the abstracts are short, concise and to the point. A valuable aid in finding any desired article is—in addition to two complete indices of subject-matter and names—a system of marginal notes throughout, giving the title of every article as well as the author. It is but fair to state that a rare impartiality has been shown in the reviewing as well as in the selection of articles, American authors being well represented. The general practitioner as well as the specialist will find this work a most fruitful source of information.

Supplement to the International Encyclopædia of Surgery.—Edited by JOHN ASHURST, JR., M.D., LL.D., Philadelphia. One royal octavo volume of 1,136 pages, illustrated by numerous wood engravings and a chromo-lithographic plate. Cloth, \$7.50; leather, \$8.50. To subscribers to the entire set, cloth, \$6.00; leather, \$7.00, and half morocco \$8.00.

This volume is intended to supply the readers of Ashurst's International Encyclopædia of Surgery a statement of such additions and changes as have taken place since the revised edition of that work was issued, seven years ago; naturally, therefore, the book is rather a series of surgical essays than a connected system of surgery. Although the conservatism of the distinguished author leads him in the preface to eschew any claim to include "thoretic novelties," yet this dictum has not prevented the various contributors to the volume from presenting very much that will be new to many.

As might be expected, the great activity that has taken place in bacteriology and surgical pathology has caused the

re-writing of many topics, and in certain directions, such as that of cerebral surgery. So much has been added that the usefulness of the book will by no means be confined to those fortunate possessors of the entire work.

All the topics treated of have been brought quite up to date, and we only refrain from giving a list of the numerous titles on account of lack of space. Suffice it to say that there is no attempt at padding in this great book of over a thousand pages, but the topics are those of living interest to the surgeons of to-day.

It is printed in the same excellent style as the preceding volumes of the series, and copiously illustrated.

An American Text-Book of Obstetrics for Practitioners and Students, by various authors. RICHARD C. MORRIS, M.D., Editor, ROBERT L. DICKINSON, M.D., Art Editor, with nearly 900 colored and half-tone illustrations. Philadelphia: W. B. Saunders. 1895. Cl., pp. 1009. Price \$7.00. For sale by subscription only.

This text-book is written by well-known teachers in some of our leading medical colleges, and is a credit to American medical literature. The publisher has provided good paper, clear and beautiful print with artistic illustrations. Indeed, it is only just to say that no work heretofore published in this country surpasses it in these respects. Some of the illustrations are works of high art. See for instance (Fig. 194 p. 357), plate 48, facing p. 754, and the reproduction from Sappey (Fig. 2 plate 9), facing p. 66. We can not praise the book too strongly, for it sets forth the subject in an excellent typographic fashion, and the text represents the latest teaching of the obstetric art. The names of authors are printed with the list of titles in the table of contents; an arrangement which enables us to attach the proper responsibility to each statement made. As a whole, the work covers in a fairly complete manner the department of obstetrics.

Elementary Technique in Histology and Bacteriology, by ERNEST B. HOAG, A.B., B.S., and H. KAHN, Phar. M. 1894. E. H. Colegrove, Chicago: 12mo., cl., pp. 130. Price, \$1.00.

This guide in elementary technique is intended for the use of medical and other students beginning work in Histology or Bacteriology, and is therefore divided in two parts, one to the methods of preparation of tissues and of examination in the histological laboratory, and the second part to bacteriologic examinations. It is full of information and will be found extremely useful for beginners in laboratory work. The authors have made a very clear exposition of the subject.

The Anatomy of the Human Head and Neck.—Graphically illustrated by means of superimposed plates, with descriptive text by DR. SCHMIDT. English edition by WILLIAM S. FURNEAUX. New York: Thomas Whittaker; pp. 16. Boards.

This is a pictorial illustration of the head and neck, with an addition showing the structures revealed in a median section of the eye on a larger scale than the model. There is also a descriptive text accompanying the plates. It is a handy book of reference.

The Medical News Visiting List for 1896.—Weekly (undated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book with pocket, pencil and rubber. Seal grain leather, \$1.25. Philadelphia: Lea Brothers & Co. 1895.

This favorably-known Visiting List has been thoroughly revised and brought up to date. It contains sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries.

A Thumb-letter Index is furnished to subscribers at 25 cents' additional cost.

The Medical Record Visiting List and Physician's Diary for 1896.—New Revised Edition, with Calendar, Tables of Doses, Tables of Equivalents, Directions for Emergencies, Antisepsis, Disinfection, Special Memoranda, Cash Account, etc., etc. 30 and 60 patients per week—bound in black or red morocco leather with flap, \$1.25 and \$1.50. Circular on application. William Wood Co. Publishers, New York.

This is one of the most useful of the many excellent visiting lists on the market. Its appearance is neat and attractive, and it is not too bulky. The paper is good and the arrangement convenient.

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Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, DECEMBER 7, 1895.

THE NEW YORK COUNTY MEDICAL SOCIETY AND
THE HOSPITAL APPOINTMENTS.

The ninetieth annual meeting of this large Society was held last Monday in the New York Academy of Medicine, and the following officers for 1896 were duly installed: DR. EDWARD D. FISHER, President; DR. FREDERICK PETERSON, First Vice-President; DR. J. HENRY FRUITNIGHT, Second Vice-President; DR. CHARLES H. AVERY, Secretary; DR. WILLIAM E. BALLARD, Assistant Secretary, and DR. JOHN S. WARREN, Treasurer.

The retiring President delivered his valedictory address, and referred to certain matters that agitate the local profession to an unwonted degree. He alluded to the coroner's office as an effete and ridiculous institution. He emphasized the point that the monopoly of medical appointive positions in the county hospitals by the three large medical colleges of the city, through the favoritism of the Commissioners of Charities and Correction, was an affair that this Society should unite to oppose. DR. GRANDIN is reported to have said: "I will tell you, gentlemen, why you have been forced to submit to this outrage of arbitrary exclusion from service in public institutions—it is because you do not work together. I have seen the gradual development in this city of a great monopoly in medical circles which, if not checked, will make it difficult for general practitioners to earn their living." He dwelt upon certain features of dispensary abuse; the catering of certain of the hospitals to persons in comfortable circumstances to the neglect of the really necessitous classes, and incidentally to the consequent plundering of the profession.

The Secretary stated that a committee of the Society had called upon the Mayor, who, however, had

refused to see this committee on the plea of being too busy, as at the time, the Secretary said, he was engaged in marrying a couple. DR. BRILL then formally introduced certain condemnatory resolutions. DR. FREDERICK K. STURGIS, formerly a visiting physician at the City Hospital, who had felt the edge of the knife under the new plan of appointment, seconded the motion in a spirited speech, which was vigorously applauded. "I am not here as a sorehead," he is reported to have said, "but as a citizen to protest against the control of medical appointments by a monopoly. Forty years ago this same Society investigated a secret medical order whose purpose was to control all hospital and college appointments. It would seem as though history had repeated itself, and that we were called upon again for the same work. Your practice is dividing, and every year you will find it more difficult to resist the operation of the powerful medical syndicate."

DR. A. W. WARDEN spoke to the resolution in a conciliatory spirit, arguing that civil service was not the needed remedy for existing evils. DR. PALMER DUDLEY also made an effort to stem the tide of feeling, but without avail. The resolution was passed with great unanimity, and upon motion of DR. J. BLAKE WHITE the following committee was appointed to deliver a copy of the resolution to MAYOR STRONG: Doctors B. S. J. ROOSE, W. R. PRIOR and ROBERT A. MURRAY.

Following these proceedings the Society considered certain matters relative to membership. A well-known member, DR. CYRUS EDSON, resigned, and his resignation was accepted. No reasons for this step were assigned, but a fact of some significance was found in the printing of an old and somewhat disused section from the Society's ethical charter, to the effect that it is beneath the dignity of the profession for any member to affix his name to any certificate, circular or advertisement of any nostrum, mineral water, or other proprietary article intended to be used as a medicine or remedy in disease, or to any patented instrument or appliance that is intended for medical or surgical use. The resigning member is reported as saying that "the Society is hampered by too many old traditions. I have indorsed certain remedies which are beneficial to mankind, while by the rules of the Society I must not recommend them." Another matter was the expulsion of DR. EDWARD C. MANN, a specialist in nerve cases, on recommendation of the Committee on Ethics.

It would appear that there has been sudden and unlooked for stimulation of the ethical conscience of a body that has for ten years, or more, been in affiliation with the "no code" State Medical Society. We trust that the change of heart is deep, sincere and not based on any alleged approaching bankruptcy of the New York profession.

The control of the hospitals by the medical colleges of New York is to be viewed solely as a commercial enterprise, whereby the colleges are supposed to gain certain clinical advantages over any they now possess. The quickening of ethical conscience in the Society, whereby professional honor is appealed to by many who have heretofore objected to any ethical rules, shows clearly enough the absolute necessity for rules of some sort. "No code," may be extremely interesting as a theory, but it invariably has commercialism as its underlying basis.

The action of the New York Commissioners is distinctly hurtful to the profession, because it introduces an element of discord and distrust, and breeds unnecessary antagonisms. The dismissal of fifty-two physicians from hospital appointments, without warning and without just cause, is not a spectacle to be viewed with pleasure, or even equanimity, by the general profession; and we feel sure that the colleges would have acted wisely if they had acted with less speed, and contented themselves with controlling the appointments as vacancies arose on the staffs of the various hospitals, without resorting to so radical a violation of the ordinary rules of courtesy between gentlemen.

THE ARMY EMERGENCY RATION.

A valued Eastern weekly journal of medicine and surgery in its issue of November 30 last, under the heading of "The Army Ration," announces the failure of the recent efforts of the military authorities to decide upon an emergency ration for troops in active service. It gives an extract from a report of the experiences of a company of the Seventh Infantry on a march from Denver, Colo., while subsisting on an emergency ration proposed by the department board convened in Denver. The report shows that the soldiers started out with ten days' rations, but the campaign was brought to an abrupt end after four days of fifteen-mile marches. The food not only failed to satisfy the hunger or give strength, but seemed to irritate the stomach. After the first meal two of the enlisted men had to be placed under the surgeon's care. At the end of the second day thirty of the seventy men in the company were ill, and on the fourth day the whole command went into camp, and couriers were sent to town for hard-tack and ordinary coffee and bacon. Some of the soldiers were seriously ill with a stomach complaint and were confined to the hospital for several days.

Our esteemed Eastern contemporary explains all this by stating that: "The stomach pouch is constructed with a certain capacity for food which can not be gainsaid by any chemical formula which mere human ingenuity may create or theoretical reasoning devise. Each of the varied and subtle processes of digestion must necessarily adapt themselves [*sic*] to the construction and functions of an organ that has

a purely vital as well as a merely chemical duty to perform. The stomach must earn its living in its own way, as by such purely physiologic effort in bringing each and all of its mechanical, vital and chemical functions into play, it can best maintain its health, activity and usefulness. No prepared or concentrated food can relieve it of any or all of its activities in that gradual conversion of a legitimate quantity and quality of food that constitutes a natural and perfect digestion. In such an aspect a moderately full stomach is something more than a feeling. Its work must be distributive rather than restrictive. It must be healthfully distended with food, bulky enough to occupy spare places, otherwise its most important function is hampered, while for lack of mechanical stimulus the intestines become stagnated into almost helpless inactivity. Hence, it is easy to see how the experiments failed, and the victims paid the penalty of outraged physiologic laws."

All this might have been accepted as very sound physiologic doctrine had the troops been restricted to a concentrated food which had no bulk in the stomach; but as a matter of fact they did have in the ration sufficient to give that distension which is "something more than a feeling," for the smallest emergency ration tested in any of the eight Military Departments weighed 22.0 ounces, the largest 32.25 ounces, and the particular ration which caused the harmful effects in the trial above mentioned 27.25 ounces; the nitrogen of the smallest amounted to 201 grains, of the largest to no less than 569 grains; the carbon of the smallest weighed 3,543 grains, of the largest 5,302 grains, while the value in calories of the smallest was 2,134, of the largest 3,526. From these figures it may be observed that none of the departmental boards went below an average diet as regards potential energy, in the proportion of nitrogen to carbon nor in the quantity needful to give the stomach its healthful distension and the intestines something to do to prevent them from being "stagnated into almost helpless inactivity." The stomach complaints affecting the Denver company were due to faulty preparation of the bean-soup tablet, not to a concentration of nutritious principles which gave the stomach no work. At the end of the second day thirty of the seventy men were ill. We believe that the stomachs of seventy men, taken at random, will submit to a total absence of food for two days without the supervention of any serious stomach complaint. There must have been something other than mere want of bulk to occasion the sickness of the men, and this something is readily found in the insufficiently cooked starch grains of the bean-soup tablet. Samples of the same ration have recently been used by the Seventh Cavalry in Arizona without any harmful effects, the only unfavorable criticism being that the soup wanted more seasoning.

We consider it premature to call the efforts of the military authorities a failure because one experiment of one of the eight departmental boards gave unsatisfactory results. Instead of being failures, we understand that the experiments of these boards have contributed much to the perfection of an emergency ration for the troops; and it is probable that a board of officers, in which the line of the army and the medical and subsistence departments will be represented, will be convened in Washington to consider their reports and to make the necessary investigations and experiments which will lead to the preparation and adoption of a suitable emergency ration.

A THEORY OF THE CORTICAL PATHOLOGY OF PERMANENT DEMENTIA.

The JOURNAL has more than once had occasion to notice the suggestive articles that appear from time to time in the medical press, inspired by the latest discoveries in the finer anatomy of the nervous centers. A very recent one of this class is that of DR. H. J. BERKLEY in the *Medical News* of November 9, entitled, "A Theory of the Causation of Permanent Dementia." Referring to some former researches which demonstrated that non-medullated nerve fibers are hard to find in the cerebral cortex, he assumes that probably there are none there that can be strictly classed as such, and that the conduction must be direct through the fiber to its termination; that naked axis cylinders ought to be a physiological impossibility in the cerebrum, for, if present, they could only give rise to irregular overflow of stimuli with corresponding confusion of thought and action. The so-called psychic cells, however, the pyramidal cells with long and short ascending processes, are distinguished from the other cortical nerve elements by the richness of their protoplasmic processes in lateral buds or gemmules, and it is through these, he holds, that the axons influence the protoplasm of the dendrons and the cells, their uncovered free endings coming into close contiguity with these gemmules, whose function it is to receive the nervous impressions of the fibre, to transmit them to the protoplasm of the dendron and thence to the cellular body. When these gemmules fail in their function through disease, or are lost, the proper conduction of the nerve impulses, according to DR. BERKLEY's theory, is impossible. The first result is confusion in the psychic functions and, with the advance of the morbid process, coördinated thought is finally abolished as far as the affected apparatus is concerned, and with the extension of the process terminal dementia is the result. The gemmule-bearing protoplasmic processes of the nerve cell being the most sensitive and vulnerable are first affected, but later the cell body itself degenerates and plays an important part in the production of the ultimate result. The axis

cylinders themselves are less vulnerable to morbid or toxic influences and their involvement only occurs after the practical death of the body cell, and therefore plays no special part except in case of actual inflammation. DR. BERKLEY has seen neurons with their processes totally degenerated and their cell bodies reduced to stumps, with their axis cylinders as perfect as those of the normal cell.

In short, therefore, the theory of BERKLEY as to the pathology of dementia is as follows: The conduction of nerve stimuli to the cell corpus is through the medium of the lateral gemmules of the protoplasmic processes; that these are specially liable to injury from toxic or morbid influences, and are the first portions of the neuron to atrophy and disappear in certain diseases of the brain; that with their atrophy and consequent loss of function we have, first, confusion and incoördination of psychic functioning, and finally with any widespread degeneration of the cortical elements a permanent dementia ensues.

His conclusions have been deduced partly from examinations of human brains and partly from experimental investigations on animals. He gives with his paper a reproduction of micro-photographs, showing the normal primordial process of a well-educated man taken from an autopsy immediately after death, and of a corresponding process from a subject of terminal dementia, showing the atrophy and absence of the dendritic gemmules.

DR. BERKLEY's theory is at least as probably the correct one as any that has so far been advanced, and it is as well supported by clinical and experimental observation as any. It has, moreover, the merit of going no further than is reasonably warranted by the facts he adduces, and does not, like the ingenious and suggestive theorizing of ANDRIEZEN, attempt to demonstrate the pathological conditions of all the elements of the mental derangement, requiring the assumption of special psychic functions in this and that particular cortical layer for which no adequate proof is or can be afforded. It is simply a theory of the pathology of general mental failure, apparently based upon well observed facts, and because it attempts no more is the more worthy of consideration. It is not merely a suggestive theoretical paper, but is an actual and valuable contribution, and if confirmed by further investigation will be a real addition to our few positive facts as to the cortical pathology of mental disease.

VALERIANATE OF QUINIA AS A PROPHYLACTIC OF MALARIAL FEVER.

DR. LUIS CENDRERO contributes to the *Boletín de Medicina Naval*, August, some clinical facts regarding the use of this remedy at a very trying location in the Gulf of Guinea, in West Africa. The writer's station is on the little island, or cluster of islands,

of Elobey, north of the mouth of the Gaboon river, and is under the Spanish protectorate. His position in charge of the marine service at that point has afforded him ample opportunity to compare the efficacy of the different drugs, principally preparations of quinia, against unusually severe forms of malarial fever. "So severe is this scourge," says the translation of DR. CENDRERO's report in *Sanitarian*, November, "that without exaggerating, all or very nearly all the persons connected with the Spanish service seem to be sent to the hospitals for malarial patients, once, twice, and even three times a month. On account of this grievous situation I was led to try some medicinal prophylactic measures; and having used the sulphate of quinia in doses of 20, 30, and 40 centigrams a day without success, looking for a more satisfactory result, I obtained much benefit from the use of the valerianate of quinia, although, even with the use of this salt, I did not obtain all the relief I desired."

The summary of his experiments is as follows: "The first consisted in giving a third of a gram a day of the valerianate of quinia, causing it to be taken in my presence in the morning, a little after breakfast, to one-half of the men who formed the corps under my care, leaving the other half without any treatment. At the end of the month, the result was that the seven who had no prophylactic treatment suffered from the fever, some twice, some three times during the month; while those who were treated remained entirely free from fever."

"The second test was exactly the reverse of this—the seven who were treated with prophylactic remedies during the preceding month were left during the present period without treatment, while those who were not treated now took the remedy as their comrades did the month before. Those without medicine were attacked, some more than once, and of those now treated only two had very slight attacks."

"The third and last observation was somewhat different. To all the men, doses of valerianate of quinia were given as above, during the month and a half, and the result of this test, as compared with the condition before preventive measures were employed, was that only eight entered the infirmary with fever, while in the same time, previous to treatment, there were thirty-five, the average being taken for the whole year, with malarial fever."

Before these experiments, the sulphate of quinia and the preparations of arsenic had been used with variable and not fully satisfactory results. The sulphate, used in a systematic way, had many successes to its credit, and in the absence of the valerianate operated well, especially in the recrudescence of endemic fevers.

Blank applications for membership in the Association at the JOURNAL office. Write for them; sent free.

HYPNOTISM AGAIN.

The *New York Medical Record* takes exception to an editorial in the JOURNAL of Nov. 16 on "The Passing of Hypnotism." It says that to say that hypnotism has had its day is a curious statement to make considering the interest that German physicians are taking in the subject at the present time. Does DR. SHRADY refer all medical questions to the standards and practices of German physicians?

The "practical side" that has come to stay, understanding thereby the legitimate use of suggestion in therapeutics, was duly recognized in our editorial; the "sensational side," or the production of hysteroid disturbances of consciousness for therapeutic ends, or practically and essentially what is known both in and out of the medical profession as hypnotism, is, the editor of the *Medical Record* states, certainly dying out. In our editorial we did not go so far as that, but merely said its day had probably well passed its meridian. There are still some able men experimenting with it and advocating it, and his statement in strict truth is a little premature. As a prophetic anticipation it may pass, but it was hardly so intended.

Undoubtedly, hypnotism will fill a large place in medical literature; it is an attractive subject in many of its relations. But as regards its usage as a therapeutic agency, not including in it the legitimate use of waking suggestion, history is repeating itself and its medical standing, we hold, is on the wane. Its most enthusiastic advocates can not claim any general support for their views except in so far as a very limited and somewhat dubious utility may be admitted.

CORRESPONDENCE.

Illinois State Board of Health vs. Northwestern University Woman's Medical Society.

To the Editor:—In the July issue of various prominent medical journals appeared a letter from the Illinois State Board of Health accompanied by a set of resolutions adopted by said Board. The undersigned, the Executive Committee of the Faculty of the Northwestern University Woman's Medical School, having carefully investigated this matter desire to make the following report, in order that no injustice may be done to the State Board.

The resolutions adopted by the State Board are as follows:

WHEREAS, The Faculty of the Northwestern University Woman's Medical School adopted a set of resolutions, criticising the Illinois State Board of Health for having issued to three non-graduate students of said college the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had an opportunity to make any defense; and

WHEREAS, The said college had not made any investigation of the methods or policy of the Board, and could not be in

possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon any average rating less than 80 per cent. on all branches, and the questions and examination papers, and a tabulated record of all examinations are preserved and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examinations," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical School, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration or explanation of the charges as the facts may warrant; and further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed) B. M. GRIFFITH, M.D.

SARAH HACKETT STEVENSON, M.D.

The original resolution of the Faculty of the Northwestern University Woman's Medical School, to which the above refers, is as follows:

WHEREAS, On three occasions within the past three years, the Illinois State Board of Health has licensed to practice medicine in this State students who have not properly qualified themselves for such duties and whose incompetence has compelled us to withhold the degree of Doctor of Medicine; and

WHEREAS, By common report we are informed that the State Board has adopted a similar policy with reference to numerous other persons; therefore,

Resolved, By the Faculty of the Northwestern University Woman's Medical School, that the State Board of Health be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of Doctor of Medicine from first-class medical colleges can not obtain license to practice from the Illinois State Board of Health.

Resolved, That the State Board of Health be urged to do all in its power to secure a modification of the State law, so that the privilege of examination for license to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

Resolved, That for the protection of the lives and health of our people, we believe it is the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified; and further

Resolved, That, in the interests of humanity and medical science, we believe the State Board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of Doctor of Medicine.

(Signed) MARIE J. MERGLER, Secretary.

Replying to the State Board of Health, we beg to state that after thorough investigation we find that not only the three incompetent undergraduates referred to in our resolutions, but others similarly conditioned from our school, have been granted license to practice medicine; and we find further that it is believed by medical teachers and other members of the profession, that the State Board of Health has frequently conferred the license to practice in the State of Illinois on undergraduates whose requirements were not sufficient to enable them to obtain the degree of Doctor of Medicine from the medical schools of the State that are recognized as in good standing by the Board of Health.

This policy is not calculated to advance the standing and active usefulness of the medical profession, or to protect the public from incompetent practitioners. The Board of Health and its individual members have been repeatedly urged to discontinue this practice, but as these remonstrances have heretofore proved unavailing, the Faculty of the Northwestern University Woman's Medical School determined by public action to bring the matter to the notice of the

profession, hoping thereby to obtain their aid in securing a better policy by the State Board.

The Board is in error in thinking that the Faculty acted hastily or without investigation, for it was familiar with the fact of the licensing of incompetent persons, not only from among its students, but among students of other schools. This practice has been in vogue since the first organization of the Board, but the last cases were, if possible, more flagrant and inexcusable than those which preceded them.

The Secretary of the State Board of Health is mistaken in stating that the Secretary of the Faculty of the Woman's Medical School said that the resolutions were adopted without due consideration, though another member of the Faculty did admit to him that, if his statements were correct, the criticisms were not so applicable to the present Board as to former Boards; however, the Secretary is not aware that the practices of the present Board differ materially from those followed by earlier ones composed of a different membership.

Shortly after the original resolution was passed, the Secretary of the State Board of Health interviewed several members of the Faculty, and on one of these occasions stated, in extenuation, that the particular individuals now in the State Board of Health constituted an entirely different Board from that of former years. We are aware that the State Board of Health changes more or less from time to time in its personnel; but one of the signers of the series of resolutions under consideration has been a valued member of the State Board for many years, and we can not understand why he should have allowed such a practice as granting licenses to incompetent persons at any time, without a vigorous protest.

If the policy of the Board as now constituted is better than of former years in this respect, it appears to be only a degree; for the same official, in one of these interviews, stated that no applicants for license were now passed on an average of less than 85 per cent. on all branches, whereas the resolutions printed above place it at 80 per cent.; but he also admitted that formerly applicants were passed on a grade of 50 per cent. It must be borne in mind that the grade obtained on an examination depends upon the nature of the questions, the fairness with which they have been given out, the honesty with which they have been answered, the care taken to prevent cheating, the fairness with which they have been marked, and the qualifications of the examiner. Questions may be peculiarly easy; proper care may not have been exercised to prevent them from falling into the hands of the applicant beforehand or to prevent communication by the interpreters or others at the time of the examination, or the examiner himself may have marked too high. For example: An examiner who knew very little of anatomy might consider a very poor paper on that subject of exceptional excellence.

The Secretary of the State Board explained to us his efforts to prevent cheating among applicants for midwives' licenses, and he led us to infer that similar precautions were taken for those taking the medical examinations. He asked if we questioned the honesty or ability of certain members of the Board of Health; but, as we stated to the Secretary thereof, we can not understand how an ignorant person, unable to obtain a grade of more than 35 or 40 per cent. on an ordinary examination for the degree of Doctor of Medicine, can come before the State Board within three, six, nine or even twelve months afterward, and pass an excellent examination. Teachers know that it is impossible to acquire a knowledge of medicine with this rapidity. Therefore, the inference would be that 80 or 85 per cent. by the State Board of Health is equivalent to little more than 35 or 40 per cent. by the colleges. If this is so the State Board should raise its mark still higher, or mark more carefully.

It was also admitted in one of these interviews, that one of the persons referred to was in no way fitted to practice medicine, but it was claimed that the answers obtained from her in examination were excellent, and that the Board had no option in the matter. As a possible explanation of the excellence of the papers handed in by ignorant applicants, it was suggested that any one could "cram" and pass a good examination on two or three subjects; and it was explained that it was the custom of the Board of Health to give those taking their examinations full credit for each and every branch in which they succeed in obtaining a passing mark, though they might utterly fail in all others. It will be readily seen that in an extreme case this policy would allow an applicant to pass one branch at a time every three months (we believe the examinations are quarterly), until the whole had been gone through with, while at the time the license

was granted the person might not be able to obtain a general average of over 25 per cent. We are not informed, officially or otherwise, that the Board has even yet taken any step to correct this bad practice.

It is stated in these resolutions that the Illinois State Board of Health is not at liberty to adopt any policy regarding the admission of non-graduates to examination; that is, persons mentally or morally unfit to practice medicine must be admitted to the examination if they apply, but certainly the law can not require the Board to issue licenses to such persons. In our resolution we called upon the Board, if there were defects in the law, to make all proper efforts to have them remedied. We have not been informed, either publicly or privately, that it has made any effort in that direction.

In the resolutions by the State Board of Health we are told that the law demands that the examination shall be "elementary and practical." Though the law under which the Board of Health acts prescribes that examinations shall be of an elementary and practical character, it does not prescribe that the Board of Health shall confer on incompetent persons the privilege of practicing medicine in Illinois, and the Legislature surely could have no such purpose in view when it enacted the law. If an applicant can pass a thorough examination in the elementary subjects of anatomy, chemistry, physiology and materia medica, and a practical examination in pathology, obstetrics, practice of medicine and surgery, he would be able to pass the examination for the degree of Doctor of Medicine in almost any of the recognized colleges throughout the United States.

We deeply regret that the resolutions of the State Board of Health failed to remove the belief that their methods are faulty, and we personally know another student who obtained license to practice during the past year who was unable to pass the examination for the degree of Doctor of Medicine this last spring. We have informed ourselves so far as possible of the methods and policy of the Board of Health, and we gladly embrace this opportunity to do it exact justice. The Faculty of the Northwestern University Woman's Medical School does not need to disclaim the suggestion that any individual interest or personal animosity prompted the drafting and circulation of the resolutions. This faculty, individually and collectively, is friendly to the Illinois State Board of Health, but in the matter under consideration it has been constrained, as a matter of public duty, to question the wisdom and propriety of some of its acts. We will gladly be the first to give it credit when it corrects its faulty practice, and we will gladly aid it in securing any necessary legislation for elevating the profession and for the benefit of the people.

I. N. DANFORTH,
E. FLETCHER INGALS,
MARIE J. MEROLER,
Executive Committee.

Serum-Therapy in Leprosy.

NEW YORK, Nov. 21, 1895.

To the Editor:—Mr. Luther F. McKinney, United States Minister in Bogota, writes me (Oct. 17, 1895): "I enclose an article written by Dr. Putnam of this city, in which I know you will be interested. Dr. Putnam has taken a great interest in the subject of leprosy and, as you will see, believes in the theory that the disease can be cured by the injection of the blood of an animal previously inoculated with the serum from the blood of a leprosy patient. He has one patient, a woman here in Bogota, whom he has been treating in this way for about four months. When she began there was an entire loss of sensibility of the arms and lower limbs, and large leprosy blotches or sores on her arm. She has entirely recovered the sensibility of the arms, but not of the lower limbs; the blotches on her arms have entirely disappeared; so says the Doctor. There are ten physicians here who are watching the case with great interest and have great hopes that extraordinary results will be obtained. The great trouble here is that there is no laboratory for the proper preparation of the serum, and the lack of proper apparatus for the carrying on of the experiments very greatly retards the investigations. To show how the medical profession is hampered in their efforts to stay this foul disease, some time ago Dr. Putnam wrote a letter to the

President of the Republic, explaining to him his theory and saying that he proposed to carry on the work and visit every part of the country where leprosy existed, and called the attention of the Executive to the assistance rendered by other civilized governments in the development of the scientific study of these diseases, and suggested that the Government provide a laboratory for the purpose of assisting in the work. The President instructed the Minister of Education to answer the letter, and say that while he thought the purpose of the Doctor was good, it was a matter of personal interest, and the Government did not desire to have anything to do with it. And this while there are 27,000 lepers in the country, and the Minister who answered the letter lost his wife by the disease, and has two leprosy daughters in his home at the present time. In about a month Dr. Putnam will visit the hospital again, and he says the first leper who dies while there, he will get a portion of the skin, muscle, liver and brain and send them to you."

The article which Mr. McKinney enclosed to me is entitled "Sero-Therapy," and was published in the *Herald* of Bogota, Oct. 10, 1895. In it he makes a report of a medical visit to the Lazaretto of Aqua de Dios, and the sero-therapeutic medication which he has begun there in a formal manner in the treatment of leprosy. He refers to an official offer, made by him on the 22d of last May, to carry on the project of establishing sero-therapy in Colombia. He had already begun this treatment on some private leper patient before going to Aqua de Dios. He refers to a grand lecture given by Dr. Juan de Dios Carrasquilla, in the Policlinic of Bogota, the 1st of last July, on this subject. This lecture has guided him in his experiments, and Dr. Juan de Dios Carrasquilla will be his consultant in future. At Aqua de Dios he obtained a leprosy serum to be inoculated in several animals in a manner advised by Professor Rickett in syphilis, and which consists in taking some blood from the patient, inoculating the animal and returning from the animal to the patient. "In one word," says he, "to make the cultivation of the leprosy bacillus in the blood of an animal, instead of making it in a special apparatus for the purpose of strengthening natural immunity in the animal, for the experimental infection." He visited the hospital with the Rev. Father Crippa Salesiano, who has devoted himself to the patients, and Dr. Luis L. Gaitán, physician of the Lazaretto, and selected an adult of 16 years, in whom tubercular leprosy was in full development. He took from his arm 250 grammes, into an aseptic bladder, and put the latter carefully away, leaving the blood in repose for four hours, during which he prepared the animals for the inoculation. There were two asses and three she-goats. At the expiration of the four hours he separated the serum and inoculated a certain quantity into the animals. These animals were to be kept under supervision for several days. With the blood serum of these animals he intended to inoculate thirty or forty patients early in November.

Mr. McKinney encloses me the reply received by Dr. Putnam to his application to the Colombian Government: "REPUBLIC OF COLOMBIA, OFFICE OF SECRETARY OF THE GOVERNMENT. No. 2540.

BOGOTA, Oct. 17, 1895.

DR. CARLOS E. PUTNAM—

Sir: Regarding your report with respect to the installation of the sero-therapy in the Lazaretto of Aqua de Dios, I have to answer that the Government, reiterating to you its manifestations of approbation and very much interest in the success of the experiments which you have undertaken with so much devotion, will give to you all the moral support necessary, so that you may not be discouraged for continuing such a praiseworthy enterprise."

Dr. Putnam writes me: "We have 27,000 lepers! We do nothing for them! The acting Government pays no attention at all! We are lost!"

"Think of offering a starving man moral support," says Mr. McKinney. "Unless the Government takes the matter in hand the country is lost indeed. Forty years ago there were 400 lepers in Colombia, now there are more than 27,000. How many at this rate of increase will there be in forty years from now?"

ALBERT L. ASHMEAD, M.D.

270 W. 43d Street.

From the Shepherd Magnes.

CHICAGO, NOV. 28, 1890.

To the Editor:—To settle a dispute, will you kindly give us the origin of the term magnet as applied to the lodestone or magnetized iron.

Truly yours,

A MEDICAL STUDENT.

ANSWER: It is said by Nicander (according to Pliny) that a certain shepherd, named Magnes, when taking his flocks to pasture upon Mt. Ida, found in a certain spot that the nails of his shoes and the iron ferule of his staff adhered to the ground. After the announcement of the discovery the lodestone was called the Magnet.

PUBLIC HEALTH.

Bacteria in Ice.—The dangers incident to the consumption of ice obtained from polluted sources, as lakes or ponds receiving sewage, have been much insisted on; and not only have actual instances of the communication of enteric fever in this manner been quoted, but the bacteriologic examination of different samples of melted ice have been adduced to show that the process of freezing has no influence on the number or vitality of the microbes. Ice water, for example, from the Spree, has been found to contain 1,700 to the c.c.m., and from the Lake of Geneva 210, while melted hailstones yielded 72. But the recent experiments of Professor Christomanor, of Athens, go some way toward justifying the old and popular belief in the purifying action of congelation, which, as he shows, effects a partial separation of all impurities, concentrating them in the inner portion of the mass. Examining blocks of artificial ice from a factory supplied by a well, and others of water from the aqueduct of Hadrian, he observed in all a central core, forming about a fourth part of the entire volume, and, in its whitish, dull, somewhat granular appearance contrasting strongly with the perfect and colorless transparency of the surrounding ice. While the original water from the aqueduct contained 30 milligrams of "organic matter" (solids lost in ignition?) in the litre, that from the clear ice showed only 2.8, while the turbid central portion gave 105.5. So with the water from the well, the 64 milligrams in which were divided in the ice into 5.5 and 202 milligrams per litre respectively. It is remarkable that, though the one water was charged with organic or presumably organic, impurities, to the extent of more than twice as much as the other, the relative proportions in which these were distributed in the ice were practically identical, being respectively as 9.3 and 351.6, and 8.6 and 311.3 to 100 parts, or roughly, 1-11 of, and 3 to 3½ times the impurity of the water. —*British Medical Journal*.

Sanitary Hints for Travelers to Venice and the Adriatic.—A medical contributor to the European edition of the *New York Herald*, writes upon the above subject, from a personal and repeated experience as a sojourner at Venice. He points out, in the first place, that the rate of mortality in that city in 1894 was 22.3 per 1000, making about the twentieth in the list of healthful great cities. He also gives the following sanitary data for the use of visitors:

"The stranger on arriving in Venice must take certain precautions. In winter one must protect oneself from dampness, go out little in the evening, wear flannel, take long walks and beware of the poetical gondola. In summer care must be taken not to catch cold while listening to the music on the Piazza San Marco; an overcoat should always be carried on the arm. In the restaurants travelers should not allow themselves to be tempted by oysters or shellfish which so often occasion very disagreeable cases of enteritis; under no pretext should any ice be used in the drinking water, which should only be cooled exteriorly. These last two pieces of advice are absolutely essential; their non-observance is one of the chief causes of the gastro-intestinal disorders that occur in Venice during the hot weather. This year, during the intense heat of September, the number of such cases was very high, whereas it would have been very easy to avoid them by regulating the diet more sensibly.

"The city, so wonderful in light, art and history, which still carries proudly its ancient title of Queen of the Adriatic,

has a strange attraction for every one who has once put foot in her streets. When one has once been to Venice one goes again, and each time one returns something new, something not yet seen, seizes your attention and fascinates you like a dream that one suspects of being reality.

"The absence of dust in the atmosphere of Venice, its pavements in large flagstones, the saline dampness of the air, and the high atmospheric pressure form an excellent group of conditions for lessening the spread of consumption; and in the statistical tables that were furnished to me I remarked that the death rate from pulmonary phthisis was relatively very low. Thus on an average there is in Venice only one death from consumption per ten, whereas in Paris the proportion is double—two in ten. This is a very interesting fact which may lead us to send to Venice, possibly not chronic cases of phthisis, but persons with a predisposition for the disease and in danger of picking up contagion. It is evident that in sending a consumptive to Venice it would not do to choose a torpid case, but patients that are nervous, anemic and excitable.

"A splendid aqueduct, built about ten years ago, brings to the city a supply of spring water from the mountain. Since that date the sick rate from typhoid fever has considerably diminished, and gastric fever, formerly so common, is now much rarer, and since it also now assumes a far less serious character it is much easier to cure. Great care must be taken not to drink well-water, which is always more or less contaminated by infiltration, and which must contain microbes or impure elements which were probably not without their influence on the bad reputation the city used to have from a sanitary standpoint.

"In Venice apartments on the upper stories of the houses are certainly healthier than those on the lower, which, strange to say, are always more eagerly sought after. It is, perhaps, better form to live on the first floor, but it is healthier on the second or even on the third. The Venetians themselves are quite alive to this fact, as in the old palaces the finest apartments are on the first floor which is raised as high as possible by an entresol."

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Louisiana: New Orleans, November 16 to 23, 9 cases, 2 deaths.

Michigan: Detroit, Rochester and Three Rivers, November 16 to 23, smallpox reported present.

Missouri: Charleston, November 23, smallpox reported present.

Pennsylvania: Philadelphia, November 16 to 23, 3 cases, 2 deaths.

SMALLPOX—FOREIGN.

Antwerp: October 26 to November 2, 1 case, 1 death.

Buda-Pesth: November 4 to 11, 1 case.

Cairo: October 29 to November 4, 1 death.

Dublin: November 9 to 16, 2 deaths.

Madrid: November 5 to 12, 13 deaths.

Manchester: November 2 to 9, 2 cases.

Montevideo: October 19 to 26, 6 cases, 1 death.

Naples: November 2 to 9, 1 case, 1 death.

Odessa: November 2 to 9, 5 cases.

Rotterdam: November 9 to 16, 1 case, 1 death.

CHOLERA—FOREIGN.

Egypt: To November 15, 759 cases, 604 deaths.

Hong Kong: September 14 to 21, 3 deaths.

Osaka and Hiogo: October 19 to 26, 3 cases, 1 death.

YELLOW FEVER—FOREIGN.

Cienfuegos: November 17 to 24, 2 deaths.

San Juan, Porto Rico: October 12 to November 2, 31 cases, 8 deaths.

Santiago de Cuba: November 16 to 23, 20 deaths.

Vera Cruz: November 14 to 21, 2 deaths.

NECROLOGY.

ELMAN H. BORST, M.D., of Newburgh, N. Y., died Nov. 8, 1895. He was graduated from the College of Physicians and Surgeons, N. Y., in 1889. At the time of the West Shore wreck at Newburgh in 1893, as surgeon in charge of St. Luke's Hospital, he rendered very efficient service. He was a native of Cobleskill, N. Y., born there thirty-two years ago, the son

of Susan Vrooman and Isaac Borst. The cause of his death was pneumonia, consequent upon typho-malarial fever.

WM. STARBUCK MAYO, M.D., of New York city, and member of the University, the Authors' and Century Clubs, traveler, literateur, and toward the close of his life somewhat of an inventor, was born in Ogdensburg, N. Y., April 20, 1812, and died in New York, Nov. 22, 1895. He was a descendant from the Rev. John Mayo of an ancient English family, who came to New England in 1630 and became the first pastor of the South Church at Boston. On his mother's side Dr. Mayo belonged to the Starbuck family who were among the earliest settlers of Nantucket. Having graduated from the College of Physicians and Surgeons, N. Y., in 1832, he at once entered upon the practice of his profession in New York, the while profiting much by hospital studies, but eventually set out to make a tour of exploration to the interior of Africa. He was obliged, however, to limit it to the Barbary States, and after an excursion in Spain to return home. Beside contributions to magazines and newspapers, he published "Flood and Field, or Tales of Battles on Sea and Land" (1844); "Kaloola, or Journeyings to the Djebel;" "Kumri" (1849); "The Berber, or the Mountaineer of the Atlas" (1850); "Romance Dust from Historic Placer" (1851), and "Never Again" (1873). He wrote dramatically, and his pages are crowded with incidents.

BENJAMIN CUSHING, M.D., of Boston, Mass., who died October 16, was a man ripe in years, honors and esteem of his community. He was in his seventy-third year, and had been nearly a half century in his profession. He was a Harvard graduate in arts in 1842, and medicine in 1846. The *Boston Medical Journal* contains the following tribute to his worth:

"The exalted character of Dr. Cushing, his integrity, his sincerity, his desire not only to make his own life useful but to aid others in making their lives more useful, his devotion to his profession, his great abilities, his kindness and benevolent and sympathetic nature had endeared him to all hearts. He has ended a useful life. He has ministered to many. His name is cherished by all. Younger men in the profession owe to him a debt of gratitude that can only be repaid by imitating the example he set them, and by practising medicine along the lines of high and ennobling virtue and devotion to right principles that he taught in all his councils, and illustrated and exemplified in his life. They will have to remember forever his valuable suggestions, his ever-ready sympathy and assistance, his universal and respectful recognition of their merits everywhere and at all times. We, to whom it was given to avail ourselves in every emergency, without dread of intrusion, of his extended experience, his great wisdom and his wonderful skill, know, perhaps, better than others can know, that the community has sustained a loss that is only saved from being irreparable by the influence that he has exerted in raising the standard of professional attainment, manliness and true nobility, in his neighborhood, to a level with his own."

CARY B. BLACKBURN, M.D., of Louisville, Ky., December 4, of acute pneumonia. He was born in Woodford County, Ky., and studied medicine under the late Prof. S. D. Gross. He served with distinction during the civil war, and in 1868 removed to Louisville, where he has since resided. He was a prominent politician, having served for fifteen years as a member of the City Council.

MILTON R. COOK, M.D., of Ashtabula, O., one of the oldest practitioners of the county, died in jail where he was confined pending trial upon the charge of performing a criminal operation.

J. F. SHEPHERD, M.D., of Owensville, Ohio, while out driving, was thrown from his buggy and almost instantly killed by breaking his neck.

MISCELLANY.

Congress of Surgery of France.—The next Congress of Surgery of France will be held in Paris in 1896. Professor Terrier has been named as President; M. Gross, of Nancy, Vice-President; MM. Bandoïn, Coudray, Mauclair and Reblaud as Secretaries.

Prof. A. C. Cotton.—At a recent meeting of the Société Française d'Hygiène, Dr. A. C. Cotton, City Physician of Chicago, was elected a foreign associate member of the Society.

An Auction of Gems for Charity.—An auction of jewelry took place in New York City, on November 19, for the benefit of the Children's Grounds—to include a play-house and playgrounds at Fairmount Park, Philadelphia. The first day's sale netted not less than \$50,000, and it is stated that the sale was unique as including gems of a value that had never before been offered for sale under the hammer. The gems were originally the property of the late Miss Sarah A. Smith, of Philadelphia.

Dr. J. L. W. Thudicum, an eminent chemist of London, has printed a book called "The Spirit of Cookery," designed especially to meet the requirements of medical men. The book purports to show the ethical and medical bearings of the culinary art, to contain a dictionary of culinary terms, as well as a system of general rules which will enable those who thoroughly master them to perform the principal culinary operations without reference to the frequently unintelligible records of the details of mere empiricism.

Humane Police Club.—Somebody has invented a policeman's club which has a rubber envelope and a wood core. Messieurs the thugs, will be pleased to know that when this humane club is once in the hands of our guardians of the peace, there will be no more cracked skulls. The near approach of the millenium is thus foreshadowed. As usual, we learn that the new esthetic weapon has been tried upon a dog. His dogship, naturally enough, on regaining his canine wits, wagged his tail and in his own way expressed his pleasure in having been knocked out in so pleasant and altogether humane a way.

A Fortune in a Book.—The custom of placing paper money between the leaves of a book for safety, particularly in books which are not likely to attract much attention, and forgetting all about it, was exemplified the other day when a Turin physician came upon a treasure of 40,000 lire. The physician had to refer to a book upon clinics, which was in a bookcase in a library belonging to the family of Dr. Giordano, who has been dead some two years. This wonderful book contained some Italian rentes and a receipt for a deposit at the Banca d'Italia, altogether of the value of the above-named sum. The papers were, of course, handed over to the family of the late doctor.

"Toxin: A Novel."—The novel writer, Ouida, has adopted the above sensational title for her last book. According to the review writer in the *New York Times*, the author takes pains to demonstrate, at least as clearly as she has done before, that she deserves to be classed with the degenerates. He says further, "The characters in the book do things and say things that make us wonder and admire, and they love with mighty passion and hate with equal force. In order to be in touch with the 'degenerates' of whom she is surely an early and conspicuous example, Ouida here enters into some particulars about disease which sensitive readers could spare. The man with cancer of the food and air passages, and the details of the case of diphtheria are repulsive."

The Medical Situation in Persia.—A young Persian, Dr. Malik Yonan, an assistant at the Mission Hospital at Oormiah, in Western Persia, has written the following facts for the *Christian Herald*: In Persia, the greatest need exists for medical missions. It is said there are ten million inhabitants without a physician's care or attendance. No hospitals or charitable institutions can be found outside of mission bounds, and thousands of the sick and poor are turned into the streets to die without help or remedy. Some of the natives' attempts to bring relief are futile, especially so among the Mohammedan families. For example, a priest will write a few words from the Koran on a slip of paper, and will dip

the paper in water, and give it to the patient to taste (a hundredth solution of truth!) The two mission hospitals in Oormiah are doing an immense amount of good, and are crowded with patients from near and far, some coming from the distant Kurdistan Mountains. The Mohammedan women say they are next to heaven, and the wild Koords receive kind attention and treatment, and learn that the religion of the missionaries is far different and nobler than their own. No branch of missionary work represents or accomplishes such a systematic amount of good and mercy as medicine.

Another Hospital for the Insane in Illinois.—Having hospitals for the insane for all other points of the compass, the Illinois Legislature, at its last regular session, established a new one to be called "the Illinois Western Hospital for the Insane;" \$100,000 was appropriated to purchase a site in that part of the State, north or west of the Illinois river, to pay for the construction of fireproof buildings to accommodate the patients with all necessary apparatus and furnishings, and to maintain it until the appropriations of the next General Assembly are available. The government of the hospital is to be vested in three trustees, not more than two of whom shall be from the same political party, their terms to be six years each, and their appointment made by the Governor and confirmed by the Senate. They are to appoint a superintendent, who can be removed by them at pleasure, under whom shall be the direct management and control of the hospital. He must be a graduate in medicine and surgery from some reputable medical college and of acknowledged skill in his profession. And he, in turn, is to appoint a competent assistant physician who is a graduate of some legally incorporated medical college, to perform such medical duties in and about the care and treatment of the insane as the superintendent shall direct.

A Young Medical Explorer of Africa.—Dr. A. Donaldson Smith, a graduate in medicine of the University of Pennsylvania in the year 1889, has been temporarily lost to his friends in the wilds of Eastern Equatorial Africa. On November 6, he had reached Aden on the Red Sea, on his way homeward bound. He had not been heard from for a period of eighteen months, and no little anxiety had been felt by those interested in the expedition for the past few months. Dr. Smith entered Africa on the eastern coast a year ago last June, to push across the country of the Gallas and Masai to two lakes which have been recently discovered by another expedition, then on to the Victoria and Albert, his object being to carry out and complete the line of exploration from the lakes to the east coast, a distance of several hundred miles. Dr. Smith was accompanied by about one hundred and fifty Africans, and at first by an Englishman, who was subsequently obliged to return to London. Dr. Smith sent back some fine specimens of the flora of the region after he had been on his expedition a few months, for the Geographical Society of Great Britain, and some months later was reported to be pushing on, by another party whom he had met. Aside from these evidences of his safety, there were none until the arrival of his recent cablegram, as the region which he has traversed is at the present time represented by a blank space on the map.

Color Photography.—The *Chemist and Druggist*, London, in commenting upon Professor Joly's modification of the heliochromatic method of photography, remarks that there is need for more attention to the chemie side of color photography. It also adds: "We are, therefore, glad to observe from *Nature* that Otto Wiener is working at the subject in this direction, his object being the direct production of color by the influence of light upon certain chemie substances. He has studied Lippman's method in contrast with the old processes of Becquerel, Seebeck and Poitevin. In Seebeck and Poitevin's silver chlorids are used, and the colors produced are body-colors in these two cases. The production of these body-colors is a very mysterious process, but Wiener hopes that there will eventually be found a satisfactory solution of the problem. To account for the production of the colors, he advances a remarkable theory which has a well-known analogy in comparative physiology. Given a collection of compounds of silver chlorid and subchlorid of indefinite proportions, such as those which Mr. Carey Lea calls by the collective name of 'photo-chlorid,' we must suppose, according to the modern kinetic theories, that they are undergoing

a rapid series of successive modifications. When the red combination happens to be exposed to red light, it reflects it without absorption, and will therefore no longer be affected or changed by it. Similarly for the other cases. This is another process of 'adaptation.' The author describes some experiments which prove that this is the true explanation, and points out the importance of this view, not only for color photography, but for the production of colors in the animal world. It is evident that Wiener is on the right track, and if others take up the matter in this way, some of us may yet see a true color photograph."

Regulation of Maternity Hospitals in Connecticut.—No person shall keep a maternity hospital, or lying-in place, it was enacted at the last session of the General Assembly of Connecticut, unless such person has previously obtained a license therefor, duly issued by the mayor, or board of health of the city, or health officer of the town wherein such maternity hospital or lying-in place is situate. Within six hours after the departure, removal or withdrawal of any child born at such maternity hospital, or lying-in place, the keeper thereof shall make a record of such departure, removal or withdrawal of such child, and the names and residences of the persons who took such child, and whatever disposition of such child or its body is made, and the place where it is taken and left, which record shall be produced by the keeper or licensee of said hospital, or lying-in place, for inspection by and upon the demand of any person authorized so to do by the mayor or board of health or health officer of the city or town in which such hospital or lying-in place is located. No keeper of any such hospital, or lying-in place, or any of his servants or agents, shall refuse permission to any person so authorized to make such inspection, to enter such hospital or lying-in place for the purpose of such inspection, and shall permit such person so authorized to inspect such hospital and all its appurtenances for the purpose of detecting any improper treatment of such child. Every person so authorized may take and remove any article which he thinks presents evidence of any crime being committed therein, and deliver the same to the coroner of the county to be disposed of according to law. The penalty for a violation of this act is a fine of not less than fifty nor more than five hundred dollars, or imprisonment not more than one year or both.

Practical Notes.

Treatment of Hiccough.—In the treatment of hiccough M. Matthieu proposes the following: Let the patient breathe rapidly, deeply and regularly forty-five to fifty times a minute. In many cases he was able to arrest the violent crises. —*Journal de Médecine et de Chirurgie*, Nov. 10, 1895.

Evacuation of the Biliary Calculi by the Stomach.—At a recent meeting of the *Société Médicale des Hôpitaux*, of Paris, M. Hayem reported the history of a patient attacked with repeated vomiting, which resembled that found in pyloric stricture. Under lavage, many times repeated, thirty-eight biliary calculi were recovered. The patient recovered, but M. Hayem was of opinion that a direct communication existed between the gall-bladder and the stomach. —*Journal de Médecine et de Chirurgie*, Nov. 10, 1895.

Treatment of Acne.—According to the *Annals de Dermatologie*, Boeck, finding that Dauphin oil (*Delphinium staphisagria*, "stavesacre") inhibited the growth of bacteria in the skin, sought to utilize that property in the following formula for the treatment of Acne:

R	Camphoræ	30
	Acid Salicylici	50
	Sulphuris precipitata	10
	Zinci Oxidi	2
	Saponis	1
	Ol. Dauphin.	12

M. Make one application each night, wash the face in the morning with soap and warm water. The camphor in this mixture is for the purpose of masking the disagreeable odor of the oil. —*Jour. de Méd. et de Chirurgie*, Nov. 10, 1895.

Sun Glass as a Cautey.—Dr. Shepherd, in the *Yale Medical Journal* for December, 1895, in an interesting article on "The Sun Glass as a Surgical Instrument," recommends the sun glass for the removal of growths where it is very desirable

that no scar should be left and no contracting of tissue, as upon the face and eyelids. In his opinion it is simpler than electrolysis, and less likely to leave any scar, for the reason that the electric needle usually pierces the skin, and the caustic action takes place from underneath the growth or disease. He uses cocain before applying the glasses, and from his experience in the treatment of nevi, and the like, he is inclined to recommend its use in such cases.

Treatment of Cholelithiasis.—During the meeting of the Medical Society of Virginia held Sept. 3 to 5, 1895, Dr. Geo. Ben. Johnston read a paper on the Treatment of Cholelithiasis. Dr. J. McF. Gaston, of Atlanta, was present and took part in the discussion of the paper. In the course of his remarks, he paid Dr. Davis, of Alabama, a just compliment for his investigations. Dr. Gaston said:

"That while the reader claimed only to present some points for discussion, he had occupied most of the ground ordinarily taken up by those familiar with gall-bladder surgery. There were, however, some matters not usually dwelt upon by writers, to which attention might be directed. The first and most important consideration pertains to the treatment of cases in which there are gall-stones in the gall-bladder and ducts, which call for removal by incision, and it is found impracticable to attach the sac of the gall-bladder to the skin or the intestines, or to suture the wall of the duct. In these cases it has been proposed to tampon the intervening space to the external opening with gauze, with or without medication. By packing around with the gauze, and leaving the ends of the strips protruding, drainage is accomplished, and the bile or other discharge is kept from entering the peritoneal cavity. While fresh bile is not found to be an irritant to the peritoneum, the vitiated discharge which takes place after obstruction proves hurtful, and should not be allowed to enter the abdominal cavity.

"Dr. W. E. B. Davis has taken a prominent part in urging this mode of procedure, and has made numerous experiments upon inferior animals illustrating the advantage of introducing iodoform gauze into the wound for the purpose of walling off the intestines and other viscera, while it serves, by capillary attraction, to carry off the discharge.

"This has been practiced by others with the best results; and to Dr. Davis is due the credit of impressing upon the profession the advantages of this treatment in cases not admitting of the attachment of the gall-bladder to the external opening or the intestines, and in which it is found impracticable to close by suture an incision of the common duct after the removal of biliary calculi."—*Alabama Medical and Surgical Age*.

Society Notes.

Lackawanna County (Pa.), Medical Society.—The following resolutions were submitted by Dr. J. C. Bateson and adopted by the Lackawanna County Medical Society, in the city of Scranton, Pa., Nov. 12, 1895:

WHEREAS, There is a widespread and growing practice on the part of manufacturing chemists and pharmaceutical companies to put up their products in original packages covered with advertising matter giving name, dose, by whom made, and a wide range of indications for use, so that the physician finds it most convenient or necessary to prescribe in this form and thereby unwillingly injure his own business; and

WHEREAS, Many of these manufacturers publish cheap journals for advertising purposes, thereby infringing on the domain of regular medical publications, having the effrontery even to ask physicians to pay them for advertising their own goods; therefore,

Resolved, 1. That the Lackawanna County Medical Society disapproves of such methods and devices to introduce remedies and journals.

2. That for mutual protection the medical fraternity is advised not to prescribe medicines put up in the manner indicated.

3. That the State and County societies, together with regular medical journals, are invited to unite against these cunning schemes.

THE annual meeting of the County Medical Society was held in New York November 25. The following officers were elected for the ensuing year: President, E. D. Fisher; First Vice-President, F. Peterson; Second Vice-President, J. H. Fructnight; Secretary, Charles H. Avery; Treasurer, J. S. Warren—The monthly meeting of the Ramsey County, Minn., Medical Society was held in St. Paul November 25.

Congress of American Physicians and Surgeons.—At a meeting of the Executive Committee of the Congress of American Physicians and Surgeons, held in New York City November 23, the following officers were elected:

President of the Congress, Dr. Wm. H. Welch, Baltimore, Md.; Secretary of the Congress, Dr. Wm. H. Carmalt, New Haven, Conn.; Treasurer of the Congress, Dr. Newton M. Shaffer, New York City; Chairman of the Executive Committee, Dr. Landon Carter Gray, New York City; Secretary of the Executive Committee, Dr. Wm. K. Simpson, New York City.

The next Congress will meet at Washington, D. C., in May, 1897.

Hospital Notes.

ST. LUKE'S HOSPITAL, NEW YORK.—The thirty-seventh annual report of this institution has been published, covering the twelve months ending St. Luke's Day, Oct. 18, 1895. The volume of 110 pages is largely devoted to the medical and surgical service tables. The report shows that the new hospital is so far advanced that, within a few months, the buildings will be ready for occupancy. The work of the training school for nurses has gone on steadily, notwithstanding the fact that the service within the hospital has been cut down one-half. The Board of Managers have in view the amplification of the pathological work of their plant by the construction of a building, for the endowment of which the sum of \$200,000 is to be raised. The approximate per diem cost was \$1.61 for each ward-patient, while the price charged paying patients has been only \$7.00 per week.

THE NEWPORT, R. I., HOSPITAL.—Mrs. F. W. Vanderbilt has added \$5,000 to her previous contribution for the new operating building attached to the Newport Hospital, which makes her gifts for this purpose \$8,000 in all, and practically pays in full for this building.

PRESBYTERIAN HOSPITAL BENEFIT.—The managers of the Presbyterian Hospital of Chicago have reason to congratulate themselves on the concert given at the Auditorium on the evening of December 2. The Theodore Thomas Orchestra, the divine Melba, and the magnificent Scalchi, made up an entertainment which will long be remembered in the medical history of Chicago. The vast Auditorium was crowded and the box office turned in a very handsome revenue to the support of the hospital.

THE MEDICAL STAFF of the Erie County Hospital, at Buffalo, N. Y., has submitted its second annual report to the superiors. The report shows that during the year from Oct. 1, 1894, until Sept. 30, 1895, the members of the staff made 1,335 visits to the hospital and 2,452 patients were treated—The Sisters of the Poor of St. Francis, having charge of St. Mary's Hospital at Hoboken, N. J., will build a large addition on the south side of the hospital in order to meet the demands for more accommodations.

Detroit Notes.

DR. HEDLEY WILLIAMSON read a paper on "Smallpox" before the Detroit Medical and Library Association at their meeting of Nov. 25. This society has issued a monthly card giving the names of the authors and the title of their papers for each Monday evening of December, and it is the most complete card that the society has issued for some time; the last day, December 30 being assigned to George Henry Fox, M.D., of New York.

DEACONESS HOSPITAL.—At a meeting of the staff of the Deaconess Hospital the following officers were elected, and the different positions assigned as noted. Staff of Deaconess Hospital: President, E. B. Smith, M.D.; Vice-President, G. A. Kirker, M.D.; Secretary, J. F. McPherson, M.D.; Consulting Surgeons, D. Maclean, M.D., H. O. Walker, M.D., A. W. Ferguson, M.D., of Chicago; Attending Surgeon and Operative Gynecologist, E. B. Smith, M.D.; Consulting Physicians, P. Klein, M.D., G. A. Kirker, M.D., C. Brumme, M.D.; Attending Physicians, L. C. Newton, M.D., T. M. Lawton, M.D.; Consulting Oculist and Aurist, C. E. Frothingham, M.D.; Attending Oculist and Aurist, L. E. Maire, M.D.; Gynecologist and Obstetrician, J. F. McPherson, M.D.; Consulting

Gynecologists and Obstetricians, C. H. Leonard, M.D., N. W. Webber, M.D., E. W. Jenks, M.D.; Consulting Neurologist, J. E. Emerson, M.D.; Attending Neurologist, T. J. Parker, M.D.; Physician for Throat, Nose and Chest, M. McColl, M.D.; Assistant Physician, J. H. Greenwood, M.D.; Physician for Children's Diseases, J. F. Bennett, M.D., E. W. Tonkin, M.D.; Bacteriologist and Pathologist. Board of Directors, Officers of the Staff, ex-officio, L. E. Maire, M.D., T. J. Parker, M.D.

HEALTH OFFICE report for week ending Nov. 29, 1895:

Deaths, under 5 years, 32, total, 87. Births, male, 45, female, 50; total, 95. Contagious diseases: diphtheria, last report, 34, new cases, 29, recovered 17, died 8, now sick 38. Scarlet Fever: Last report, 15, new cases 8, recovered 4, died none, now sick 19. Smallpox: Last report 2, new cases none, recovered none, died none, now sick 2, 1 from Hamtramack and 1 from Detroit.

St. Louis Notes.

WEEKLY REPORT OF HEALTH OFFICE.—Total number of deaths during the week ending November 30, 170; during the preceding week, 160; during the corresponding period of last year, 158. Births reported, 211. Contagious diseases reported during the week ending November 30: Diphtheria, 115 cases, 18 deaths; croup, 16 cases, 8 deaths; scarlatina, 8 cases; measles, 8 cases.

THE ST. LOUIS MEDICAL SOCIETY.—At the regular meeting Saturday evening, November 30, the scientific program consisted of a paper by Dr. Warren B. Outten on "Hematomyelia," with an extended discussion by neurologists and surgeons. The paper was an elaborate examination of the subject based upon a collection of opinions expressed by leading neurological authorities in literature, and upon the personal experience of the leading neurologists of America. The deduction made was to the effect that primary and isolated hemorrhage into the substance of the spinal cord does not occur as a result of trauma; that cases where hemorrhage of that character are found are to be explained as the secondary complication of an antecedent change in the cord, rather than as the direct result of injury. The paper was a valuable one for the fact that it clearly demonstrated the uncertainty that prevails among observers with regard to the pathology, diagnosis, and prognosis of hematomyelia as an isolated condition. Whether the conclusion drawn is warranted is questionable. Certainly, as was pointed out in the discussion, the demonstration of one case of isolated primary hematomyelia by careful post-mortem would at once decide the question of the occurrence of it, no matter what past experience had been. It does not decide the question of possibility in such a matter as this to cite opinion or even past experience; the most such a reviewer can do is to emphasize the improbability of hematomyelia being the lesion in a given case of trauma open only to clinical observation.

SMALLPOX is reported from Charleston, Mo., where four cases have occurred.

THE HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.—Returns are not yet in covering the collections for November 30 and December 1, but the partial reports show a gratifying prospect. In 1894 the contributions amounted to \$9,992.17, which was distributed among nine hospitals in sums proportioned to the number of free patients treated during the year.

Louisville Notes.

LOUISVILLE MEDICAL COLLEGE.—The class of 1896 of the Louisville Medical College elected its officers at a meeting held in the college building last week. Sixty-seven members were present. The following were elected: President, E. R. Morris, North Carolina; Vice-President, J. W. Benham, Indiana; Secretary, O. K. Harris, Indiana; Treasurer, R. E. Egan, West Virginia; Salutatorian, J. C. Lawrence, Virginia; Valedictorian, E. B. Hardin, Kentucky. The valedictorian was the only Kentuckian on the list. He is a relative of P. W. Hardin, the recent democratic candidate for governor.

INSANE ASYLUMS—Dr. J. H. Letcher, of Henderson, a prominent Republican, is mentioned as the choice of Governor-elect Bradley for Superintendent of the Hopkinsville Asylum; and Dr. I. N. Baughman, of Flat Lick, for Superintendent of the Eastern Asylum at Lexington. Dr. Baughman has held public office before, having been pension examiner under the last Republican president.

HEALTH ORDINANCE.—At the last meeting of the General Council the Board of Public Safety presented the ordinance prepared by Dr. White looking to the prevention of diphtheria, scarlet fever and smallpox. For some weeks several public-spirited ladies have been submitting cards to the local papers, crying out for compulsory immunization of all children attending the city schools from diphtheria, and they were answered by a letter to the editor of the *Times*, calling attention to the great importance of obtaining the passage of the contagious disease ordinance. Since then the ordinance has been submitted as above reported, and it is to be hoped that the Health Committee will be importuned by every public-spirited person to recommend its passage, and the Council to vote favorably upon it. The Mayor's signature will be affixed if it is passed.

DEATH RATE.—The report of the health officer for November, 1895, shows a less number of deaths than in the corresponding month last year. In November, 1894, there were 256 deaths, and in the month just past 243. During the month consumption caused 17 deaths; diphtheria, 14; typhoid fever, 11; cerebral meningitis, 11; old age, 10; pneumonia, 29; there were 17 still-births. One hundred and thirty-three females and 130 males were born in Louisville. Annual death rate per 1,000, 16; white—168,547 population—death rate, 14; colored—36,453 population—death rate, 22; for the month, white, 1.4; for the month, colored, 1.4. There were 66 deaths during the last week in November.

Cincinnati Notes.

THE MORTALITY report for the week ending November 29, shows the following: Diphtheria 5, entero-colitis 2, scarlet fever 1, typhoid fever 3, whooping cough 1, other zymotic diseases 5, cancer 3, phthisis pulmonitis 7, other constitutional diseases 2, apoplexy, 2, Bright's disease 2, bronchitis 7, gastritis 2, heart disease 5, meningitis 3, peritonitis 3, pneumonia 12, other local diseases 29, developmental diseases 8, violence 3, under 5 years, 26; total 104. Annual rate per 1,000, 16.09; preceding week 98. Corresponding week in 1894, 112.

DR. WM. OSLER, of Baltimore, delivered an address before the Academy of Medicine November 19, taking for his subject "Higher Medical Education." Dr. Osler made a strong plea for more general interest on the part of the public and especially in the establishment of college laboratories, to which he thought the wealthy men could not make a better disposition of their money than by endowing them—this in view of the great work they are doing for humanity's sake. Dr. Osler was entertained by Col. Chas. W. Wooley.

THE HOME for Incurables has just received an endowment of \$1,000 from the estate of David Eckstein, which was left to a charity to be named by the Mayor.

THE OHIO Wesleyan University has received a gift of \$50,000 from Dr. Chas. E. Slocum, of Defiance, Ohio, for the purpose of enabling the institution to erect a fire-proof library building.

THE arrangements are about completed whereby the University of Cincinnati will have a completely equipped medical department.

AT THE meeting of the Academy of Medicine held December 2, Dr. E. Gustav Zinke contributed a paper on "The Management of Occipito-Posterior Position." It was discussed by Drs. W. H. Taylor and Giles Mitchell.

THERE is less typhoid fever at present than for a number of years, although the Ohio river, which is the water supply, shows but two feet and four inches.

DR. F. W. HENDLEY, the Superintendent of the Cincinnati Hospital, has been promoted to the position of Major and Surgeon of the First Regiment of Infantry made vacant by the resignation of Dr. L. C. Carr.

DR. J. E. LOWES, of Dayton, has been appointed Surgeon-General of Ohio by Governor Bushnell.

A NEW medical society has been organized in the Medical College of Ohio and named for Prof. P. S. Conner, the eminent surgeon. Dr. Parley Phillips has been elected president.

TWO CASES of favus were discovered in the Children's Home last week. They were sent to the hospital.

THE quarantine on the Children's Home has been raised.

THE Laura Memorial College, which was recently furnished and presented by Alexander McDonald as a memorial to his daughter, opens with a class of forty and promises to soon become recognized among the front rank of the medical colleges for women in this country.

MRS. JANE A. GIBSON has made a second endowment of \$5,000 to Christ's Hospital.

THE *Tribune* has just presented a handsome buggy as a prize for the physician receiving the highest number of votes. Dr. S. J. D. Meade, a "homeopathic" practitioner was the winner, he having obtained 33,000.

A CASE of dislocation of the fibia and tibia, forward on the femur, was admitted at the City Hospital last week as a result of a boiler explosion on a steamboat; this is the first case of this character appearing on the records.

DR. W. H. DOUGHERTY, of Corinth, Ky., was thrown from his buggy on the 25th of last month and sustained severe injuries.

THE public and Sunday schools of Zanesville, Ohio, have been ordered closed as the result of an outbreak of forty-five cases of scarlet fever.

AN EPIDEMIC of typhoid fever is prevailing at Randolph, Ohio, which is claimed to be due to an abandoned cemetery in which vicinity all the cases have occurred.

A DISCUSSION of the humanity of vivisection by a number of the profession of Cincinnati has recently been published by the *Commercial Gazette*.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—The report of the Health Officer for the week ended November 23 is as follows: Number of deaths (still-births not included) white, 58; colored, 35; total, 93. Death rate per 1,000 per annum, white, 16.1; colored, 20.7; total, 17.5. Death rate per 1,000 per annum for corresponding week last year, 16.8. The reports of deaths to the Health Department during the past week show a continued improvement of the general health of the city. From 99 deaths reported week before last the number decreased to 93, a decline equal to 6 per cent. Accordingly the annual death rate fell from 18.68 to 17.55 for the whole population. The mortality from typhoid fever was 4, as against 7 in the week previous. This malady is evidently on the decline. During the first week of November the deaths reported therefrom numbered 17, since which time they have fallen respectively each week to 8, then 7, and now 4. The dangerous contagious diseases present no epidemic form, there having been but 1 death from diphtheria and 2 from scarlet fever. The week's health history shows the decided fall in infant mortality from 35 of those under 5 years old to 18. The fatalities from chronic and acute lung troubles stand this week at about the normal, while taking whole list of diseases in view, the general condition of the public health is satisfactory.

PEDESTAL FOR DR. GROSS' STATUE.—Col. Wilson, of the engineer corps, in charge of public buildings and grounds, is now engaged in the execution of a work placed in his care by a special act of Congress. It is the construction of a granite pedestal for the bronze statue of Dr. Samuel D. Gross, which is to be erected at a prominent point in the Smithsonian Park, between the National Museum and the Army Medical Museum. The pedestal will be of simple and impressive design. Upon one of the faces of the die will be carved a partial leaf of palm and laurel, within which will be in raised letters the name, "Samuel D. Gross," and under it in incised letters the following words: "American physicians have erected this statue to commemorate the great deeds of a man who made such an impress upon American surgery that it has served to dignify American medicine." The statue is now being made abroad upon a design of a foreign artist.

MEDICAL SOCIETY OF THE DISTRICT.—At the regular weekly meeting of the society, held on the 27th inst., Dr. N. Jacobi, of New York, read a paper on "Nephritis in the Newly Born." Upon its conclusion the society honored him with a vote of thanks. Dr. Bovee presented two specimens of fibrous uterus, removed by abdominal section. Dr. Stone presented a specimen of appendicitis. A committee of three, consisting of Drs. C. H. A. Klineschmidt, F. C. Smith and Geo. L.

Magruder, presented resolutions of regret on the death of Dr. Geo. C. Merriam.

THE SECRETARY AND DEPARTMENT OF PUBLIC HEALTH.—At a special meeting of the District Medical Association, held on the 30th inst., the subject of a Department of Public Health, with a medical man as Secretary and member of the Cabinet, was fully discussed. The matter came before the association formally by a letter from Dr. Jerome Cochran, chairman of the committee on this project, appointed by the AMERICAN MEDICAL ASSOCIATION. The President's message to the Fifty-third Congress advocating such a department, and Senator Gray's bill for its establishment, were read before the physicians present. It was voted to favor the measure, and to choose a committee to cooperate with Dr. Cochran in urging the passage of an organic law by the present Congress. The committee named consists of Dr. H. L. E. Johnson, Dr. Samuel C. Busey, Dr. W. W. Johnston, Dr. J. R. Wellington, and Dr. C. H. A. Klineschmidt.

COMMITTEE OF BOARD OF TRADE ON PUBLIC HEALTH.—Mr. S. W. Woodward, President of the Washington Board of Trade, has appointed the following named medical men on the Committee on Public Health: Drs. Samuel C. Busey, W. W. Johnston and H. L. E. Johnson.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 23, 1895, to November 29, 1895.

Major George W. Adair, Surgeon (Washington Bks., D. C.), is hereby granted leave of absence for one month, to take effect about Dec. 4, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 30, 1895.

Surgeon F. Anderson, detached from the "Amphitrite," and ordered to the "Dolphin."

Surgeon P. M. Rixey, detached from the "Dolphin," and placed on waiting orders.

Surgeon J. E. Gardner, detached from Port Royal Station, and ordered to the "Amphitrite."

P. A. Surgeon I. W. Kite, detached from the "Franklin," and ordered to the naval hospital, New York.

P. A. Surgeon T. A. Berryhill, detached from the naval hospital, New York, and ordered to the Port Royal Naval Station.

Change of Address.

Brooks, S. D., from Chicago, Ill., to Marine Hospital, St. Louis, Mo.
Cobb, W. F., from Mona, Iowa, to Lyle, Minn.
Fowler, W. S., from 59th St. and Washington Av. to 4142 Berkley Av., Chicago, Ill.
Kauli, W. M., from Titlin to Mexico, Ohio.
McLain, John S., from 1624 N St. N. W. to 1320 19th St. N. W., Washington, D. C.
Perry, T. B., from Fortress Monroe, Va., to Milledgeville, Ga.
Small, A. R., from 3300 State St. to 3130 Indiana Av., Chicago, Ill.

LETTERS RECEIVED.

Ayres, H. B., Indianapolis, Ind.; Ayer, N. W., & Son, Philadelphia, Pa.
Battie & Co., St. Louis, Mo.; Barker, Mrs. A., Charleston, Mo.; Beck, Carl, New York City; Beman's General Newspaper Agency, Ann Arbor, Mich.; Boehinger, C. F., & Soehne, New York, N. Y.; Blodgett, F. J., New York, N. Y.
Cottrell, A., New York, N. Y.; Cobb, W. F., Lyle, Minn.
Dussan, Anibal E., Old Bridge, N. J.
Goode, Thos. F., Boynton, Va.
Henry Pharmacy Co., Louisville, Ky.; Hayden, A. M., Evansville, Ind.; Hammel, A. L., Advertising Agency, New York, N. Y.; Hammond, Wm. A., (2) Washington, D. C.
Jordan, J. R., Montgomery, Ala.
Kegan, Paul, French, Trübner & Co., Ltd., London, Eng.; Kelly, R., Salem, Ore.
Le Count, E. R., Chicago, Ill.; Lowry, J. B., Caryville, Fla.
Macey, The Fred. Co., (2) Grand Rapids, Mich.; Murphy, T. C., Manito, Ill.; Mills, Harry Brookier, (2) Philadelphia, Pa.; McKown, T. D., Chickamauga, Ga.; Mills, H. R., Port Huron, Mich.; Morse Advertising Agency, Lyman D., New York City; Mariani & Co., New York City; Moore's Subscription Agency, Brockport, N. Y.; McLain, J. S., Washington, D. C.
Norris, A. L., (2) Farmer City, Ill.; Newman, D. C., Spokane, Wash.
Owen, W. E., Fox Lake, Wis.
Priest, W. R., Concordia, Kan.; Pendleton, G. W., Idaho Falls, Idaho; Parker, W. T., Groveland, Mass.; Pantagraph Printing and Stationery Co., Bloomington, Ill.; Pettingill & Co., New York City.
Rodi, C. H., Calmet, Mich.; Rosser, C. M., Terrell, Tex.; Ridion, John, Chicago, Ill.; Rio Chemical Co.; St. Louis, Mo.; Randall, F. S., New York City.
Smith, B. M., Davis, W. Va.; Smart, Chas., Washington, D. C.; Sykes, G. A., New York, N. Y.; Sutherland, Jno. W., Washington, D. C.
Thorner, Max, Cincinnati, Ohio; Tulkerson, W. D., Coffeyburg, Mo.
Wallan, Geo. W., New York, N. Y.; Williams, J. F., Chicago, Ill.; Wilson, Louis N., Worcester, Mass.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, DECEMBER 14, 1895.

No. 24.

ORIGINAL ARTICLES.

ON THE RELATION OF SEX TO THE PROGNOSIS OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WILLIAM BROWNING, M.D.

BROOKLYN, N. Y.

The purpose of this paper is briefly to call attention to a difference in the sexes as regards chances of recovery from the convulsive habit. This is a matter that has not been absolutely overlooked, though it seems to have received scant attention. Only in Gowers have I so far found any original reference to it, and he simply says that, "the prospect of arrest is slightly better in males than in females."

It is unusual for sex to play a very important rôle in those diseases that are common to both male and female. Among epileptics there is no great preponderance of one sex over the other. In my former statistics (to July, 1891)¹ of this disorder there were 84 M. to 66 F. Reynolds found 102 M. to 70 F., but says that "practically, the two sexes appear to be about equally affected." Some later statistics indicate a slight excess of females, but this is disputed. And it should not be overlooked that males are more exposed than the opposite sex to accidents provocative of epilepsy. At any rate in my own series the numbers of the two sexes have not varied sufficiently to account for any considerable difference in results. At most this has but a relative bearing on the subject in question.

It is of course true, that a great majority of epileptics are but little amenable to treatment. Nevertheless this does not hold for selected cases. If the trouble occurs in a young male (youth or early manhood) and is taken promptly in hand, and if the case does not show organic lesion or too many marks of degeneracy and can be followed up, there is in my experience, a considerable, perhaps an even chance of cure—taking this term in the sense of cessation of seizures for years at least after conclusion of treatment.²

In other and less favorable cases in males, there is correspondingly less hope of cure, though it is now and then possible. The relief of weak heart, ear troubles, gout, the expulsion of tape worms, etc., and sometimes more direct medication will give an occasional cure.

If, now, we compare with this showing in males, the results obtained in females, we find, in my experience, one long line of failures. In dispensary prac-

tice there has hardly been an exception to this.³ True, we can give some relief and occasionally think we are to effect a cure. In some cases of digestive or cardiac disturbance, that have been attended by one or two seizures, evidently but symptomatic in nature, we may even see a complete cessation. And the like may hold for an occasional case of so-called reflex origin. But in any case in the female that could certainly be classed as epilepsy there has been no cure, and only now and then any material amelioration. In private practice, the results have been but little better—the longest free period in any female patient has extended but one year.

Therapeutically, not only has the same plan been tried as in the males, but also various modifications of it with the hope of better suiting the female.

The same fact appears casually in the paper to be presented here by my colleague, Dr Barber. He soon had to give up his trial of *solanum carolinense* in the case of females, because of its entire failure, while in the boys there has been sufficient benefit to enable him to continue observation.

In view of these facts, the unsatisfactory outcome can hardly be attributed to a poor adaptation of treatment. In seeking an explanation I have come across a few things having apparently some bearing thereon, though even if related or parallel matters they serve quite as much to verify as to explain.

In the first place it may be recalled that any intoxication habit (for alcoholics, narcotics, or what not) is less tractable in women than in men. It is, alas, little enough so in either. Under institutional care this may not be apparent, but in private cases one soon has to recognize this fact.

Again, my service at the Kings County Hospital includes a department of some fifty feeble-minded and idiotic children. Last year a party of noble women in Brooklyn started a school for the instruction of these incapables. There it was soon apparent that though the sexes were almost equally represented in the whole number of inmates of that department (twenty-six males to twenty females), the number of girls capable of any real instruction was usually about half that of the boys (thirteen males to six females at this writing). This was the more surprising, as in other mixed schools the girls are pretty uniformly found to be on an average brighter, more studious and conscientious than the boys. But inquiry elicits the information that generally in schools for the mentally defective, the boys are found brighter as scholars and more amenable to training than the girls.

The very kind reply of my friend, Dr. M. W. Barr, Chief of the Pennsylvania Training School for Feeble-Minded Children at Elwyn, is well worth giving:

³ In a continuous series of thirty-four females, covering the same period as the above series of males and with like range in ages, twelve were seen but once, thus leaving twenty-two. Among these there was but one in which there was any question of cure and even this was too uncertain to be so classed.

¹ The Epileptic Interval, etc., New York, 1893.

² In a continuous series of thirty-four cases, all males, ranging in age from 11 to 25 years, nine were seen but once, and hence must be deducted. In the remaining twenty-five, many of the above specified conditions were not adequately filled, and yet they gave a record of six definite and five more presumptive cures.

"We find that the mental improvement is more marked in the boys than in the girls—the ratio of 3 to 2.

"The physical improvement is about equal in both sexes. We find that the mental condition does not always depend on the physical, nor the physical on the mental.

"I do not know any explanation of this, or why the boys are more improvable than the girls, except that the girls are more nervous and less willing to do good honest work than the boys."

These matters seem to have a direct bearing, however difficult it may be to analyze closely, on the main point raised. Perhaps there is some additional force in the fact that a portion of the imbecile class are also epileptics. It would be interesting to know the school ratio, so to speak, of the mental cripples that are free from epilepsy.

On the other hand, a comparison of the gross statistics of recovery in the insane, fails to discover any particular difference in the sexes. Barring the excess of male paralytics over female, the chances of recovery are about equal in the two, if we take all forms together (shown by adding up some 15,000 cases from recent asylum reports).

Any attempt to interpret these matters is little more than speculation. It is, however, important to find the true explanation in the case of the epileptic, as on it must depend our treatment to be successful.

(a) The suggestion of a "greater strain placed upon females at the age of puberty" (Hare), hardly calls for serious consideration. If such an element exists it must tend rather to produce an excess of epileptics in that sex than to any essential difference in the resulting disease itself.

(b) The influence of a possible hysterical factor is better worth attention. I must acknowledge that it has often proved a difficult question to decide on its existence or not in female epileptics. At one visit a case will appear a pure epilepsy, and at another the hysterical features will be just as clear. This is a separate matter from hystero-epilepsy; although where the latter in the female proves to be more than transitory, definite epileptic symptoms soon begin to color the case.

With males, on the contrary, my experience is uniformly to the effect that epilepsy and hysterical epilepsy are well separated, *i.e.*, a given case is wholly one or the other.

But the persistent factor in female epilepsy has never been influenced by a regard, therapeutically, to a possible hysterical side, though this is only negative and weak evidence.

(c) The power of habit in the female. That this is greater than in the male may be granted. But, even if this applies to acts beyond the influence of the will, it can hardly account for the lesser mental receptivity of the weak-minded female, though this latter may be an entirely separate affair.

(d) Finally, it is possible that failure of treatment in the female epileptics depends on some inherent fundamental condition and that we can never expect to make it as successful as in males.

The results of operative treatment have not been considered in this paper, partly because that applies to a special class of cases and partly because there would be too few females for a proper comparison, as well as the great uncertainty in most of the results reported.

So far, we can at least recognize that, while there is a fair chance of cure in the most favorable male cases, we must expect little in the female—and remember it in prognosis.

A CLINICAL NOTE ON THE TREATMENT OF EPILEPSY BEFORE THE HABIT IS FORMED.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY E. D. FERGUSON, M.D.

TROY, N. Y.

Though many links in the chain which would represent the complete pathology of epilepsy are lacking, enough is known to furnish occasionally a clew to rational treatment, and whether our measures may be addressed to some etiologic factor or be symptomatic as the administration of the bromids for the control or diminution of the attacks, it seems fairly evident that in the majority of instances the longer and more frequently the seizures have been occurring the greater will be the difficulty in abolishing them or diminishing their frequency.

In a general way, the influence of long continued recurrence is recognized under the name of habit, and is no doubt to be accorded some importance; for it will scarcely be necessary to adduce illustrations of the influence of habit on many of the functions of the body.

Undoubtedly, in the treatment of epilepsy, more brilliant results will obtain in those cases in which the cause is ascertainable and of such a nature and so situated that it can be efficiently treated, and in particular will we be entitled to expect a successful result if the case comes under observation while still showing only the minor forms of its manifestations; but even when we are unable to direct our measures from an etiologic standpoint, and must rely upon the ordinary routine means, if the treatment be thorough and energetic, begun at an early date and continued for a long period, we may cure some cases that would prove incurable if subjected to treatment at a later date. This applies to the cases subjected to any therapeutic plan, whether surgical (at any point from the vertex to the soles of the feet) or medicinal, as the usual course of the bromids. In these cured cases, however, there is occasionally a lingering doubt that those presenting only the minor manifestations might fail to develop into *le haut mal*, but no one can doubt that a proportion still remains in which if *le petit mal* be relieved the patient is saved from the greater events of the disease.

By way of illustration, I will cite two instances of the minor form, presumably of reflex origin, and associated with that somewhat overworked source of irritation, phimosis.

The first case, a boy about 6 years of age, had for several months been noticed to act peculiarly during urination. That fact was reported to me, and I requested the parents to note carefully the events occurring at that time; the report embraced the statement that he would defer the act as long as was practicable, and then, when about to accomplish it, would seem agitated as by fear; his face would become pale, he would start backward a step or two, his body would become rigid, and there appeared to be a momentary unconsciousness; but as the urine began to escape these symptoms would diminish so that at the completion of the act, or a few moments thereafter, he would be ready to resume his play or studies.

It was some time before I saw the child for exam-

ination, for in response to my inquiry as to the condition of the prepuce, by a mistake I was told that it had been examined and pronounced in a normal condition, but the symptoms becoming more pronounced and the evidence of a brief loss of consciousness becoming stronger, I insisted on seeing the child, and an examination showed a phimosis with a pinhole orifice, and at the incision I found the prepuce strongly adherent to the glands over quite a portion of the surface. For two or three weeks after the incision the symptoms continued, but in a gradually diminishing degree, the diminution apparently keeping pace with an increasing confidence that the old sensations had been removed, and finally the trouble definitively ceased without the administration of drugs.

The other case was that of a lad, 10 years of age, who had shown no trouble prior to seven months of age, aside from measles when five months old. The first signs consisted of slight convulsive seizures, consisting mainly of rigidity of the muscles of the trunk and oscillation of the eyes, though at eight months there was some paresis of the right side which persisted for quite a period. For about eight years the attacks recurred on the average from three to six times daily, were brief in duration and were not followed by somnolence, but the frequency would be increased during the continuance of intercurrent illness. During the following two years the attacks did not notably increase in frequency, but they became somewhat more severe and were followed by a stupid or drowsy state. The father consulted me concerning him in an incidental way, and I advised that he should have him examined, particularly in reference to natal or post-natal injury to the head and the condition of the genital apparatus, for he described the act of urination as difficult and spasmodic. In the meantime I advised the use of bromids to try and control the habit element. As he lived a long distance from me, I heard nothing from the case for some months, when, being in the neighborhood of his home on another case, I again was consulted, and found a well developed boy of 10, apparently in good health in every way except the convulsive seizures, and some slight defect in the motility of the right side, presumably due to a mild attack of polio-myelitis in his early infancy. There were defective educational development and somewhat peculiar manners, both of which were doubtless in a measure the result of his having been kept from other children and from school.

The bromids had stopped the convulsions for nearly six months, but they had begun to recur. A tight and adherent prepuce furnished one ground for interference and I advised that the phimosis be removed, which was done somewhat later, and thereby he was relieved of his urinary trouble, but after a time the convulsions recurred, and he will probably become a confirmed epileptic, though I am convinced that an early operation and efficient medical treatment, particularly if instituted before the epileptic habit had been formed, would have resulted in a cure.

Another case of reflex influence interested me very much. It occurred in the practice of a medical friend, early in my professional work and before the use of the bromids had become so common. The patient, a man, had had several epileptic attacks, when, during an examination of his body for general diagnostic

purposes, and while manipulating one foot a paroxysm occurred. The same event having been repeated at another and not remote occasion, a more critical examination disclosed a small subcutaneous tumor on the dorsum of the foot, and pressure thereon produced a more or less complete epileptic attack. Excision of this growth resulted in a definite recovery.

Another instance will serve to illustrate the importance of thorough measures in the early stages of the disease. A young woman consulted me on account of a single convulsive seizure which had occurred a day or two before. Though realizing fully the fact that a single attack had slight diagnostic value, the description of the fit, as witnessed by a friend, led me to suspect so strongly that it was epileptic that I at once placed her on a bromid treatment with directions to make certain increase in the dose in case of a recurrence. In a short time she had another attack and then another, so that she had several within a few weeks. After each fit the dose of bromid was increased, until finally the intervals increased, and after about three months she had the last attack. The dose of bromid of potash had then reached a little more than 2 drachms daily and was continued at that amount for upward of two years, and then gradually diminished, so that it was stopped at about four years from the commencement of the treatment. This case, like the majority of cases of epilepsy, furnished no evidence as to causation or pathology and was treated entirely on an empirical basis. If the attacks had been allowed to continue for quite a time it is fair to assume that the condition would have become more difficult of control and probably incurable.

I am fully aware that this note contains nothing new, but it has seemed clear to me that the utility of energetic measures in the early stages of the disease has not been adequately urged or appreciated, and it is then, if at all, that we may hope to eliminate one factor, a minor one though it be, in the continuation of the disease, *i. e.*, the element of habit.

THE LIMITATIONS OF SURGICAL OPERATIONS AS A MEANS OF RELIEF OR CURE IN EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY THOMAS H. MANLEY, M.D.

NEW YORK.

During the past two decades, or the last quarter of the nineteenth century, a vast change has been wrought in the principles governing surgical operations; the use of the microscope has sapped the very foundations of pathology which was taught as late as the early 70's, and in that short space of time, we have witnessed the birth and death of many theories which were advanced with the force of dogmatic emphasis.

In short, our age is one of theories and it would seem that in spite of the scientific foundation which modern medicine is supposed to rest on, our position is anything but fixed and definite, and, never, probably at any time, was the profession more eager to test the efficacy of any therapeutic agency, provided only that its source was from those recognized as authorities. Our bent is essentially materialistic,

and we are endeavoring to wring from nature her mysteries and her secrets by experimentation and biologic research, rather than on the old beaten track of clinical observation. Surgery has made vast inroads on the domain of the physician. Not content with the slow uncertain action of medicines, by an internal route, we now take time by the forelock and scarcely any recess of the body is beyond the exploratory advances of modern surgery.

The same cavities which our forefathers never penetrated, except with fear and hesitation, have lately been ruthlessly invaded, and we have been led to hope that the time had come when many of the maladies heretofore quite incurable were now capable of prompt and certain eradication.

Truth and justice, however, compel us to avow that, except with the cavity of the peritoneum, it remains an open question, whether or not aggressive surgery has any well founded claim in the way of securing better results than may be attained by constitutional or symptomatic treatment.

With pulmonary diseases, surgery can do little, except in draining for empyema. And in this, of all the cavities, physics has brought the art of diagnosis practically to perfection. Since the doctrine of cerebral localization has been promulgated, Ferrier, Broca, Victor Horsley, McEwen and others have made the brain and its surgery a special study, the cranial cavity has been opened and explored in the treatment of many traumatic and pathologic conditions which, formerly, were regarded as quite beyond operative relief.

From what had been achieved by the security against inflammation or septic infection which antiseptics afforded, the precision derived by cranial topography and accurate cerebral localization, together with such osteoplastic operations on the cranial walls as would permit us to again fill in the wide breach made through them, it was believed that the time had come when we might succeed in locating and removing safely, neoplastic formations, or such other pathologic conditions as give rise to or perpetuate many of those maladies which appear to be of central origin.

It was earnestly hoped that at last a way had been opened by which we might offer some prospects of cure of that dreadful affliction designated epilepsy; that if it were dependent on cranial contraction, expansion and free play of the cerebral mass might be promised through a simple division of the cranial walls; if there were hard osseous compression, it would be easily relieved by the trephine; if there were new growths or adventitious formations, that their extirpation might be safely accomplished.

How far our anticipations have been realized in this direction, what positive substantial progress has been made, it is interesting and necessary that we now determine, in order that we may be able to make a reasonably definite forecast of the results following these cranial operations which are undertaken to relieve a case of epilepsy, whether their scope should be enlarged, or, on the contrary, restricted to only very rare and exceptional instances in which the physical distress is so great that any description of interference, not too hazardous to life is justifiable when indications point, even though remotely, to the probable seat of trouble.

Before we undertake the treatment of any disease on a scientific basis, it is indispensable that we have

a correct understanding of those pathologic conditions of the elements of the structures or organs through which it finds expression. Though, even when such a consummation is attainable and science has pointed unmistakably to definite etiologic factors, it has, so far, been singularly impotent in all but a very few instances to proceed any farther and indicate specific remedies. Thus we will observe that though physics has enabled us to easily recognize and follow every stage of pneumonia, its mortality remains as great or even greater than when symptoms alone were treated. Nor has the discovery of the microbe of phthisis suggested its antidote. Our microscopic differentiation of the cell elements of malignant growths has in no manner enabled us to the more effectively abort their progress or, after their advance has begun, do more than treat them on general principles.

But with epilepsy, anything like a definite pathology is wholly wanting. There are good reasons for believing that though its manifestations are through explosions of nerve force, by way of the encephalon, there are other subtle influences in operation, possibly in the blood of some one of the eliminating organs. While the cause of the malady remains in such profound obscurity, how is it possible to direct effective measures for its control or cure? And this view of the question is borne out by the fact that in our time nearly every large city is provided with special hospitals or asylums for the management of many of these hopeless cases.

But there are quite a few of the focal or Jacksonian type, which seem to date their origin to an injury of the skull. Perhaps a blow or a fall, which produced evident cerebral concussion, or a fracture with depression of bone. In one case which came under my care there was a marked depression of the left glabella of the frontal bone, produced by compression of the obstetric forceps at the time of birth.

For this class, aggressive surgery was looked to for relief. The depressed bone might be elevated or removed; an organized blood clot pressing on the cortex might be displaced, a new growth enucleated, or adhesions between the meninges and brain substance liberated.

Intra-cranial surgery was soon greatly enlarged, and this offered a fertile field for radical methods. Treatises have been written on it and monographs in great number have been widely circulated, setting forth the claims for this new departure. Progress, however, had not made very great advance before circumstances arose that led to a pause; and then reaction set in, until now we have reached a middle ground, with a tendency rather in the direction of a salutary conservatism, than ill-timed indiscriminate operating.

It was found that the operation of *trephining* itself was attended with many serious dangers to life from hemorrhage, meningitis and cerebral hernia, and what was most discouraging, after varying intervals of time, the convulsions almost invariably returned.

In some few cases the epileptic attacks were not so frequent nor violent after operation as before. True permanent cures have been reported; but no such result has ever come under my observation, either from the hands of others or in my own practice. It is not impossible nevertheless, to find an occasional cure succeeding operation in a certain class of cases. A great fright has been known to produce epilepsy as well as

a severe physical accident; and, singular to say, the same agencies have been known to promptly cure it. Some years ago a little girl was under my care for the treatment of a fractured arm, resulting from a fall over a rocking-horse, and though a victim of the most violent form of epilepsy before the accident, she has never had a seizure since; many have experienced a vast improvement by hypnotism, the faith-cure and clairvoyant treatment. It is, therefore, reasonable to inquire what rôle psychic influence plays in these cases which been operated on; the anticipation, dread and fear of the ordeal, the effects of the traumatism on the tissues, the loss of blood, or the effects of the anesthetics?

If we were only assured that any type depended in certain cases on localized compression, as depressed bone, or tumor pressure alone, then we might hope for enough benefit ensuing to warrant us in undertaking an operation for its removal. But those who have opportunities to examine many traumatisms of the skull, know well that in many who have well-marked bone depression, epilepsy is never witnessed. It is a well-known clinical fact too, that moderate cerebral compression is entirely compatible with the healthy functions of the brain. Extensive intracranial compression may produce pain, paralysis or coma; but that it in itself is ever a sole and direct cause of epilepsy is decidedly doubtful.

In more than seven hundred fractured skulls, beside other serious traumatisms of the brain which have come directly under my care during the past fifteen years, I have found no direct evidences that a moderate indentation of its plates or intracranial pressure from effusion ever *per se* was the cause of epilepsy in any one who before the injury did not give a history of having had it at some earlier stage of life.

With those who have an inherited or an acquired tendency to this disease, a cerebral injury undoubtedly often serves as a direct determining cause of its manifestations, and, with this class, we may, perhaps, expect the most satisfactory results from an operation on the brain when we have reasons to suspect pressure.

On a comparatively superficial examination of the surgical literature of the past ten years, one is quite amazed at the vast number of cases of epilepsy that have been treated surgically during that period. This is notably true of the Jacksonian and traumatic types. Few surgeons could resist the seductive promises held out by modern investigators, with the apparent precision in cerebral localization and no serious peril to the patient. Current medical publications, in both Europe and America, contain almost an infinite number of cases dealt with by radical measures, yet, withal, it does not appear that any author has prepared a statistical table setting forth in detail the ultimate results. It is obvious that such an undertaking, though highly valuable, would be quite impossible, for the reason that in a very considerable number the reports of several are so incomplete and indefinite as to be practically of no value. Certain authors speak of "recoveries" after operations when it is not clear whether they refer to operative success or cure of the disease. Very many are set down as "recoveries" when the time that the patients were in hospitals was too brief, or they were too soon lost sight of.

But very few have noted the influence of hereditary taint, sex, physiologic conditions, or antecedent his-

tory. Enough, however, has been gathered to lead us to the conclusion: 1, that trephining the skull is in itself, except in the hands of skillful surgeons, an operation which may endanger life; and 2, that, with only occasional exceptions, it makes no permanent impress on the course of the disease. Gowers ("Diseases of the Nervous System," vol. II, p. 314) believed that "blows and falls on the head which cause symptoms of cerebral injury are sometimes followed by recurrent convulsions of an epileptoid character, leaving an impaired vitality of delicately constituted cells; the convulsions being local, owing to a local damage of the cerebral cortex." This view is difficult to harmonize with oft repeated clinical observations; and if rational does not explain how we may look for relief through tapping the skull.

Gray says, that these cases of a peripheral origin usually improve under treatment; though a convulsive tendency clings to them. ("Diseases of the Nervous System," p. 375.) This distinguished writer adds, that "trephining is a harmless procedure, under antiseptic precautions." The same writer tells us that some may enjoy an immunity from an attack from ten to fifteen years, and others a shorter time. What we are desirous of correctly appreciating after a traumatism borne by the skull, and followed by epilepsy, is precisely the effect of this *alone* as an etiologic factor. Before we can conclusively settle this important question, we must eliminate all extraneous influences; those already stated, beside the reflex neuroses, such as have been reported by various authors; a few of which may be enumerated. St. Vilbis, in three severe cases of nasal catarrh, saw severe attacks of epilepsy which quickly ceased when this was relieved. (*St. Louis Medical Journal*, 1888, vol. XVI, p. 17.) Robert saw a man have epileptic fits every time he had a severe attack of pleuritic pain. Another author cured his patient by removing an injured eye; while Bartholow saw cases which he believed were cured by the expulsion of orange seeds in the intestinal canal. Le Grand Du Saulle (*Gaz. Des Hôpitaux*, 1885, LXVIII, p. 491) reported eight cases of epilepsy caused by viewing the dead body. They were all females, from 12 to 28 years old, and in all there were histories of being the progeny of drunken or neurotic parents. He accordingly observes that in all these cases there was enough to account for the onset of the malady, independent of fright or shock.

In one of my own, the patient gave a history of having borne an injury to the skull in childhood. With the aid of Dr. M. C. O'Brian, the neurologist to the Harlem Dispensary service, I was enabled to localize the apparent intracranial mischief, and after removing a disk of bone, came down on a glioma as large as an egg, lying between the arachnoid and cortex, over the fissure of Rolando on the right side. This was completely removed and our young man promptly recovered from the operation; but the truce was very brief, for in three months the convulsions returned with their old-time severity. Echerexria throws some light probably on the cause of our failure, for he cites quite a similar case, ending mortally after operation, in which, on autopsy, several growths of a similar character were found scattered throughout the brain substance. My patient gave a history of trauma in early life. (*Arch. de Med. Gen.*, t. III, p. 533.)

From the accumulated testimony of a very large number of surgeons who are not disposed to "color" or report their cases in such ambiguous terms as to

leave one in doubt of final results, we can only conclude that the number of cases of epilepsy capable of substantial relief or permanent cure through the resources of surgery is very small indeed. We have no evidence that trephining makes any impression on the chronic type of a constitutional origin: those only dependent on local traumatism holding out any definite hope from cranial surgery.

The afflicted are loath to admit that they inherit special diseases, and will resort to many subterfuges rather than acknowledge the truth. This human frailty is peculiar to no particular class. In many of these cases which come to us with scars on their scalps, no doubt, if we instituted a searching inquiry, we would find in some of them, at least, that they were produced by a fall in an epileptic seizure.

In the general run of this class we will not find sufficient osseous compression to account for the epileptic seizures. Some will say that there was a marked thickening of the plates of the skull where the trephine entered, but how can we determine this, except we are familiar with the relative thickness of the whole skull, which is quite impossible. And so may there be patches of thickening of the dura mater or the meninges found; a similar condition often met with within the skulls of those who have died of maladies in no manner connected with the brain.

It is certainly doubtful if moderate local depression of bone *per se* will cause epilepsy. I have trephined and elevated depressed bone after cranial injuries more than one hundred times; either immediately after injury or within forty-eight hours, and in no single case have I ever seen epileptic convulsions follow, except when meningitis developed. In one man an opening was made in the skull to drain a traumatic abscess which contained nearly six ounces of pus, but there were no fits, though we had reason to believe that the fluid compression had lasted more than a week. In another man I removed, by *débridement*, several depressed fragments from his skull, which had been injured five years previously. The fracture had produced an indentation that would admit the top of the finger and was located immediately over the torcular, which fact probably accounted for non-interference at the time of injury, through fear of hemorrhage. He never had any convulsions and only came to us because there was a discharge from the necrosed fragments, which produced spells of irritation and pain in the scalp, which he wished relieved.

We are not in a position yet to make any accurate estimate of the range of intracranial surgery in these cases of neoplastic growths, involving or within the cranium, which are presumed to provoke epileptic seizures. If we are in possession of such definite data diagnosis as point with certainty to this malignant character, surgery is impotent to offer any relief, except by such perilous exploration as will place life in danger without any commensurate advantage. Operative interference for the malignant class may be totally discarded.

The myxomatous or gliomatous growths are those most frequently met with in the cortical or gray substance of the brain; and are the species of heterogeneous formations most often encountered in various forms of focal epilepsy. They seem to bud from the stroma of the pia mater, usually are of small volume, have very thin walls and lie close to the under surface of the arachnoid. Sometimes they are covered at

varying depths from the surface by a layer of medullary substance. In physical character they closely resemble the gummata of syphilis.

Neurologists in many instances, are able to locate them with remarkable certainty, as I have seen demonstrated several times. If the therapy of those cerebral affections accompanied with epileptic seizures was as definite as their diagnosis, the problem would be solved, for experience teaches us that, with few exceptions, after the evulsion or enucleation of these pulpy cysts, the tendency to many cerebral disturbances which they provoke continues. The cerebral centers are then said to have acquired a habitual derangement, or have undergone such alteration in their elementary structures that operative measures in nearly all cases can only assure a temporary truce.

The surgery of certain types of epilepsy to-day occupies a status not altogether unlike that of cancer, *i. e.*, in various clinical types it holds out no possible prospects of cure or even of relief.

Like the dread scourge of epithelial proliferation, in rare isolated instances, after operation, epilepsy may not relapse. Indeed, on the whole, it may be said that cancer is the more amenable to treatment; for the charlatan has always a large *clientèle* of those afflicted with this malady, though it is seldom that we see him advertise his "cures" of epilepsy.

From the foregoing brief review of the surgery of epilepsy, the inference will probably be that, notwithstanding all that has been written of late years on the great advances of intracranial surgery, its application to those morbid conditions of the brain that gives rise to epilepsy in its various forms is so narrow and limited as to be practically of no avail.

It has not been my intention to leave that impression, for it is my conviction that with the onward march of progress, in the near future a way will be opened through scientific research, experimentation and improvement in surgical technique, by which many of those afflicted with this disease will be greatly relieved, if not promptly cured. Even now there can be no question but in a considerable number of the most aggravated type, though surgery can not promise a permanent arrest of the convulsive seizures, it may very greatly reduce their frequency, relieve the congested state of the vessels of the brain; diminish the dizziness and headache, displace dependence for buoyancy of spirits, and produce an entire psychic change for the better in the individual. In the Jacksonian and traumatic types, though we may not be able to guarantee to our patients a definite cure, we may quite confidently assure him of a mitigation of his symptoms and a removal of the conditions which, if left undisturbed, in many are liable to lead to serious symptoms later in life. Nevertheless, it has been my aim to warn against being too optimistic, or too sanguine in exacting from intracranial surgery, results which we well know at the present time we may not hope to realize in any but a small proportion of cases.

115 West 49th Street.

A MIXTURE FOR LOCAL ANESTHESIA.—Le Gerant and E. Pierre (*Le Moniteur Thérap.*, 1895, xxii, p. 160). The following formula is given for local anesthesia, to be applied as a spray:

Chloroform	10 parts
Ether	15 parts
Menthol	1 part

The anesthesia resulting from the application lasts about five minutes.—*Am. Med. Surg. Bull.*, Dec. 1.

THE MORAL TREATMENT OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY H. M. BANNISTER, M.D.

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In a discussion in the Chicago Academy of Medicine last October, I made some remarks on the moral treatment of epilepsy, the substance of which afterward appeared in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* and the *Medical Standard*. The subject appears to me, however, extensive and important enough to justify me in again calling attention to it, and perhaps stating certain points more fully than was done on the occasion referred to.

If there is any fact established in pathology, that epilepsy is a disorder of the cerebral cortex must be admitted as such. While we may perhaps allow, with some of the Italian school, that in certain exceptional cases the basal ganglia may vicariate for the cortex in some of its functions, the general truth that convulsive manifestations, such as are characteristic of this disease and of cortical origin, may be considered as established. It, therefore, is a disorder of the highest organ of the nervous system, one that is the organ of psychic functions, and its motor manifestations are most prominent on the very boundary line between psychic and non-psychic affections.

As might be expected, this being the case, we find that the disorder of which epilepsy is a symptom has close anatomic relations with mental disease which coincide with its clinical features. It affects the highest controlling apparatus and the one also which reacts to every influence, moral and physical, that may affect the organism, and which in disease is the most liable to its disturbances in its functioning from all kind of external irritation. In epilepsy, the condition of the brain is preëminently that of irritability, and the epileptic attacks of every type are only the extreme manifestations of this irritable condition. In a very large proportion of cases in common life, this chronic irritability is hardly noticeable, and the attack has apparently little effect upon the mental functions or the character. Yet, could we get all the facts in most of these cases it is highly probable, indeed, almost certain, that there would be found some exciting cause for the attack, and that often a psychic one, that was more or less avoidable. At least this is true, I think, in the earlier stages, before the attack has become a sort of habit of the brain, periodically appearing without apparent cause.

The treatment of the disease, therefore, would appear to include, not only the medicinal agents that can control this cerebral irritability, but also everything that may remove or favorably modify it, whether in the way of regimen, diversion, suggestion or physical control.

The text-books, as a rule, say but little about anything but medical treatment by drugs and diet, etc. The briefest mention is sometimes given to the general management and to moral treatment, and it might be inferred that this last is comparatively useless or unimportant. To some extent this opinion exists and is due, I think in part, to the notion very generally taught, that all the inconvenient symptoms that accompany epilepsy, the attacks, minor and major, and the pre- and post-epileptic conditions are accompanied with unconsciousness, and that

they are therefore not amenable to moral treatment. The interparoxysmal irritable condition must, of course, be excepted, but this is generally spoken of as a profound alteration of character, due to irremediable organic lesions, and therefore itself irremediable. These views I consider from my experience to be largely based on errors of observation. The epileptic has frequently a consciousness of his surroundings, even in the pre- and post-paroxysmal condition; and when there is afterward complete amnesia, he is nevertheless more or less amenable to moral treatment during the continuance of these states. I can give numerous facts supporting this view and shall include one or two later in this paper.

Excluding all cases of epilepsy in which mental and moral changes are lacking, or, if existing, amount only to a gradually progressive dementia, we may divide the victims of this disorder as regards moral treatment into two great classes; those in whom the dangerous symptoms are transient and connected with the occurrence of the fits, and those whom the irritability and change of character render dangerous at all times. In this first class we have patients who are comparatively rational for longer or shorter periods, in which they can appreciate their condition and provide for its emergencies. During these periods they are as amenable to moral and prudential considerations as most people; they can realize the need of their restraint and will generally coöperate in any necessary measures if properly treated. Sometimes they can exercise sufficient self-control to decidedly modify pre-epileptic conditions of irritability, as I have often observed.

A patient of mine whose disturbed spells, though extremely violent, came on gradually, would confine himself to his room for days when he felt their premonitions, in order not to have them precipitated by any irritation or annoyance from other patients, and sometimes would escape the severer manifestations altogether. He was often conscious of his condition, even in many of his worst attacks; but while normally a rather fearless man, when in the epileptic furor, which was to all appearance typical, he was never seen to attack any individual physically more powerful than himself. The loss of the higher inhibitions seemed to make him cowardly while it made him violent, and this is a phenomenon I have more than once observed in furious epileptics who are supposed to have no more regard for prudential considerations than a mad dog.

In one instance, an extremely violent post-epileptic attack of maniacal excitement came to a sudden ending, due, I have reason to believe, to an encounter with an attendant whom we were obliged to discharge because of his treatment of patients. That such measures are often employed against epileptic furor outside of asylums, I have the testimony of intelligent epileptics themselves, and one, at least, who had been used to a rough life, expressed his contempt of the hospital discipline that did not permit of such efficient treatment in his own case. With perfectly humane and legitimate measures, however, it is possible by moral treatment to so modify the disturbed attacks of epileptics in a large proportion of cases, as to render them comparatively harmless. Actual automatism, impervious to reasonable and tactful management, is by no means so universal in these cases as the text-books would lead one to believe.

It is advisable, in my opinion, to keep epileptics to themselves, away from other patients as far as possible, to obtain the best results from moral treatment. While irritable, they are sympathetic and can appreciate each other's misfortunes; they are, I believe, less egotistic by far, as a rule, than the ordinary insane. There are, it is true, notable exceptions to this, and they have created the prevalent impression in regard to the whole; but what I say is true at least of the class now under consideration, which form a very large proportion of the epileptic cases in our asylums.

One important point in their management is to have strict but reasonable rules for their control. They are capable of appreciating the necessity of their sequestration, and can be reconciled to it if treated with kindness and consideration. Relaxation of rules can be granted as special favors or rewards, under careful medical oversight, with great advantage; but any indiscriminating laxity, or liberties granted as a right, will be apt to create trouble, as when they are necessarily taken away the patient is least fitted to appreciate his own condition and the need of the restriction. This, I take it, is one of the most important considerations in the management of this class of cases.

The second great class, those who from change of character or constant irritability are to be considered as always dangerous, are also generally more or less amenable to moral treatment. A few are morally insane, but even these have generally some utilitarian sense of what is to their advantage, and are therefore more or less amenable to legitimate asylum discipline. A very large proportion of the whole are reasonable, and will endeavor to coöperate with any judicious physician who gains their confidence, for their own good, and can be taught to exercise self-control to a greater or less extent. Together with the medical treatment to lessen their irritability, it is important to have these patients put under all possible favorable influences, and in some few extreme cases isolation from others to a larger extent is advisable. Some of the most irritable will voluntarily seek this, and if they can be kept sufficiently under observation it is perhaps the best course to favor them in this as much as possible. Moral influences are, however, not inapplicable in these cases, and occasionally the religious tendencies, so common in epileptics and which are, I think, undervalued generally in the treatment, can be utilized.

Many of these patients are not changed materially in their character; they are just what they would be without epilepsy, plus the irritability. Every exercise of self-control has a beneficial effect and religious motives, in which they are sincere, are often the strongest stimulus to this. In one of the most dangerous epileptics I have known, there occurred almost a complete change of character from this cause; while the irritability still existed it was constantly fought, and to a very large extent controlled by the patient's endeavors to live a consistent Christian life. It was a great trouble to him that he could not better succeed, but his dangerous tendencies were pretty effectually suppressed. A little encouragement and show of sympathy for the religious feelings of epileptics, allowing for their inconsistencies and failures as the results of their disease, will, I believe, often be a valuable aid to their management, at least in some well selected

cases. In a large number it may do no good, but it is one of the facts that ought not to be slightly considered in the moral treatment of epileptics. There is no greater moral and social force in the world than religion, and it is one for which epileptics afford a special field in a moral therapeutic point of view.

There are, of course, very great differences between epileptics, and individual treatment in the fullest sense of the word is required for every case. But it is true that, as a class, the epileptics are far more susceptible to what is known as moral treatment than seems to have been recognized by the majority of those who have written upon the therapeutics of their disease.

I have, in the foregoing, considered mainly the epileptics confined in our hospitals and asylums for the insane. Those who can be treated at home, from the only occasional epileptic to the mild epileptic dement, hardly call for moral treatment, though there is a degree of uncertainty as to the conduct and future of any one habitually subject to these attacks. Those, however, who fall within the two classes I have mentioned have their proper place in an asylum or special institution, and it is in such that what can be called moral treatment is applicable and useful. The separation from former influences, the subjection to necessary discipline, the regulated employment and diversions, are as essential and even more valuable remedial agents, than anything that can be prescribed in the way of drugs and diet. Patients who have been violent and troublesome, even to the extent of falling into the criminal class, under these new influences often become amiable, docile and industrious. I have one in mind who had been committed for violence and petty offenses some forty times, whose head was scarred all over with marks of clubbing and to whom fighting had come to be almost a second nature, who became in his way a model patient—cheerful, manageable and industrious, simply by being placed among considerate fellow-sufferers under a kind and tactful attendant. Undoubtedly there are many such who have been considered as dangerous, and really are under the condition of ordinary outside life, but who can be useful and happy inmates of a well-conducted epileptic colony, such as now are being proposed or started in various parts of the country. There will be a proportion who will require restraint, but the majority of these can be modified for the better, and life made happier and easier for them by judicious moral treatment. The incorrigibly bad, those who exemplify the epileptic character as it has been described, are but a small minority of the whole.

I have not directly mentioned, but have only indicated in the foregoing the hysterical element that exists in the case of most epileptics, and which, when we carefully study them, is often very clearly manifest. It plays a very important part in the character of many of these patients, but is often entirely overlooked in their treatment. We should, I believe, consider all pronounced epileptics as more or less hysterical, and adopt measures to meet this element in their case. Naturally, these will be largely in the nature of moral treatment.

While medical treatment is the mainstay in epilepsy of the milder types, that can be treated outside of institutions, it often is only secondary to the other measures mentioned, in the more advanced

cases with dangerous tendencies and direct mental impairment that compose the two great classes considered in this communication.

MY EXPERIENCE WITH SOLANUM CAROLINENSE IN THE TREATMENT OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY C. F. BARBER, M.D.

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In February 1893, my attention was called to the use of *solanum carolinense* in epilepsy; accordingly, I made an effort to learn something of its efficacy, also of its source before utilizing it in my practice.

I found *solanum carolinense*, or, as it is more commonly called, horse nettle, bull nettle or sand brier, was not official. It is not recognized by the U. S. Pharmacopœia, but a description, short, it is true, is found in the Dispensatory of 1894. It is a native of Florida and Carolina but is found as far north as Connecticut; grows from one to two feet in height, branching, and is covered with shaggy hairs which are armed with stout, straight, yellowish prickles. The leaves have the same armor for defense as do the stem and branches. The berries which are the fruit of the shrub are utilized in preparing the preparations used in medicine, and when mature are of an orange yellow color. The shrub prefers a sandy soil for its growth and is most tenacious of life when once established.

Little has been written about the drug or its action, consequently there is little to review. Krauss isolated two active principles in 1894: solanin and solanidin. Only two preparations have thus far been used, the fl. ext. and a 20 per cent. tincture.

The honor of placing this agent before the profession is due Dr. J. L. Napier of Blenheim, S. C. In 1889 his paper was read before the South Carolina Medical Society and after explaining the results of his observations among the negroes who use the berries in whisky, making a tincture, he concisely depicted its results in his hands, which, I may add, were exceedingly encouraging. Finding that the primary users of the berries were in the habit of administering them in cases of convulsions, the doctor secured some of the preparation used by the negroes and administered it to a case of epilepsy which had baffled the energies of all the medical men in the vicinity and obtained surprising results. One case after another, doing well under its employment, he gradually became a convert to it as a therapeutic remedy in epilepsy and allied disorders.

Dr. Geo. F. Foy, F.R.C.S., in *Medical Press and Circular* (Medical Age 1890, p. 18), refers to the results of Dr. Napier in a very complimentary manner and speaks as though he had much hopes from the drug.

In March, 1893, I obtained from Dr. A. G. Selman, of Indianapolis, a sample of the tincture. My wards at the Kings County Hospital having many epileptics among their occupants, I at once placed several upon the use of the remedy. At this time I subjected only those having the *grand mal* type of the disease to the use of the drug. From one to six convulsive seizures is the record of these patients for twenty-four hours.

As is the case in many instances where the drug is

changed in the treatment of epilepsy, my immediate results were encouraging, for not a convulsion occurred for days. For several weeks the improvement continued, some of the patients brightening mentally. This latter condition may have been due simply to suspension of the bromid treatment. In a few instances, slight drowsiness, and in one case vertigo was complained of. These symptoms were quickly relieved by either lessening or suspending the quantity given.

The individual histories of this series of cases, I regret to acknowledge, have been lost or mislaid. I was not aware of this fact until after I had promised to prepare this paper at the solicitation of your worthy Secretary.

In two cases, one of epileptic insanity the other having mild epileptic seizures, I had the pleasure of noting marked improvement in each instance. The case of epileptic insanity had been under my care at times for six or seven years with little or no improvement. He had been subjected to all forms of treatment, but no favorable result, even for a short interval, was even noted until the drug in question was tried. The attacks occurred in this boy both at night and during the day, the periods of insanity lasting from a few hours to several days. While under the use of this drug, he brightened mentally and his convulsive seizures were reduced from three in twenty-four hours to two a week.

In a little girl who had mild epileptic seizures, two or three occurring each week, I had the satisfaction of knowing that her condition was so much improved that her parents considered her cured. I doubt this statement, but am willing to admit that the paroxysms were so mild in character that an untrained observer would consider them simply little nervous turns.

In no case, thus far, have I seen the seizure cease entirely, as has been the experience with some of my predecessors in the use of solanum. I have had no bad effects, save the slight dizziness spoken of and the drowsiness.

I must ask the pardon of this Section for presenting this incomplete report, but as I can add some more positive data I shall hope to be excused for placing the foregoing before this distinguished body.

My later investigations have been conducted with the fl. ext. of the drug obtained from Parke, Davis & Co. The dose has ranged from half a drachm to half an ounce. The ages of the patients from 8 to 50 years, and the cases have comprised those suffering from epilepsy with idiocy, epilepsy with insanity, epilepsy with *grand* and *petit mal* and epilepsy from traumatism. The cases the results of trauma were of old standing and had been reported as cures, each having been operated upon. They had, however, from two convulsions in twenty-four hours to eight or ten in the same time.

In observing my last experimental cases, I have been greatly aided by the watchful care of Dr. F. Welker, who has carefully tabulated the results from day to day. Eight of the cases are attending the school for feeble-minded children which is an outgrowth of the idiot ward.

Of these, three are boys and five girls. The girls, who are in the habit of having epileptic attacks each day, did well for a period of three weeks, not a convulsion occurring. At the end of that time, however, I began to regret that I had ventured to test the usefulness of

the drug, for at a most inopportune time they all had convulsions and from this relapsed into their former state, that is, the condition I found them in before beginning the use of solanum. Although the dose was pushed, no improvement was noted and the treatment was abandoned.

With the boys a different state of affairs prevailed. They had an outbreak a few days following the girls but milder. Another period of about a week's duration intervened, when they gradually relapsed into their epileptic state.

Among the epileptics who were subject of *grand mal*, I had about the same results as I had experienced with the male epileptic idiots, save that the period of improvement continued longer and the relapse was more gradual. Ten who were under the drug did not have a convulsion for twenty-nine days. Then a case which was in the habit of having from three to six seizures per week had a mild attack, not being obliged to lie down. This patient is mentally much brighter than he has been for some time and is now capable of doing light work about the ward, which is contrary to his condition in the past. He now has his epileptic attacks, but they are milder in form than previously. I will not take the time of this Section going into the histories of these cases, but briefly cite three or four cases as examples of my general results:

Michael D., age 19 years, has been a subject of epilepsy for a number of years (exact period unable to ascertain, patient being an idiot). Patient had one seizure per week for a long period before taking *solanum carolinense*. After placing the patient upon the use of the drug no improvement was noted.

Mary H., age 23 years, has been a subject of epilepsy since her menstruation first appeared, is mentally bright save a period of slight stupor after a convulsion. Before using the drug she averaged three convulsions per week. Under the use of *solanum carolinense* she had an equal number and they were more severe in character.

Henry K., age 35 years, has had epilepsy since 18 years of age. Attacks followed the kick of a horse. He will average one a day and very severe. Patient is violent at times. While under the use of the drug in question he had several a day and of great severity. These are examples of many cases of which I have histories, but illustrate results obtained in my hands by the use of *solanum carolinense*.

In the *Medical News* of recent date, Dr. E. D. Boudurant, of the Alabama Insane Asylum, has placed his experience before the profession and his results are no more flattering than mine. A few conclusions can be deduced from the work done with this drug:

1. That *solanum carolinense* is not a substitute for the treatment now generally accepted for epilepsy.
2. That it is a preferable substitute for the bromid treatment when compared with the biborate of soda.
3. That it unquestionably has an influence over the disease, although mild. It sufficiently controls the disease so as to warrant us in substituting it for a time to relieve our patients of the depression produced by the bromid treatment.
4. Its toxic effects are nil.

THE SUPPLEMENTARY TREATMENT OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. N. WILLIAMSON, M.D.
NEW LONDON, CONN.

The brief paper to which I beg to call your attention for a few minutes is simply a plain common-sense talk on the treatment of epilepsy; my object being to point out how our ordinary methods of treatment may be supplemented and made more effective by closer attention to certain points too often considered of minor importance. I do not know that any one is able to tell us very much that is new in regard to the etiology or pathology of this disease, but we may hope to make some advance in the matter of treatment. I have lived with epileptics for the past fifteen years, have studied the disease in its various manifestations, and it is possible that what I have learned in regard to the minutiae of treatment, the minor details which are beyond the reach of the general practitioner, may be of interest to you. I shall not speak of epilepsy due to organic disease, where the convulsion is a symptom merely, but to *true* epilepsy, where, so far as we know, the convulsion is the disease.

Now, we have the power through a certain remedy of controlling the manifestations of this disease to a certain extent, giving a patient certain relief for a month, three months, sometimes a year—when a relapse occurs. If the convulsions can be successfully warded off for so long a time, and the patient kept in apparent perfect health, are we not justified in the inference that, by proper treatment and care, that period of immunity may be prolonged, perhaps indefinitely? What causes the recurrence of the attacks after a year's immunity? Is it, or is it not a preventable cause? If we are using the bromids is it because, after a time, they cease to influence the system as they did at first? We do not think so. My experience leads me to the conclusion that the recurrence of the attack is due in most instances to *preventable* causes. There are three directions in which we can look for the causes of this recurrence:

1. To the constitution of the patient and his capacity for tolerating the requisite doses necessary to control the spasm.
2. To the condition of the digestive system.
3. To the question of personal habits, exercise, occupation and personal discipline. As to medication, the bromids are, from their positive value, in such general use that, in considering remedies, it is hardly necessary to refer to any other agent. Yet, in spite of this absolute value and relative success, they are held in almost universal opprobrium by the laity everywhere.

People who write to me for advice nearly always ask the question: "Do you use the bromids?" to which an affirmative reply probably ends the correspondence. Is this opprobrium deserved, or can we trace the fault to other sources? The bromids exert a powerful effect upon the system and the physician can not do justice to the patient or to himself unless he watches the effect carefully from day to day graduating the dose to suit the varying conditions of the case. It is especially important in this disease and, in fact, in all diseases, to become early acquainted with the exact dose required in each individual case,

Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

in order to produce the effect sought. A dose which will profoundly affect one person, will be entirely inefficient in another. It is not uncommon to see epileptics, having a tendency to mania, driven into a positive outbreak by an overdose of the bromids. In such cases it can be used only with the greatest care and in small doses, even if at all. The patient must be kept under close observation and the remedy suspended at the first sign of mental trouble. In any case, the stage of full bromism should be avoided. If the bromids will not control the attacks until that stage is reached, we may be pretty confident the case is hopeless. It is my rule to push the dose to the point where the effect is only very slightly noticeable; mentally and physically the patient should be a little below the normal. To neglect, or inability of the physician to watch the matter carefully, we can easily trace one of the reasons why failure so often results from the use of the bromids. The immense amount of treatment done by quacks, through correspondence, has largely helped to bring the bromids into disrepute. There is no room to doubt, then, that a faulty administration of the remedy has much to do with bringing about a recurrence of the attacks.

Next to medication, and almost equally important, is the care of the digestive organs. To neglect of these organs we may undoubtedly trace a large proportion of our unsuccessful cases. General directions in this particular will not suffice. An epileptic is always balancing at the verge, ready to topple over into a convulsion at the slightest provocation; and if he has a weak stomach and poor digestion he stands little chance of obtaining permanent relief. And if we go back to the time of the first seizure, I am convinced that the one prominent factor, not only in exciting but perpetuating the attacks, is abuse of the digestive organs. Predisposing causes exist, either hereditary or peculiar to the individual case. I refer to determining causes. The books tell us that the convulsions of children are caused ordinarily by teething, worms, or fright, and in adults by self-abuse, tobacco, or mental anxiety. Well, teething is a natural process, worms are seldom in evidence, and I have never yet seen a case in which the attack could be traced to fright or mental anxiety. But I have traced the cause, in many cases, to a stomach distended with indigestible food, or an intestine filled with impacted feces. In infancy, nature sometimes intervenes and relieves the over-full stomach by vomiting. But, too often, it is to a thoughtless mother or a careless nurse that we may attribute the first onset of this dreadful disease.

It is absolutely impossible to get satisfactory results from medical treatment if the stomach is given more to do than it can do with comparative ease. Whether the result is due to local irritation or to interference with the circulation, certainly undigested food is quite as probable a cause of convulsions as worms, and a cause much more frequently present. The habit of constipation is almost universal in this country, and often it is acquired in childhood. It must be overcome, one way or another, if any favorable results are to be obtained from treatment. An epileptic who is not habitually constipated is an exception. It is my rule to allow no patient to go over a day without a free movement. If necessary, an injection of tepid water is resorted to before retiring. In the matter of diet, constant watchfulness is nec-

essary, both as to the quantity and quality of food taken. An ordinary plain diet, everything of the best, is safe in most cases, but the quantity must be rigidly restricted. Epileptics have often extremely voracious appetites which it is fatal to indulge. Relatives and friends can hardly be expected to possess the requisite judgment to act as a guide in such cases, and even with the best intentions their sympathies lead them to be over-indulgent. There must be no faltering in this matter. Food necessary for health and strength must be given, but none merely to gratify the appetite or fancy. We can not attribute the fault to the bromid if the patient is thrown into a convulsion by over-indulgence of the appetite.

In the matter of exercise, it is important that a physician's judgment should be always at command. Many persons entertain the belief that exercise, carried to the point of fatigue is injurious, and likely to provoke an attack. I have not found it so. On the contrary, exercise and plenty of it is a *sine qua non*. No patient with this disease thrives, if he is sluggish and inactive, with poor circulation and cold extremities. Those who are active, erect, quick in their movements, fond of outdoor exercise and work, are the ones who respond most readily to treatment, and are the least affected by the depressing influences of the medicine. A disposition to lie about, with round shoulders, shuffling gait, and pallid face, forebodes an unfavorable result. Where a patient's general health is good, he may work all day at manual labor, not only with safety but with positive advantage. In all my experience, and it is pretty large, I have never seen an attack brought on by fatigue. Constant exercise keeps the mind occupied, a very important point in this disease, stimulates the circulation, and gives a healthy tone to the whole system.

Another point looking in the direction of preventable causes of failure, is personal discipline. Epileptics are self-willed, obstinate as a rule, easily angered, and regardless of consequences; and especially need the controlling influence of a strong mind and a strong hand. Loomis says, in his "Practice," that mental impairment is not common in epilepsy. On the contrary, in my experience, it is the exception to find an epileptic whose memory, judgment and reasoning powers are not more or less weakened. Whether young or old, as a rule, they require a master; one to whom they will yield obedience without question, otherwise there is a constant struggle, which keeps both patient and guardian, whether physician or friend, in a constant turmoil. An epileptic child stands in far greater need of strict discipline than a healthy one, for his judgment being weakened, he yields more readily to the influence of passion or to temptation in any form, and has a lessened appreciation of his fault.

In the matter of treatment and its results, it is worthy of note that the milder manifestations of the disease, the *petit mal*, yield less readily to treatment than the severe convulsions. Where the two forms coexist, it is often possible to relieve the patient entirely of the severer seizures, while the slighter ones may persist indefinitely. I have found the bromid of ammonium, in the largest possible doses, to give more relief than any other preparation. In regard to the general use of the bromids, there are some authorities who advise pushing the remedy in full doses until bromism is reached, and then suspending its use until an attack occurs, repeat the same process.

It is hardly necessary to say that this course results in final failure. In the first place, as I said before, it is never necessary to push the remedy to the point of full bromism. In the next place, our object is not to stave off the attacks for a time, and then suspending the remedy, wait and see if they recur, but, on the contrary, to keep the system under constant control, with the definite purpose of prolonging the period of immunity to the furthest possible limit. This is certainly the correct theory, if every added month gives the system additional power of resisting the onset.

Since true epilepsy depends on such a condition of the nerve centers as can not be recognized by any means within our knowledge, we may fairly term it a habit; and, like other habits to which the system becomes habituated, the longer the period of abstention the less likelihood of a recurrence. There is no permanence in the influence of the bromids; their influence is transient, and we can not continue the effect unless we continue the administration; for, ordinarily their controlling power is entirely gone in about thirty-six hours after their administration ceases.

As regards the relative value of the different preparations, the bromid of potassium is without doubt, singly, the most efficacious; but I have found far preferable in a majority of cases, a combination of bromid of potassium six parts, sodium two parts, ammonium one part; given always before meals, and never more than twice a day, except in those cases requiring very heavy doses. In cases requiring only from fifteen to twenty grains daily, I administer it in one dose. In selecting the time for administration it is well not to forget the importance of interfering as little as possible with the digestive functions. It requires a strong stomach to tolerate such a dose before breakfast, and, if given before retiring, a coated tongue and foul breath will commonly be in evidence in the morning.

If we are seeking for preventable causes of a recurrence of the attacks in a case under treatment, none of these seemingly trifling points are of too slight consequence to deserve our serious attention. It has been by this almost microscopic care of each individual case that I have been able to treat successfully, cases that had failed to obtain relief at the hands of men of far greater reputation and ability than I possess. There is no question as to the permanent value of following out such an inflexible line of treatment as I have tried briefly to describe. It is true that it is impossible to enforce such a rigid and systematic routine in general practice, but that does not affect the facts of the case. To illustrate the results of the rigid surveillance I have described, permit me to refer to seven cases now under my treatment for periods varying from ten months to three years: typical cases, presenting all the varied features appertaining to the true epileptic: Ages, 10, 12, 15, 17, 20, 45 and 60. In five cases the disease began in infancy; in one, a robust man of 45, it had existed three years only; in another, a lady of 60 years of age, the attacks began thirty-five years previously. In none of these cases, although they had all been under the bromid treatment, had there been less than two to six convulsions a week. In one, a boy of 15, there was often as many as ten a day. When they came under my care, I put them all on the bromid mixture to which I have referred. I grad-

uated the quantity of food with as much care and exactitude as I did the medicine. I compelled a liberal amount of exercise in all weathers. The result is worth noting. The boy of 15, who had formerly from five to ten seizures daily, has not had a single attack since treatment began, twenty-three months ago; the boy of 10, under treatment for fifteen months, has had no attacks. The boy of 17, whose case had been abandoned as hopeless, has now been free from attacks for five months. The fourth case, a young lady of 20, has now been under treatment for three years with only one attack during the entire period, and that directly traceable to indigestion. The lady of 60, who had weekly attacks for a period of thirty-five years, has had one seizure only in the past fifteen months, and that undoubtedly due to over-eating. The sixth case, a boy of 12, pronounced incurable by his physician, has been under treatment for eleven months, with one convulsion only; in which, by the way, he rolled from the top to the bottom of a long, steep flight of stairs without doing himself any injury. The seventh case, a robust, strong, healthy appearing man of 45, was entirely unable to make use of the bromid preparation in any dose, the effect being to induce a severe attack of mania. Under the use of the oxide of zinc he has been kept free from attacks for upward of three months.

It is evident that the favorable result in these cases has been due solely to the close personal supervision in all points to which they have been subjected. I consider such a record exceptionally worthy of note, as showing the value of a closer attention to the minutiae of treatment.

PREVENTABLE DEAFNESS AND ITS INFLUENCE ON SUCCESS.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JAMES G. H. NICHOLS, M.D.

NEW YORK.

The conception of government in its modern sense involves many ideas and tendencies formerly unthought of or unheeded, but which are beginning to be considered fundamental and necessary principles in their application to the present generation, and more especially to those following. In our own department of thought and activity, preventive medicine has made great strides, and is now recognized as it should rightly be, as precedent and superior to curative medicine.

The subject I wish to bring briefly to your attention is one which I believe to properly come within the scope of our discussion, and to justify such attention by its importance. It is the occurrence of deafness in children, the causes of the same, and the question whether the State, through a properly qualified medical officer of the school board, should not insist on the early detection and remedying of this, as well as other kinds of disease, as being an important factor in the after-success of the child and consequently in its effect on the general welfare of the community.

Occurrence.—First, as to the occurrence of deafness in children, we find most commonly two varieties of ear disease, chronic suppurative otitis media and chronic catarrhal otitis media as the cause of deafness. The former follows acute colds in the head, the exanthemata or external causes, and becomes

chronic from neglect, and a wide-spread belief among the lower population that a running ear will stop spontaneously. To this most harmful notion is due the chronicity of the disease and the loss of hearing, for had the case been early attended the trouble could, in the great majority of instances, have been aborted without permanent injury to the middle ear structures. Over 40 per cent. of chronic suppurative cases give a history of beginning in childhood, but of having no treatment whatever until the impairment of hearing in adolescence became so great as to interfere with the occupation of the individual. It is certain that in most of these cases the disease could have been prevented entirely, or at least stopped in an early stage, had the parents been sufficiently intelligent to recognize the necessity for treatment, or, better yet, had the child on its first entrance into school life been subjected to a critical examination of its physical condition, as well as its mental acquirements. Recently two cases have come under my observation, both promising young men to whom entrance to West Point Military Academy was denied, solely from the existence of a chronic suppuration in one ear, not affecting the hearing in a marked degree, but still sufficient to debar them from a most useful and profitable life career. From the history of both these cases I am positive that had the attention of the patients been called to the disease by the school authorities on the boys' first entrance, this unfortunate ending could have been prevented.

Frequent colds in the head are a prolific source of acute ear disease, by simple extension through the tube. Here, again, is another preventable condition, due largely to improper hygiene, both at home and at school. The Americans are not a bathing people, and I have observed that children when they reach the age of 4 or 5 years cease to receive their daily bath, and it becomes a weekly or bi-weekly function and then a warm one instead of a cold one. It is not necessary here to more than refer to the immense prophylactic influence of daily cold tubbing in catarrhal diseases, and I fail to see why this habit of cleanliness and health should not be inculcated in the child and included early in its instruction, as well as instruction as to the effect of alcohol on the system, or the science of government.

The second class of cases consists of the chronic catarrhal ones, even more important, because so insidious is their onset and so slow their progress. They are the sequels in some instances of the chronic suppurations, but much more largely due to obstructive condition of the upper air passages, such as adenoids, hypertrophied tonsils, deviation of the septum, chronic hypertrophic rhinitis and pharyngitis; the percentage is about 65 per cent. in which these conditions are found, and they are all remediable and are demonstrated facts. Why wait until a chronic catarrhal condition has become established; why not detect it early when there is every hope of success in curing it? I need not enlarge on the presence of cases like this. The observations of Chaphill and others prove them. Admitting that deafness in children is in most cases due to preventable causes, we are led to ask what are the respective responsibilities of the State and the parent in this matter? Abstractly regarded as a matter of self-preservation and progression to higher civilization, the State has the right and the duty to supervise the health of its citizens. This is conceded by the establishment of

boards of health to enforce sanitary laws of general application in the drainage of communities, their water supply, the construction of houses and the control of epidemics and contagious diseases. More recently local legislation compels vaccination among all school children at stated intervals, inspection during certain seasons of tenement houses and institutions, isolation of suspected cases, reports of diphtheria, with disinfection of premises, etc. Some States go a step further: New York, for instance, requires midwives to report instantly to a qualified practitioner any case of ophthalmia neonatorum arising in their practice. Legislation is even being agitated looking to the compulsory examination of the eyes of school children with a view to the discovery of latent astigmatism, myopia, etc., and advanced ophthalmologists have taken great pains to investigate the proper lighting of school rooms, the position of pupils in regard to the light, and in regard to their work, the ventilation of the room, and they have found, as in Snell's most recent report in the *Medical Annual*, overwhelming evidence of the importance of early attention to small things.

The ear, the nose and the throat are at least as necessary to perfect health and comfort as the eye, and, commercially, as valuable to the possessor. Why should not the community, therefore, in its general oversight of the health of its constituent individuals take upon itself also the detection of diseases of the eye, ear, nose and throat as a matter of routine in its educational scheme? In other words, the physical condition of the child should be inquired into, as well as his intellectual condition *at the start*, and thereafter at regular intervals *pari passu*, by a regularly constituted examiner attached to the school board. Owing to the advanced state of post-graduate instruction, there are numbers of qualified men available for such positions, but any practitioner competent to fill the post of health officer to a community, would also be competent to apply such tests as would serve to detect the existence of disease, and if not to treat them, to refer the parents to the proper place for treatment; indeed, it is not a part of the duty of such an officer to undertake the treatment of such cases unless in case of poverty, but simply to discover them, make them a matter of record and properly notify the parents or guardian of the necessity for treatment. Such a scheme consists of the following essential points:

1. The appointment in every school district, by the school board, of a properly qualified medical man, whose duty it should be to attend on the registration days at school and examine all the children presenting themselves for the first time, as to their vision, hearing, condition of nose and throat, freedom from contagious disease and habits of cleanliness. He should make a record of the same in the school register and, should any disease be found, should notify the parents, on a proper blank, of its existence and the need of treatment.

2. During each school year he should examine every child in his district in the same manner and should keep a record of the same, and note if his recommendations have been complied with.

3. The medical examiner should supervise the heating, lighting and ventilation of the school rooms and should have power to enforce his recommendations. He should, at stated intervals during the year, give instructions to the pupils, and by circular letter

to the parents, in regard to the care of the eye, ear, nose and throat, and general hygiene.

Legislation to this effect will be sought in New York during the next session of the Legislature, and while it is not thought that the time is ripe for such an advanced law, yet the value of constant agitation is very great, and it is hoped that this body will voice its approval of the principle involved, and that its members will aid in every way possible to bring the matter before the public.

DISCUSSION.

DR. LEWIS H. TAYLOR—While the paper just read, Mr. Chairman, does not present anything especially startling, I, nevertheless, think it one of the most important papers read before this or any other Section. A few years ago I heard a gentleman, in discussing diseases of nose and throat, say that every one should use an atomizer with proper solution to cleanse his nose and throat with the same regularity as he would brush his teeth, and as part of daily toilet. I thought this an exaggeration, but the more I investigate the subject of deafness the more I am inclined to think he was right, for it is mainly by correcting the catarrhal trouble that we may prevent chronic deafness. There is presented this afternoon in the Section on Ophthalmology, an elaborate report on the investigation of the eyes of school children, and this will be followed, no doubt, by action of the Section, looking toward securing legislation on this important question, the preliminary steps having been taken at the San Francisco meeting. The examination of the hearing of school children is no less important, and I hope this Section will express its approval of the suggestions made to this end by Dr. Nichols.

REPORT OF THE COMMITTEE ON THE DISPOSAL OF THE DEAD.

Read before the American Public Health Association, held at Denver, Colo., October 1-4, 1895.

BY C. O. PROBST, M.D., CHAIRMAN.
COLUMBUS, OHIO.

The proper disposal of the dead is a matter which greatly concerns the living. The dead have been disposed of in various ways in different times and places; no useful purpose will be served by going into the history of the subject, and this report will be confined to the consideration of cremation and earth burial. The history and progress of cremation in the United States (there are no crematories in Canada) will be reported upon briefly, and an attempt has been made to summarize the laws of the various States and provinces, with respect to disposal of the dead, more especially as to sanitary considerations taken note of in such laws. Rules and regulations of State and provincial boards of health, as affecting this question, have also been given as far as possible.

The first crematory in the United States was established at Washington, Pennsylvania, in 1876, by Dr. F. J. Le Moyne. It was used for the first time on December 6 of that year, when the body of Baron de Palm was cremated. Dr. Le Moyne's crematory excited great local opposition, and this local feeling, apparently, was never overcome, for the only resident of Washington to be cremated in this furnace was Dr. Le Moyne himself. In 1884 this crematory was practically closed by the decision of the trustees to limit its use to those living in Washington County, and there have been no applications and no cremations there since. Thirty-eight bodies were cremated, twenty-nine males and nine females.

The second crematory was also in Pennsylvania,

at Lancaster, and was opened Nov. 25, 1884. Three bodies were cremated in that year, thirty-six the following year, but not more than fourteen in any year thereafter. The secretary of the company, Mr. J. D. Pyatt, writes: "We do little work here now; we got in our work as pioneers, and have spent six or seven thousand dollars doing it, with no dividends." Eighty-nine bodies have been cremated, only nine being bodies of residents. Sixty-seven were males and twenty-two females. Death was due to contagious disease in thirteen cases.

The following year, 1885, the most successful of all the crematories in the United States was opened at Fresh Pond, Long Island, N. Y. Five bodies were cremated in that year, 82 the next, and in 1894 there were 254. To August 28 of this year there were 208 cremations, making a total of 1,554. Of these 1,084 were males and 470 females. Including phthisis pulmonalis, 290 died of contagious disease. It is interesting to note that 806 of those whose bodies were incinerated were born in Germany, 513 in the United States and the rest in the various countries of the world.

In 1886 Pennsylvania established her third crematory, and New York her second. The one in Pennsylvania was constructed at Pittsburg by Mr. Sampson, an undertaker. The number cremated to the end of 1894—the latest date available—was 100; 63 males and 37 females.

The second New York crematory is at Buffalo, and was opened with a test incineration Dec. 27, 1885. Eight were cremated in 1886, 37 in 1891, the greatest number in any year since, and 29 to September 5 of the present year. The total number is 250; 166 males and 84 females. One hundred and forty-eight were residents and 102 non-residents.

In 1887 three crematories were added to the list; one at Cincinnati, one at Los Angeles and one at Detroit. The Cincinnati crematory was opened June 22, 1887, and 11 were cremated that year. The number increased to 46 in 1894, and for 1895, to August 16, there were 44, making in all 314. Two hundred and fourteen of these were males, 100 females, and 38 were children under 15 years of age. Two hundred and forty were residents, 74 non-residents, and 62 died of some contagious disease. The Detroit crematory was opened Dec. 10, 1887. The greatest number cremated in any one year since, was 45 in 1893; the total number to April 20, 1895, was 183. Of these 125 were residents and 58 non-residents. One hundred and eleven were males and 72 females; 24, counting phthisis pulmonalis, died of some contagious disease. Only partial statistics were obtained from Los Angeles. The crematory was opened June 6, 1887. Seven bodies were cremated that year. The greatest number in any one year since was 41 in 1892. The total number to the end of 1894 was 182; 119 males and 65 females.

It is an interesting fact that the name of the President of the Cremation Society of Southern California, having its crematory at Los Angeles, is Dr. Wm. Le Moyne Willis.

St. Louis and Philadelphia established crematories in 1888. According to the report of the Bostonian, it is peculiarly fitting that Philadelphia should be well provided for the disposal of the dead. The Bostonian was showing a Philadelphia friend over Boston. The Philadelphian remarked: "You have a great city here, but you are not nearly so well laid

out as Philadelphia." "True," retorted the Bostonian, "but we doubtless will be when we are as dead as Philadelphia."

The Philadelphia crematory was opened in May, 1888. There has been a gradual increase in cremations, with 70 in 1894, and 75 for 1895 to August 14; the total number is 399, of which 264 were males and 135 females. Three hundred were residents and 99 non-residents. Twenty-six of those cremated died of a contagious disease.

The St. Louis crematory was opened in 1888, since which time to Sept. 18, 1895, 437 bodies have been cremated. The number has gradually increased from year to year, with 70 for 1894. Three hundred and forty of those cremated were residents, 97 non-residents. Three hundred were males and 137 females. None died of a contagious disease.

Baltimore established a crematory in October of 1889. Up to May 14 of this year only 84 bodies had been cremated; 57 males and 27 females. None died of a contagious disease.

In the same year a crematory was constructed on Swinburn Island for the destruction of the bodies of those dying of a contagious disease in quarantine or on vessels at New York. To the end of 1894, the latest information at hand, 109 bodies had been incinerated.

In 1890 a crematory was built at Troy, N. Y., by Mr. and Mrs. Earl for their only son, Gardner. To the end of 1894, 56 bodies had been cremated; 37 males and 19 females.

The following year, in March, Davenport, Iowa, erected a crematory. Thirty-six cremations have occurred there to April 20, 1895. Of these 27 were of males, 9 of females.

The same year, 1891, Mr. Wm. Osborn of Waterville, N. Y., erected and donated a crematorium to the Waterville Cemetery Association. Only 5 bodies have been cremated there to August 16, 1895; 4 males and 1 female, one being the body of a resident.

The year 1893 witnessed the building of crematories in three important cities: Chicago, San Francisco and Boston.

The Chicago crematorium was opened in December, since which time to August 27, 1895, 87 bodies have been incinerated. Of these, 54 were males, 33 females; 60 were residents and 27 non-residents. One person died of a contagious disease.

The San Francisco crematory was opened Nov. 12, 1893. On May 1, 1895, 200 bodies had been incinerated; 112 males and 88 females. One hundred and thirty of these were American born. Three died of a contagious disease.

Boston inaugurated cremation next to the closing day of 1893, the person cremated being a resident of Massachusetts. In 1894, 97 persons were cremated, 78 of them being residents of the State. In 1895 to April 22, there were 30, with 22 of them residents. In all there have been 118; a very good beginning. Here, as was to have been expected, women have had equal rights, (not rites) and 59 males and 59 females embraced the new faith of cremation. Four of the subjects died of diphtheria, 3 of influenza and 1 of typhoid fever.

The latest crematory to be constructed was the Odd Fellows Crematory at San Francisco. The first incineration took place June 25, 1895. Up to August 22, 28 bodies had been cremated; 18 males and 10 females. None died of a contagious disease.

The total number of persons cremated in the United States at the close of this inquiry was 4,261. Omitting Swinburn Island, from which information as to sex was not obtained, there were 2,783 males and 1,369 females.

The main reason for the great preponderance of males doubtless is the number of cremation societies that have been established, composed largely of males, whose members make provision for the cremation of their bodies at death.

Omitting Pittsburg and Buffalo, from which information could not be obtained, 526 of those who were cremated died of some contagious disease, about 13 per cent.

Nearly all of these crematories are managed and operated by joint-stock companies. The usual price for cremation is \$25. The highest charge is at San Francisco, which is \$60.

Massachusetts, Michigan, Pennsylvania, California and Ohio are the only States, so far as found, whose laws recognize cremation in any way, and Massachusetts seems to be the only one in which cremation is fully regulated and controlled.

The only objection urged against cremation, aside from sentimental reasons, is that cremation destroys evidence of crime. Cremationists claim that the extra precautions taken to verify the cause of death give, in reality, greater security against this than does earth burial, as ordinarily practiced. The usual precaution in this country is to require the affidavit of a physician, not necessarily in all cases the attending physician, "that to the best of his knowledge and belief there exists no reason why the deceased person should not be cremated." This is sworn to before a notary, or justice of the peace, who certifies that the affiant is by him known to be a physician of good standing. Several crematories accept bodies for cremation when accompanied only by the ordinary board of health permit, this permit being issued, however, only on presentation of a certificate from the attending physician as to the cause of death. It will readily be seen by those familiar with the usual methods of issuing certificates, that the opportunity this offers for concealment of crime is very great. Even an affidavit by the attending physician, with certificate of the notary as to his standing, when the body is brought from abroad, affords no adequate barrier against this danger.

In Massachusetts the location and construction of crematories must first be approved by the State Board of Health. The Board also establishes the regulations which shall govern their use; and the body of a deceased person may not be cremated until forty-eight hours after death, unless due to a contagious disease. In addition to the customary burial permit, which is issued only on certificate of the attending physician as to cause of death, there must be a certificate from the medical examiner of the district within which the death occurs. This applies to the States of Massachusetts, Connecticut and Rhode Island. Dead bodies from other States must be accompanied by the sworn statement of two physicians, each of whom must be a graduate of some "legally organized medical college," and one of whom shall have been the attending physician. Even this would not give very great protection in the case of dead bodies sent from Ohio, and some other States, where "legally organized medical colleges" are graduating some very disreputable persons.

Table showing Location, Date of Opening, etc., of Crematories in United States.

Location.	Date.	Number Cremated.	Residents.	Non-residents.	Male.	Female.	Number died (contagious disease).	Charges, Dollars.
Washington, Pa.	1876	58	1	37	29	9	none.	
Lancaster, Pa.	1884	89	9	80	67	22	13	50
Fresh Pond, L. Is., N. Y.	1885	1,554			1084	470	280	25 to 50
Buffalo, N. Y.	1885	250	148	102	166	84		25
Pittsburg, Pa.	1886	100			63	37		
Cincinnati, Ohio	1887	314	240	74	214	100	62	25
Detroit, Mich.	1887	183	125	58	111	72	24	25
Los Angeles, Cal.	1887	182			119	63		
St. Louis, Mo.	1888	437	340	97	300	137	none.	25
Philadelphia, Pa.	1888	399	300	99	264	135	26	35
Baltimore, Md.	1889	84			57	27	none.	40
Swinburn Island, N. Y.	1889	109					109	
Troy, N. Y.	1890	56			37	19	none.	
Waterville, N. Y.	1891	5	1	4	1	4	none.	25
Davenport, Iowa	1891	36			27	9	none.	
San Francisco, Cal.	1893	200			112	88	3	60
Chicago, Ill.	1893	87	60	27	54	33	1	25
Boston, Mass.	1893	118	100	18	59	59	8	30
San Francisco, Cal.	1895	28			18	10	none.	

We may now turn our attention to earth burial, with special reference to the laws and regulations governing it in the United States and Canada.

The opinion is quite generally held by all classes of people, that crematories and earth burial, unless properly controlled, may become a menace to public health, and one is surprised to find that so little consideration has been given to the subject by legislative bodies. In more than half of the States, beyond making provisions for establishing and maintaining cemeteries, no attention whatever has been paid to the disposal of the dead. In but one or two States has the possibility of contamination of water supplies by drainage from burial grounds been considered; and few have by legislative control guarded the dangers attending the disposal of the body of a person dead of a contagious disease. A permit for burial, issued only after receipt of a proper certificate as to the cause of death, is absolutely essential to prevent dangers from contagion and to avoid concealment of crime; but the great majority of our States have made no provision for this. It is true that, as a rule, this measure is enforced by the local authorities in the large cities. In but few States have the health authorities been given any powers to regulate the location or use of cemeteries. Laws for the prevention of intramural burial have been enacted in several States, but they often fail in their purpose, the growth of cities gradually approaching and finally including the burial grounds.

A few States have provided against the dangers arising from the disinterment of bodies of persons who have died of a contagious disease. Three or four have regulated the depth of burial. Burial within churches is still permitted in the Province of Quebec. The laws of this province, however, provide against a danger which has not been recognized, so far as can be learned, in any other province or State. That is, permitting a body dead of a contagious disease, to be taken into a public receiving vault.

The laws of Massachusetts and New Jersey with reference to disposal of the dead seem to be superior, in most respects, to those of other States. A summary of these may be read, omitting, to save time, those of other States and provinces, which are included in the report.

Massachusetts: Boards of health may make all regulations which they judge necessary concerning burial grounds and interments within their respec-

tive limits; may close any cemetery or burial ground within the city or town they may deem necessary to protect the public health; may prohibit any person unless appointed an undertaker or otherwise authorized by the Board of Health from burying or moving a deceased person.

No deceased person can be buried without a permit issued by the Board of Health on receipt of a certificate of death by attending physician or coroner. (Laws of 1885-87.)

New Jersey: Location of new cemeteries and extension of old ones must be approved by the municipal authorities and the local board of health, subject to revision by the State Board of Health. Descriptive map must be filed with the State Board of Health. Top of outside coffin, for adults, must be buried four feet beneath the surface; for children three and one-half feet. This does not apply to properly constructed private vaults. Municipal authorities and boards of health are authorized to inspect cemeteries. Disinterment of dead bodies is forbidden between May 1 and November 1, except for purposes of criminal investigation. Forbidden at all times when death was caused by a contagious disease unless body is in a metallic hermetically sealed case, and then only by order and under supervision of local boards of health.

Cemeteries may be closed by Court of Chancery on application of municipal authorities, local or State Board of Health. (Laws of 1885.)

A certificate as to cause of death must be given by attending physician or coroner in all cases. In cities or other local municipal government a permit to bury must be obtained in exchange for the death certificate.

Local boards of health may prohibit public funerals where death resulted from a contagious disease. (Laws of 1888.)

Many of the State and local boards of health have supplemented or strengthened the laws of their respective States with reference to disposal of the dead; more especially with respect to the care of the bodies of those who have died of a contagious disease.

It will appear from the foregoing that our dead have been disposed of with but little control by any constituted authority, and without much attention to sanitary regulations; and yet the harm, apparently, has not been great, and perhaps none at all, except where burial was in the crowded parts of cities.

There is a growing feeling that the dangers apprehended from cemeteries have been considerably overestimated. Before much was known about bacterial agencies of disease, many evils which could only be conjectured were charged to cemeteries. As the science of bacteriology was gradually unfolded, an explanation of how cemeteries may produce disease was afforded by supposing that the germs of infectious diseases, buried with their victims, infected the air and water in their vicinity. Outbreaks of contagious disease near burial grounds were often attributed to this cause without seeking for positive proof.

More recently many investigations have been made to determine the viability of pathogenic organisms in the soil, and the possibility of their infecting surrounding water and air in earth burial of the dead. Koch, Kitasato, Hesse, Esmarch and Petrie agree in discrediting the claims of Pasteur that the earthworm may bring the spores of anthrax, buried with cattle, to the surface and renew the disease in cattle feeding in such burial grounds. Dr. Petrie's experiments

showed that the bacilli of cholera, and typhoid fever, when injected into animals which were killed and buried, lived but a short time. Reimer's investigations in cemeteries at Jena did not show any increase of bacterial life along side or beneath dead bodies as compared with control ditches dug in similar adjoining soil. Proskauer, in Berlin, met with the same results.

The bacteriologic examination of wells in cemeteries has failed to demonstrate contamination. A series of monthly chemic analyses of the water from the wells in cemeteries of the city of New Haven, Connecticut, were made by Dr. Herbert E. Smith, in 1889-90. Summing up the results he said: "It would seem to justify the inference that a cemetery with a deep sandy subsoil would be very unlikely to contaminate the ground water at any considerable distance from the cemetery." This agrees with the conclusions of Professor Fleck, who examined the water from cemetery wells at Dresden.

In 1875 Dr. Adams, of Massachusetts, made an exhaustive report on disposal of the dead, which is published in the report of the Massachusetts State Board of Health for that year. He said: "In summing up this investigation, we can not avoid the conclusion that, so far as it goes, it shows that any injurious influence exerted upon the public health by burial grounds, as at present managed in this State, as well as throughout the United States, is almost unknown."

In spite of the lack of evidence to convict burial grounds of being a cause of disease we are far from urging that they are, under all circumstances, free from such danger. We have conditions very similar to earth burial in the deposit of fecal matter in holes in the ground. Bacteriologists tell us that the bacilli of cholera and typhoid fever are soon destroyed in such places, but we have many instances which seem to conclusively prove that a well near such a vault may be infected.

On the other hand, one of us has knowledge of two cities built on deep beds of sand and gravel where it has been the common practice for years to construct open cesspools equal in depth to the wells. Typhoid fever has not prevailed to any great extent in either of these places, and those still using well-water have not suffered more than those using the public supply, taken from another source. Doubtless the character and condition of the soil largely determine the danger in such cases, and such is probably true, to a greater or less extent, in earth burial.

From present knowledge we would summarize our conclusions follows:

1. Cremation is to be favored as a safe and cleanly method of disposing of the dead.
2. Cremation in the United States, at least for many places, needs further safeguarding to prevent concealment of crime.
3. Earth burial, under proper conditions, is also a safe and satisfactory method for disposal of the dead.
4. The location, preparation and use of burial grounds should be controlled by statutes, under the direction of boards of health.
5. Intra-mural burial should be prohibited; and a considerable space in which there should be no burials should be provided around the outer areas of cemeteries to prevent the encroachment of dwellings.
6. Cemeteries should have a loose porous soil, underdrained; and precautions be taken to protect

sources of water or ice supplies from such drainage.

7. Closed vaults, and indestructible receptacles or coffins for the dead, should not be used, the body being permitted to return to dust as rapidly as possible.

8. Separate graves, with sufficient space between them, should be required.

9. No one should be permitted to dispose of a corpse without a permit from a proper authority, to be issued only after satisfactory evidence of the cause of death.

10. Only licensed undertakers should be permitted to dispose of the dead, and under such restrictions as may be imposed by health authorities.

11. The body of a person who has died of a contagious disease should not be permitted in a public receiving vault; and public funerals in such cases should be prohibited, special precautions being taken to guard against the conveyance of contagion by those who have been associated with the deceased.

PUBLIC STATUTES, AND REGULATIONS OF STATE AND PROVINCIAL BOARDS OF HEALTH IN RE-LOCATION AND REGULATION OF BURIAL GROUNDS AND DISPOSAL OF THE DEAD.

United States.

Alabama: Physicians required to give certificates of death to the county health officers. "No law requiring burial permit. Most cities and towns have ordinances requiring such permits." (Dr. Cochran, State Health Officer.)

California: The bodies of those 10 years of age and upward must be buried in graves six feet deep; of those under 10, five feet. Disinterment permitted only on order of board of health, health officer, coroner or mayor, issued on certificate from coroner or attending physician, giving cause of death, etc. Body must be inclosed in a sealed metallic case or coffin. (1878.) In incorporated cities or counties, burial permits must be obtained from the health officer or board of health issued on death certificate of attending physician or coroner. (Laws of 1889.)

Colorado: Cemeteries located in cities, towns and villages may be vacated by order of a county court on petition of the local board of health. (Act of 1893.)

Disinterment of dead bodies is forbidden except by permission of the State or local board of health. (Rules of State Board of Health.)

In the city of Denver, death certificate is required of physician or coroner, and burial permit must be obtained from the board of health. (Laws of 1895.)

Connecticut: Cemeteries not hereafter to be located within 600 feet of any ice pond, nor any ice pond to be located within 600 feet of any cemetery unless the ice pond is on higher ground. (Laws of 1889.)

No cemetery hereafter to be located within one-half mile of any reservoir furnishing a public water supply, and no such reservoir to be located within one-half mile of any cemetery. Subject to revision by county superior court. (Laws of 1884.)

Town registrar issues burial permit on receipt of death certificate given by attending physician or medical examiner.

In contagious diseases the undertaker must, in addition, give the registrar a sworn statement that the body has been prepared according to the rules of the State Board of Health. (Laws of 1893.)

Delaware: "The bill passed by our Legislature regulating the disinterment, burial and removal of dead bodies in this State is lost, and therefore we have no law upon the subject except in the city of Wilmington." (Dr. Frazer, Secretary State Board of Health.)

Florida: "No laws on burial, or regulating location or management of cemeteries. In large towns regulated by ordinance." (Dr. Porter, Secretary State Board of Health.)

Rules of State Board of Health provide that dead bodies shall not be disinterred between April 15 and December 1. When dead from contagious disease not until two years after death, and then placed in a "practically air-tight case."

Illinois: Trustees may decide and direct the depth that graves shall be dug. (Laws of 1887.)

Rules of State Board of Health prohibit public funeral when death is due to a dangerous contagious disease.

Indiana: "No State laws regarding disposal of the dead. Burial permits only required in large cities." (Dr. Metcalf, Secretary of the State Board of Health.)

Rules of State Board of Health prohibit cemeteries within less than one mile of corporation limits of any town or city. Require private burial (coffin to be unopened) as soon after death as possible, when death is due to a contagious disease.

Iowa: Municipal corporations have power to regulate the disposal of the dead. Rules of the State Board of Health recommended for adoption of cities, towns and local boards of health, provide for a burial permit issued by clerk of the board of health on receipt of certificate of death by attending physician or coroner.

Rules provide that disinterment shall only be permitted by authority of State Board of Health. No disinterment permitted when death is due to Asiatic cholera, smallpox, scarlet fever, leprosy, typhoid (?) fever or yellow fever.

Kansas: Rules of State Board of Health require that in death from contagious disease the body shall be wrapped in a disinfected cerecloth, inclosed in an air-tight coffin and allowed to remain in the sick room until removed for burial. Public funerals in such cases not allowed.

Disinterment only on permission and under direction of local board of health.

Maine: Cemeteries shall not extend nearer than twenty-five rods to any dwelling house against written protest of the owner." (Dr. Young, Secretary of Board of Health.)

Death certificate obtained by undertaker, who presents it to the city or town clerk, who issues burial permit.

Certificate is not required where it is impracticable to obtain it within reasonable time after death. (Laws of 1895.)

Massachusetts: Boards of health may make all regulations which they judge necessary, concerning burial grounds and interments within their respective limits; may close any cemetery or burial ground within the city or town that they may deem necessary to protect the public health; may prohibit any person unless appointed an undertaker, or otherwise authorized by the board of health, from burying or moving a deceased person.

No deceased person can be buried without a permit issued by a board of health on receipt of a cer-

tificate of death by the attending physician or coroner. (Laws of 1885-87.)

Michigan: The trustees of any incorporated village, or council of any city, may cause any cemetery to be vacated when it endangers the health of the people living in its vicinity, but not during the months of June, July, August or September. (Sec. 4790 of the R. S.)

No person dead of any dangerous communicable disease may be brought into any township, city or village, without a special permit from the board of health or health officer, and under the health officer's supervision. (Laws of 1895.)

Minnesota: Physicians are required to report to local boards of health the death of any of their patients who shall have died of a contagious disease within twenty-four hours thereafter.

Corpse shall not remain unburied longer than four days, or if death is caused by contagious disease not longer than twenty-four hours after death, without permit from local board of health. If death is due to a contagious disease the said board may cause the body to be disinfected, and tightly sealed in a coffin, which shall not be opened. Funeral in such cases must be private. (Laws of 1883.)

Nevada: It is unlawful for an undertaker or other person to bury any deceased person who has died in any incorporated town or city in the State without having first obtained a certificate from the attending physician or coroner. This permit, before burial, to be returned to the coroner of the county where the deceased died.

County commissioners may authorize disinterment of dead bodies when, in their judgment, it will not endanger the public health, provided the person to be disinterred did not die of a contagious or loathsome disease. (Laws of 1865.)

New Hampshire: No cemetery shall be laid out within twenty rods of any dwelling house, store or other place of business without owner's consent. (Chapter 51, Sec. 2, R. S.)

Cause of death must be certified to by attending physician. "No dead body may be buried without a permit. In cities no permit issued till application has been passed upon by the board of health." (Dr. Watson, Secretary of State Board of Health.)

New Jersey: Location of new cemeteries and extension of old ones must be approved by the municipal authorities and the local board of health, subject to revision by the State Board of Health. Descriptive map must be filed with the State Board of Health.

Top of outside coffin, for adults, must be buried four feet beneath the surface; for children, three and one-half feet. This does not apply to properly constructed private vaults.

Municipal authorities and boards of health are authorized to inspect cemeteries.

Disinterment of dead bodies forbidden between May 1 and November 1, except for purposes of criminal investigation. Forbidden at all times when death was caused by a contagious disease unless the body is in a metallic hermetically sealed case, and then only by order and under supervision of local board of health.

Cemeteries may be closed by Court of Chancery on application of municipal authorities, local or State Board of Health. (Laws of 1885.)

A certificate as to cause of death must be given by attending physician or coroner in all cases. In cities

or other local municipal government a permit to bury must be obtained in exchange for the death certificate.

Local boards of health may prohibit public funerals where death resulted from a contagious disease. (Laws of 1888.)

New Mexico: Municipal corporations may establish and regulate cemeteries within or without corporation; may cause cemetery to be removed and prohibit them within one mile of corporation. (Laws of 1884.) Burial prohibited within 250 yards from either side of a river or stream. (Laws of 1889.)

An act of 1889, appointing boards of health, forbids carrying a contagious corpse through streets or roads, or into any church with coffin open and body exposed. "This was a common practice with the Mexicans, even in smallpox." (Dr. Atkins, Secretary of Territorial Board of Health.)

New York: Local boards of health are required to "prescribe sanitary regulations for the burial and removal of corpses."

The undertaker is required to secure a certificate of death from attending physician or coroner, and must present this to the local board of health to obtain a permit for burial or removal. (Laws of 1893.)

The Board of Supervisors of any county may make such regulations in regard to burials as the public health may require.

No cemetery shall be located within less than 100 rods from any dwelling, without the owner's consent. (Laws of 1854.)

North Dakota: "No law regulating location or use of cemeteries except that bodies must be buried with four feet of earth on top of the coffin." (Dr. Montgomery, State Superintendent of Health.)

Corpses must be buried within four days after death, and where death was due to a contagious disease, within twenty-four hours after death, except by permission of the local board of health. In contagious diseases the funeral shall be strictly private, and only such hearses or other vehicles shall be employed in the removal of the body as may be authorized by the board of health.

Undertakers are required to have death certificate from attending physician or undertaker, which he files with the board of health after burial of the body. (Laws of 1893.)

Ohio: Cemeteries not permitted to be established within 200 yards of any dwelling house, unless owner consents. In enlarging a cemetery it shall not be nearer than 100 yards to any dwelling house erected subsequent to the location of the cemetery. (Laws of 1891.)

Disinterment of dead bodies prohibited from April to October, and at all times when death was due to a contagious or infectious disease. (Laws of 1894.)

Villages shall not have the power to prohibit interments in any cemetery in their limits unless it can be shown that such interments are detrimental to the public health. (Laws of 1889.)

The erection and maintenance of crematories authorized, but their use prohibited nearer than 300 yards to any dwelling house without owner's consent. (Laws of 1893.)

No person is permitted to remove or convey a corpse for burial to or from any city, village or township, without a permit from the local board of health. (Laws of 1893.)

Rules of the State Board of Health prohibit public funerals in deaths from contagious disease, pro-

hibit disinterment of corpse without a permit from that Board.

Oklahoma Territory: Rules of Territorial Board provide that no cemetery shall be located nearer than one mile of any town, city, or source of any public water supply or water works.

Disinterment between December 1 and April 15 on permission of the local board of health indorsed by Territorial Board.

Bodies dead of a contagious disease can not be disinterred until three years after burial unless the burial grounds in which they are placed should become a menace to public health, and then only by consent of local and Territorial Board and under supervision of the local board.

Public funerals prohibited when death was due to a contagious disease.

Pennsylvania: Unlawful to bury the dead in land draining into any stream furnishing in part or in whole the water supply of any city. Not applicable to land now used for burials. (Laws of 1895.)

Cremation of a dead body forbidden without a permit from the health authorities of the place where the body is cremated. Permit only granted on presentation of death certificate from attending physician or coroner, signed by undertaker and person in charge of the crematory.

Rules of State Board of Health prohibit public or church funeral in death from contagious disease. Prohibit exhumation between May and October; and in case of contagious disease only by permission of and under conditions imposed by the State Board of Health.

Tennessee: No law on the disposal of the dead other than one prohibiting burial within municipal corporations or taxing districts containing 36,000 population.

"Most cities and towns have ordinances requiring permit for burial." (Dr. Lindsley, Secretary State Board of Health.)

Texas: "Burial regulated by local authorities. Permit for burial required in every community." (Dr. Swearingen, State Health Officer.)

Vermont: In establishing or enlarging burial grounds they must not be within twelve rods of any dwelling house, and remains must not be buried within twenty rods of such house. (Laws of 1878.)

Private burial required immediately after death of any person dying of Asiatic cholera, smallpox, typhus fever or yellow fever. (Laws of 1892.)

Rules of State Board of Health require private funeral where death resulted from a dangerous contagious disease.

Virginia: Cemeteries prohibited from being established within the limits of any incorporated city or town, or within 400 yards of any residence without consent of the owner.

Washington: Rules of the State Board of Health require interment within twelve hours after death in case of smallpox, and private funeral in all contagious diseases.

West Virginia: "No laws or regulations regulating disposal of the dead. No permit for burial. No special rules for prevention of contagion in connection with disposal of dead bodies." (Dr. Baker, Secretary State Board of Health.)

Wisconsin: Cemeteries may not be established within one mile of any erected building within the limits of any recorded plot in any city or village;

nor established outside any city or village within 200 rods of any inhabited dwelling in any recorded plot in any city or village, without the consent of the municipal authorities in such city or village. (Sec. 1454. Laws of 1887.)

Certificate of death required of attending physician. "Not enforced outside the city of Milwaukee." (Dr. Wingate, Secretary State Board of Health.)

Rules of State Board of Health require burial within twenty-four hours after death when due to a contagious disease.

Canada.

Manitoba: The Provincial Board of Health is authorized to provide rules for the safe and speedy interment of the dead, and conduct of funerals for the prevention of contagious disease.

Attending physician required to notify the health authorities of deaths caused by a contagious disease.

New Brunswick: Rules of the Provincial Board provide for private funeral where death is due to a contagious disease. Body to be disinfected, to be inclosed in a metallic or air-tight coffin which must not be re-opened. Coffin not to be taken into any church.

In cities and incorporated towns, permit for burial must be obtained, which is issued only on satisfactory statement of cause of death, etc.

Nova Scotia: No law on the disposal of the dead, other than ordinary cemetery regulations.

No special rules of Board with reference to burial in contagious diseases.

In city of Halifax, death certificate and burial permit required. (Dr. Reid, Secretary Provincial Board of Health.)

Ontario: There are no laws relating to the burial of the dead except those which govern cemetery companies, and those which relate to the burial of contagious corpses. Proposed regulations for burial and transportation, are still under consideration by the Government. (Dr. Bryce, Secretary Provincial Board of Health.)

Quebec: Cemeteries located by diocesan authorities on request of their parishoners. Must be as far as possible beyond probable limits of town or village, on elevated land inclining opposite to the town or village to prevent contamination of drinking water.

Disinterment of dead bodies permitted on order of Judge of Superior Court, but not more than one body at a time, between June 1 and September 1.

Where death is due to contagious disease, disinterment permitted only after five years, or such time as may be fixed by the Provincial Board of Health.

Superior or diocesan ecclesiastical authority may prohibit interment in any cemetery or church.

Bodies may be interred in church if coffin is covered with four feet of earth, or placed in stone vault eighteen inches thick, or brick twenty inches thick, disinfectants to be used in the coffin.

Where death is due to contagious disease, church interment or vault deposit is prohibited. Bodies must be in separate graves with four feet of earth over coffin. In non-contagious diseases three feet of earth permitted. Interment in private vaults—in contagious diseases—permitted if body is in hermetically sealed coffin.

Provincial and local boards of health may prohibit dead bodies being taken into a church during an epidemic of a contagious disease on written per-

mission of a local or diocesan ecclesiastical authority. (Chapter XLVIII as amended.)

Except in cases of suspicious cause of death, for which coroner's permit is required, all permits for disposal of the dead are given by the clergyman of the deceased's denomination. (Dr. Pelletier, Secretary Provincial Board of Health.)

In the following States and Territories no laws could be found which in any way relate to the sanitary aspect of the disposal of the dead: Alabama, Arizona, Arkansas, Delaware, Florida, Georgia, Idaho, Indiana, Indian Territory, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, Nebraska, North Carolina, Oregon, Rhode Island, South Carolina, South Dakota, Texas, Utah, Washington, West Virginia, Wyoming.

ON THE DISPOSAL OF THE DEAD, WITH SPECIAL REFERENCE TO THE PRE- VALENT PRACTICE OF EMBALMING.

Read before the American Public Health Association.

BY A. WALTER SUITER, M.D.

Ex-President Medical Society State of New York; Fellow of New York Academy of Medicine, etc.

HERKIMER, N. Y.

From remotest antiquity to the present time, topics relating to the disposal of dead bodies have been universally interesting. No subject has been more carefully considered from all points of view, and yet it is not inconsistent with facts to state that no material advancement as to methods of preservation or final disposition has been made over those which were practiced more than twenty centuries ago. Indeed, there is a growing belief in the public mind that to return to the custom generally in vogue previous to the Christian era (cremation), would solve many perplexing problems with which sanitarians are not unfamiliar.

Anciently, in Egyptian countries where the surrounding atmospheric conditions were favorable, the dead bodies of human beings were embalmed and the mummified remains indefinitely preserved. The Jewish nations entombed their dead in rock-bound receptacles called sepulchers. In Greece and Rome the practice of cremation obtained, while it appears that we probably owe to the ancient Chinese the origin of the common method of the present date, viz: that of interment or earth-burial.

For ages this absorbing subject has been surrounded, modified and in various ways influenced among people of all classes, conditions and climes by vexatious questions relating for the most part to sentimental, religious, sanitary and medico-legal considerations.

It will be the purpose of this paper, in the briefest manner consistent with intelligent description, to invite the attention of this body to some questions which have especial reference to the two last named considerations.

According to early chronologic records, no branch of art was cultivated in higher degree than that of the embalming of the Roman corpse. Affection and superstition, always the greatest motive powers of the world, together with the prevalent fanciful ideas of death and subsequent everlasting life, all combined to give the greatest prominence to the extraordinary, elaborate, and costly methods which were employed in the remote periods of civilization

for the preservation of dead bodies, in order that they might be kept uninterred. As to means and methods, they were chiefly evisceration and cleansing, salting and bituminizing, the insertion in the emptied three great cavities of antiseptic balms and spices, desiccation by favorable atmospheric surroundings and the subsequent bandaging with expensive muslin and linen fabrics, painting, gilding and marking of the hermetically sealed cases provided for their final reception—all of which consumed a period of time amounting to seventy or seventy-five days. The final result of this process of mummification was to render the body as inoffensive in a sanitary sense as a block of wood or stone, and specimens of the remains of ancient kings and noblemen have been discovered and are on exhibition who lived and flourished at various epochs from 4,000 years before the time of Christ, when the opposition of the priests inhibited the custom and caused the complete decadence of the art and its consequent abandonment, until the discovery of the circulation of the blood suggested an easier, less costly and quicker method for the accomplishment of the desired purpose.

The great anatomist and surgeon, William Hunter, in the latter part of the eighteenth century, practiced the injection of essential oils through the principal arteries for the preservation of anatomic subjects, but it was not until about the year 1835 that antiseptic solutions were used in this manner for the purpose of embalming, when the custom was inaugurated, simultaneously it is said, by Drs. Lauth of Strasbourg, Franchini of Naples, and Gaunal of France. Various substances were then used, as chlorid and sulphate of alumina, arsenic, zinc and mercury—the preservative powers of which had been established. Since that time to the present date nearly every substance known to have properties in any degree antiseptic when applied to animal tissues has been used for the purpose, and it would be quixotic to attempt the enumeration of the various formulas which have been from time to time proposed. It is perfectly proper to state, however, that taking the customs and achievements of the people of ancient times in this regard for a standard, the modern practice of embalming has been steadily retrograding in skill and usefulness by being placed, without legal control or restriction, almost entirely in the hands of the ordinary undertaker, who is ignorant in most instances of the principles involved. The practice of injecting the blood vessels has undergone of late a degenerative change. As a consequence of the hasty and superficial manner in which this operation is now performed, circumstances are too frequently encountered which are a menace alike to the welfare of society in general and to public sanitation, and it is the special purpose of this paper to call attention thereto, with a view to securing the indorsement of this great and influential organization to the effort which has been and is being made in the State of New York to regulate the practice by legal enactment, to be followed, it is hoped, by every other State in the Union.

I presume there are very few men of experience present who will not join me in asserting that the method of embalming at present in use by the so-called funeral director, is not worthy of the name. It may be briefly described as follows: theoretically, and practically, in some cases, one of the principal

arterial branches of the body (usually the brachial near the elbow bifurcation) is exposed and laid open with questionable skill, and a variable quantity of one of the innumerable fluids (which almost invariably contain in composition one or more or all of the preparations of mercury, arsenic, zinc and carbolic acid) is pumped by means of a syringe into the artery, supposedly in a direction that the blood naturally flows.

More often, and almost invariably in remote districts, this process is carelessly modified, so that the operation consists in simply pumping the liquids into the thoracic and abdominal cavities through a trocar, and also by means of rubber tubing into the rectum and *per oram* into the stomach. It is supposed that the result of this is to preserve the body in a sanitary and presentable condition for ceremonial purposes previous to burial. There is little doubt that if the proper injection of the blood vessels is carefully done with the required anatomic skill, such a result could be achieved with satisfaction, but it is obvious that when done in the incomplete and unscientific manner just referred to, the preservative effect is almost, if not quite *nil*, and if it were not for the ordinary precautions commonly practiced by the friends of the deceased themselves, the corpse would in most instances become a public nuisance in high degree before the final disposition.

The growing tendency to this careless and superficial treatment on the part of the undertaker, without legal regulation to obviate it, is the doorway to an enormous and systematic deception—a commercial fraud, in fact, as a comfortable fee is charged for the service. To illustrate, I will not attempt to burden my remarks by citing numerous examples, which might readily be done, but will simply mention one familiar case which is well in point, because it was an instance where inutility was abundantly demonstrated when every facility was offered and the conditions were unusually favorable. I refer to the notable case of the late General Grant, whose lamented death, although for a long time previous an anticipated event, was a national calamity. It would naturally be supposed that in such an instance extraordinary precautions would be taken to preserve the remains for the elaborate and extensively planned ceremonies incident to the occasion, and presumably the body was embalmed, and doubtless with the best skill obtainable. A few days later, when the funeral train reached Albany on its way from Mount Macgregor to the final resting place at now famous Riverside Park, a countless multitude of interested and admiring people were shocked to observe that no semblance of the well-known features of the distinguished military chieftain was recognizable. Suggillations, together with many other evidences of rapidly advancing decomposition, were apparent, in spite of the fact that diligent effort was made to conceal them. There can be no doubt that the public health was in great degree endangered by the unpleasant circumstances.

This is typically illustrative of frequent occurrences of the kind in common observation, and I am led thereby to feel justified in declaring that there is a strong argument apparent herein in favor of legislation of such a character as will lead, at least, to the modification, if not the prohibition of the so-called embalming process, which in a great proportion of instances neither accomplishes the intended purpose to prevent putrefactive changes with their

attendant odors and appearances, nor properly conforms to the common principles in public health administration.

The other phase of this subject, to which I desire to call attention, might with propriety be said to deal rather with *public morals* than with *public health*, but it seems that no apology is due for the reference, as those two titles so closely merge into each other in practice as to suggest that the medico-legal aspect comes properly within the scope and purview of the fundamental principles of this organization.

A case which I here quote from one of my previous papers¹ will also serve as a type in illustration:

Mr. E. A. P., a medicine vendor, aged about 75 years, a short time after marrying his third wife died with somewhat obscure symptoms after an illness of seven days. Some time after his burial, suspicion was aroused on the part of his relatives that his death was not the result of natural causes, and an investigation was instituted. I was employed by the authorities to exhume the body and ascertain, if possible, the actual cause of death. The body was found to be partially decomposed. The viscera of both the thoracic and abdominal cavities was carefully removed and properly prepared for subsequent chemic analysis, with a view to the establishment of the presence of poisons.

The analysis demonstrated unmistakably the presence in the materials examined of arsenic, mercury and zinc in large and lethal quantities. About this time I was informed in a casual manner that the body had been embalmed by the undertaker who had charge of the interment and, upon inquiry, it was ascertained that such was the case. The body had been treated in the following manner: A so-called embalming fluid was injected into the principal artery of both arms, and openings were made into the thoracic and abdominal walls through which a quantity of the same liquid was thrown into each of these great cavities. Inquiry was made of the manufacturers of the liquid as to its composition. They admitted that it contained in solution the chlorid of zinc and bichlorid of mercury, but denied the presence of arsenic in any form. A sample of the fluid was then procured and analyzed. The analysis revealed that it contained, beside other unimportant ingredients, the very salts and compounds found in the remains—those of arsenic, mercury and zinc—the revelation of, and testimony upon which, together with other suspicious facts were to be relied upon by the prosecuting officers to constitute the *corpus delicti* in the action. It was therefore impossible to determine whether these poisons were introduced into the body before or after death and, for obvious reasons, the case was dismissed from the courts in consequence, although after a subsequent careful re-examination of the suspected tissues by cutting them into fine pieces and repeatedly washing them in chemically pure water until all traces of the poisons were lost in the washings, and the remaining substances after being dried and analyzed still showed the presence of the metals mentioned, thus indicating probable ante-mortem absorption, no chemist would dare to express a positive opinion that, beyond reasonable doubt, the case was one of ante-mortem or post-mortem poisoning.

This is a striking example of cases which have been occurring in great numbers in recent years and are at present increasing in frequency. I do not hesitate to venture the opinion that there is no chemist of any considerable medico-legal experience who has failed to meet with similar instances, and the subject is now receiving the careful attention of many lawyers, judges, physicians, prosecuting officers and, to some extent, legislators, with a view to the enactment of such laws relating to the disposal of dead bodies as will insure proper protection in this respect and meet, at the same time, the requirements of sanitation, with due and proper regard for the demands of sentiment.

The menace to the welfare and safety of the public is apparent in the premises indicated in this case,

and I feel sure that its various relations will be at once appreciated.

It seems that no one can fail to observe the opportunity offered herein, to a criminally disposed individual, to commit and subsequently cancel the crime of murder by poisoning—it simply being necessary that he should make sure that the body of the victim is treated in the manner referred to. That this opportunity is frequently taken advantage of at the present time is a well-known and indisputable fact among those of us who are concerned in such investigations, and I might consume the entire time of this session by reference to cases of such character which have come within my knowledge during several years past, and while the subject of relative legislation has been pending in my State.

Obscurity of symptoms leading to confusion as to diagnosis, lack of suspicion, together with the fact that the perpetrator is frequently able to control the extent and character of the medical attendance; the ease with which a careless and inefficient undertaker may be procured to make himself, unwittingly, a *particeps criminis*, all combine to favor the accomplishment of a criminal purpose, especially if it is the result of intelligent design as is generally the case.

It is a remarkably suggestive fact in this connection that between the years 1858 and 1892 not a single case of murder by poisoning was tried in the courts of the great city of New York. Is it reasonable to suppose that no such murders were committed in that city for a period of about thirty-five years? The statistics of London and Paris showed an average of three such cases yearly during that time. It will be observed that in consequence of this pernicious practice of embalming it is just as difficult to establish the *innocence* as the *guilt* of persons who may be accused.

By the toleration of the law, or the want of specific legal direction, this practice of alleged embalming has come to be an enormous offense to the public health and to certain other public interests, and the subject is worthy of the most careful attention. Ignorant men are taught, or teach themselves to believe, that the injection of a quantity of irritant metallic poisons in solution into the interior of the body anywhere is sufficient to effect preservation and secure their fee, and embalmment *secundum artum* is now practically fast growing to be a thing of the past in this country. Gallons of poisonous solutions are pumped into bodies indiscriminately, which are in an incredibly short time imbibed by other bodies in cemeteries, saturate, and are absorbed, by contiguous soils and streams, and also wells that are fed by subterranean waters which receive the percolations of graveyards filled with bodies thus treated. For example, a recent examination of the waters of Scajaquada creek which flows through Forest Lawn Cemetery in the city of Buffalo demonstrated the presence of considerable quantities of arsenic of the kind commonly used in the prevalent method of embalming.

In the belief that hasty treatment is necessary to obtain the preservative effect of the arsenical solutions, now universally employed, the undertaker, in the absence of proper legal requirement to the contrary, seldom awaits the issuance of the death certificate, and I am rarely called to make an autopsical examination that I do not find that his operation has preceded and in fact superseded mine.

The movement for the purpose of bringing about

¹ Transactions Medical Society of State of New York, 1888.

controlling legislation in these circumstances began in 1888 and was the outcome of a paper which the writer had the honor to read before the Medical Society of the State of New York. A bill with prohibitive provisions was introduced into the Legislature with the approval of the State Society, and its Committee on Legislation was directed to use all proper means to effect its passage. This bill was violently opposed by the State Undertakers' Association and persons engaged in the manufacture and sale of the objectionable solutions used. Although the praiseworthy object of the measure was so far appreciated by the legislators that it was passed in an unusually rapid manner to an advanced parliamentary standing, the opponents by superior political tactics succeeded in preventing its being placed upon its passage and it accordingly died, for that session, in the committee room. The public attention was attracted to the proposition, however, and favorable efforts were at once undertaken by many eminent persons who readily recognized the importance of the subject, including judges, health authorities, lawyers, chemists and physicians.

Two years later, another bill was introduced in the form of an amendment to the penal code. This was not so sweeping in character as to the prohibitive restrictions of the former bill, but permitted of embalming by "the injection of any substance into the body only with the written consent of the attending physician and of the coroner having legal custody;" prohibited "the injection of or placing upon the body of any solution containing arsenic, zinc, mercury or carbolic acid, except in cases of persons dead from contagious diseases by officers of boards of health, or for the preservation of bodies for dissection in legalized medical colleges."

This bill was actively advocated by a large number of the friends of the reform, and able addresses were made at the hearings by Professor Withaus of New York, Hon. Tracy C. Becker, the President of the State Bar Association; Professor Doremus, Hon. Clark Bell, Judge Brady and others. The bill was favorably reported by the committees of both Houses to which it was referred, but owing to the vigorous efforts of its opponents in the lobby it failed of passage, thus demonstrating once more the truth of the expression so familiar to sanitarians that "politics and science do not live upon the same street."

The measure has since been pending and it is understood that a renewed and determined effort to correct the evil will be made during the coming winter with great prospect of success; as the sanitary phase of the subject has become so apparent by the abuse of the practice previously referred to, that a general regulation of the disposal of dead bodies is believed to be most urgently demanded.

The fact that this Association has very pertinently established a standing committee for deliberation upon topics relating to the subject under consideration is regarded by the friends of this reform as a very favorable circumstance, as it is believed that all the associated important and vexatious questions relating thereto will be considered from all points of view, in connection with the work of the committee, and that without doubt the potent influence of this great organization may be secured to bring about the enactment of laws with uniformity of requirement, covering the preparation for burial, cremation and transportation of all dead bodies. These laws should

have an intra-State, inter-State and international character, and I beg to remark that the Association could not at the present time lend its powerful aid to a project of vaster or more salutary importance to the public weal.

I trust sincerely that I have succeeded by this hastily prepared paper in presenting the legislative part of my subject in a sufficiently comprehensive manner, so that the way may seem clear to a formal reference to the committee, with instructions to report a formula of indorsement to be acted upon by the Association at this meeting.

I have thus far said nothing concerning the innocuous substitutive methods which might be proposed to remedy the great evils which it has been the purpose of this article to expose. The argument most commonly advanced by the so-called funeral directors in opposition to the passage of the restrictive acts proposed is that they should not be compelled to submit to the hardship of relinquishing the use of the arsenical fluids which have been depended upon so long, when no efficient substitute can be proposed. Every chemist present knows that such an argument can not be sustained. The truth is that it is the *cheapness* of these mineral substances in solution which chiefly recommends them for this purpose. These fluids are supplied for, not to exceed 30 cents per gallon by the manufacturers, and it is the interesting difference between the cost of one or two gallons hastily thrown into the mouth and rectum (as is now the almost universal practice of the ordinary undertaker) and the probable \$30 fee that furnishes the motive for such an argument.

I am sure that every scientific gentlemen of experience in this audience will join me in the assertion that at least a score of substances might be mentioned as substitutes which have far greater preservative power than the mineral substances now in use. The cost would doubtless be greater in the case of most of them, but in view of the importance of the subject, the slight reduction in the profits of the undertaker would, I think, be tolerated by the public. Even this objection would in due time be adjusted by commercial competition and the relations of demand and supply. It must constantly be borne in mind, however, that no substance, whether miscellaneous or otherwise, would properly meet the sanitary requirements of the occasion that is not properly applied by its scientific introduction and distribution throughout the entire circulatory system of the body; and what is aimed at in the proposed restrictive law is to make it a penal offense to do anything short of it, along with certain specifications of the materials which shall be used.

It seems apropos to call attention at this point to a recently devised burial casket which is designed to meet some of the objections which can sanitarily be urged against most of the receptacles now made use of for transportation and burial. It is the invention of Dr. J. P. Hill, of Buffalo, and is constructed entirely of glass with a tapering circular opening at one end only. An end piece with grooved edges is fitted and made fast to the open end. In lieu of a description I will pass a perspective and diagram view of the instrument which I have obtained from the inventor, and which will convey an excellent idea of its apparent merits. The caskets will weigh from twenty to sixty pounds according to size.

It may be claimed for it, and I believe not extrava-

gantly, that it is superior because it is cheap, light and durable; that it can be completely disinfected without trouble and can be made absolutely air- and gas-tight; that the body may be preserved for ceremonial purposes and transportation a reasonable time without embalming; that it prevents saturation of the soil and pollution of the atmosphere in the vicinity of cemeteries, protects the remains from action of soil, water, worms, etc., and that it may be cremated with the corpse.

It appears that this would solve the problem presented by the paper of Dr. Griffith at the Montreal meeting, as there would be no possibility of contagion from it and it is cheap enough to be within the reach of all classes.

In conclusion, permit me to state that the principal propositions for which I contend in the foregoing remarks are as follows:

1. That the scientific preparation of dead bodies has degraded in recent years, to the extent that the prevalent system as now carelessly practiced by the majority of undertakers is inefficient, and in many instances unsanitary.

2. That it constantly leads to complications in criminal prosecutions, and entirely precludes the possibility of accurate medico-legal investigations—thus constituting a menace to the welfare of society.

3. That salutary and non-complicating substitutes for the materials employed are available, and that thereby the abuse of the embalming process may be entirely and satisfactorily corrected.

4. That the great importance of this subject merits the careful attention of this Association through its Committee on the Disposal of the Dead, and that proper legislation for restriction and control should be earnestly demanded in the interest of public sanitation and the public weal.

A CASE OF QUADRUPLETS.

BY FRANK A. STAHL, M.D.

DEMONSTRATOR OF OBSTETRICS, RUSH MEDICAL COLLEGE; FELLOW CHICAGO GYNECOLOGICAL SOCIETY, CHICAGO.

A case of quadruplets occurring but once in 350,000 to 400,000 births, where there was no trace of heredity; where labor, with the exception of rupturing the membranes, was normal; where, notwithstanding the plural fetuses, none presented in a manner compromising the delivery of the other. The interesting, theoretical, as well as practical study of such a case as a whole possesses sufficient intrinsic value to warrant even a superficial presentation of the case. The case occurred at home under poor circumstances, unfortunately away from the advantages of a maternity and a couveuse, and was attended by a midwife. I saw the case upon the third day.

The husband, Patrick C., is a laborer, aged 32 years, a native of County Mayo, Ireland. His height is 5 feet, 11 inches; weight 190 pounds. Physically he is well developed. There is no trace of multiple pregnancy in his line.

The wife, Catherine C., is aged 33 years, a well proportioned woman, 5 feet, 8 inches in height, and weight 180 pounds, also a native of County Mayo. There are no anatomic deviations apparent in her development; there is no trace of hereditary multiple pregnancies in her line. Her previous labors, all normal, were as follows:

1. Para Partus maturus, child now 12 years old.
2. Para Partus immaturus, child dead.

3. Para Partus maturus, child now 8 years old.
4. Para Partus maturus, died, 2 years old.
5. Para Partus maturus, now 4 years old.
6. Para Partus maturus, now 2 years old.
7. Para Partus prematurus, the present quadruplets, all dead.

Antelabor Period.—She noticed with some degree of anxiety her unusually (for that period of pregnancy) large abdomen, but as she continued able to be about thought that things must be as they should be, though toward the latter days of her pregnancy she entertained some suspicion that there might be more than one intrauterine. Also, toward the last, a tendency to swollen limbs (pressure obstruction) was noticed, but never to any serious extent; otherwise nothing of any moment presented during the pregnancy. On Monday, Sept. 30, having just passed the eighth-month period of pregnancy, Mrs. C. accompanied her little boy to the dispensary to have a scalp wound dressed. As the surgeon removed the dressings, catching sight of the bloody bandages and of the wound, she fainted and fell to the floor. I could not elicit whether in falling she fell with abdomen to the floor or with back to the floor. After recovering she made her way home, riding a part of the way. That Monday evening and next Tuesday morning she felt very faint and tired, and toward Tuesday noon she experienced a slight bearing-down pain. At irregular periods she continued to feel the slight bearing-down pains until the noon of Wednesday when, as she states, real labor pains commenced.

The Labor.—Wednesday, Oct. 2, 3 P.M., the first neonatus, vertex presentation, was delivered; the second, breech presentation, followed about 4 P.M.; the third, breech presentation, about 5 P.M.; the fourth, also breech presentation, following at about 6 P.M. With the fourth neonatus came the mass of secundines. There was no hemorrhage of any consequence. Allowing for the fear and dread of the parturient and the Teutonic excitability of the midwife under the circumstances, I gather from the description received from both mother and attendant that the deliveries were without difficulty and all spontaneous, with this exception that the attendant found it necessary to rupture each sac as it came down, stating that the membranes were unusually tough. This toughness of the membranes and their artificial rupturing is often mentioned in the histories of these cases. It would seem one of nature's methods of throwing around each fruit a greater safe-guard, a stronger protection than usual, to assist, perhaps, in preventing so far as possible a "conflict of the fittest."

The Secundines.—As stated, they came away with the fourth neonatus as one mass. The placental mass was made up of four small placenta united by membranous tissue; each had its cord, and a characteristic amnio-chorionic membranal sac. Unfortunately I could not persuade the midwife to disgorge the placenta, but the above is what I gathered from the mother and the attendant before the latter's cupidity was aroused.

The puerperium passed without any noticeable feature.

About four weeks' post-partum she attended mass, walking to the church. Upon her return she complained of weakness and dizziness, followed, soon after she retired to bed, with a severe uterine hemorrhage, which was soon stopped. The occasion offered me the coveted opportunity to examine the pelvis and

uterus. The examination yielded a wide, roomy, normal pelvis with a single normal uterus, at that time slightly subinvolved; normal adnexa. To-day she is about and well with her 180 pounds, actively engaged in selling negatives of her quadruplets. They are very poor.

Observation of the illustration and a comparison of the figures show a perfect and singularly symmetrical development of the neonati. Examination determined no abnormality in their development as malformation, defects, excesses, etc. The three to the left, James, Patrick and Bridget, died the next morning between the hours of 9 and 12 A.M. Catharine, the little one, with dress turned under, was alive when the exposure was made, but died that evening about 78 hours post-partum. They were all viable, and had I seen the case early enough I would have employed the couveuse; unfortunately, when I did arrive three were dead and the fourth moribund.

5. That one or both ovaries may cast off a single or a double ovuled follicle at or about the same time.

It is not difficult to conceive how, in the anomalous case, this latter unilateral or bilateral plural rupture of Graafian follicles may occur.

As a determining factor in the development of pluriparous conditions, not only is the histological structure of the ovary, that is, one follicle containing one ovule or one follicle containing two ovules, of much importance, but also, I believe, and of not less importance, is the state of the sympathetic nervous system, since according as its sensibilities are, so will it reflect the exciting causes to which the organism may be exposed, and so proportionately in dignity will be the effect upon the ovary (and system generally) and its expression. In the usual case there is but a single impregnation, but in the exceptional case, and this is not merely a conception of the imagination, the exciting agent may be so continuous and possess such



JAMES.

PATRICK.

BRIDGET.

CATHARINE.

QUADRUPLETS, PARTUS PREMATURUS—EIGHT MONTHS.

Neonatus.	Name.	Weight.	Length.	Cir. O. F.	Lived.
1.	James.	2.5 pounds.	15.7 inches.	10.75 inches.	16 hours.
2.	Patrick.	3.5 pounds.	16.5 inches.	11.5 inches.	17 hours.
3.	Bridget.	2.75 pounds.	16 inches.	10.5 inches.	18 hours.
4.	Catherine.	3 pounds.	16.5 inches.	11.5 inches.	78 hours.

Theory.—Many theories have been advanced to explain the origin of multiparous pregnancies, and not a few ingenious ones too, in which it is readily seen that the imagination and fancy play quite a prominent rôle. It would entail too great an expenditure of the reader's time and patience were the attempt made to present even a hasty resumé of the long list of theories extant. It were best to be original, so far as possible, and leave the reader to pursue comparative research as time and inclination may desire.

It is generally admitted that pluriparous pregnancies may obtain where any of the following conceded conditions may be present, namely:

1. That one ovule may contain two germinal spots.
2. That one Graafian follicle may contain two ovules.
3. That more than one follicle may rupture during the same ovulation.
4. That ovulation, Graafian follicle rupture, may occur in the presence of pregnancy.

activity as to call forth on the part of the organism an extraordinary expression—a *delirium eroticum*, as it were—during which, or soon following and induced by it, a maturing follicle or follicles is caused prematurely to rupture in the presence of one that has already ruptured and been impregnated; this second product of ovules is also impregnated; thus superimpregnation will have been occasioned.

Superimpregnation is the impregnation or fecundation of two or more ovules at one time, or about the same time, in contradistinction to *superfetation*, which is the impregnation of a second ovule when the uterus already contains an ovum which has arrived at a considerable degree of development. That superimpregnation occurs in the exceptional case, there is no doubt. The present case of quadruplets is such a case. Its analogy occurs as the usual, the normal in some forms of the lower animals.

That superfetation may and does occur is doubted by many, and especially by Auvard, who argues that

it is only possible (a better word perhaps would be "probable," as all things are possible in nature) in a case of a double uterus or ectopic gestation. From observations made in some of my own bipolar cases, where there was no doubt as to the single character of the uterus; where gross inequalities in growth and development in the living as well as the dead would, among other considerations, strongly suggest unequal periods of continuity of existence, and in one case particularly, added to this evidence of the neonati, was the statement of the mother, a very intelligent woman, that she was afraid lest a pluriparous condition obtained as she had experienced that "caught feeling" a second time, a feeling not altogether one of pain and recognized by not a few women. In view of such observations it would not be difficult to "believe in the reality of superfetation," contra Doléris. This belief is further strengthened in the fact that "the same woman giving birth to twins bearing evident traces of being the offspring of fathers of different races" (Playfair), and again in the many illustrations that may be followed in the lower animals. These views are strongly in line with the thought expressed by Darwin, who recognized what he so aptly terms "the similarity existing in all nature."

But to return to our quadruplets. As brought out, heredity played no part as a causative factor, nor did a double uterus. The case is one of superimpregnation, the impregnation of four ovules most probably at the same time, that is, *simultaneous superimpregnation*; or, the impregnation of four ovules within a very short space of time, that is, *immediate successive superimpregnation*.

As to the origin of the four ovules, either—(1) four follicles furnished each one ovule; (2) two follicles furnished each two ovules; (3) one follicle furnished two ovules, and two follicles furnished each one ovule: they may have been expelled from one or both ovaries, most probably from both.

That the quadruplets is a case of superimpregnation and that four ovules were impregnated is corroborated by numerous circumstances.

By reference to the photograph and to the accompanying figures, it will be noticed that (a) the striking equality and symmetry of countenance, growth and development bespeak a common starting point; (b) the fingernails and length, which are of more importance than the weight in determining a case of this kind, are in each indicative of an eight-months, as estimated by the mother, fetus; (c) there is a perfect formation of each fetus; there are no deformities of any kind, as malformations, excess or absence of toes, fingers, etc.

By reference to the secundines, it may be noticed that though there was a single mass of placental tissue, it was made up of four separate subplacentæ, united by a membranous union; each subplacentæ had a single cord. The mass of membranes was made up of four separate sacs with characteristic amnio-chorionic membranous development. To have four characteristic chorions there must have been four ovules, since the zona pellucida furnishes the external of the three elementary layers forming the mature chorion.

Columbus Memorial Building.

INHERITED PECULIARITIES.

BY J. SANDERSON CHRISTISON, M.D.

CHICAGO.

Physical features and moral and mental qualities of parents are so commonly observed in their children that nobody questions their being inherited; that is, they are recognized as "chips of the old blocks," and we are not surprised when the children bear an almost precise resemblance in every essential feature to one or other parent. But when a parent has a peculiarity of a decidedly irregular or abnormal form which is passed to the child, or if it should entirely fail to appear, the question is at once raised as to how that happens; what laws explain the result. We observe disease conditions passed to offspring as well as uncommon features, and which, if not strictly speaking inherited, are somehow due to the circumstances of birth. It is not generally considered by the medical profession that diseases, as we commonly know them, are directly inherited, but that a tendency or special defect, a susceptibility or fitting quality is, and which renders the offspring all the more likely to be influenced by the peculiar circumstances of birth, especially the moral and physical atmospheres created by the parents and which give direction to the final outcome of disease and tending to carry them along the lines established in the parents.

But exactly what the fundamental law of heredity is remains unsettled, and probably will be so for some time to come, both from the lack of sufficient facts and the undecided question as to the limitations of a species. But as like causes operating under like conditions must produce like results, it becomes evident that events, so to speak, striking the lines of growth and conformity at all angles of incidence and varying momenta, which, could they be measured, would express their resultant by a parallelogram of forces. Everything in nature is under law, and all laws are mathematically precise.

But to illustrate, we will represent some of the qualities or characteristics of parents by two groups of capital letters having numerals with + and — signs attached. The letters will stand for a typical degree of a personal quality, or the amount that would balance in a well-proportioned individual, while the numerals will indicate how much above or below a typical degree the qualities are. Thus, by taking a number of the same qualities, talents or peculiarities in both parents and combining them, the result will appear a compromise product in the offspring, as is illustrated in the quality of skin in the combination of negro and white, and which will have to compromise with its surroundings—its new environment. Let the small letters represent particular conditions surrounding the offspring—forces in its environment and indicate by attached numerals whether they are favorable or unfavorable to the new combination and to what extent. The accompanying example will indicate the problem:

It will be seen in this example that neither parent has the same quality in the same degree, and that some qualities prominent in one parent are deficient in the other. But a deficiency or condition below par is an abnormal condition, and if both parents have a deficiency of the same quality the offspring will have an intensified morbid disposition or a malformation. The same rule will apply to qualities

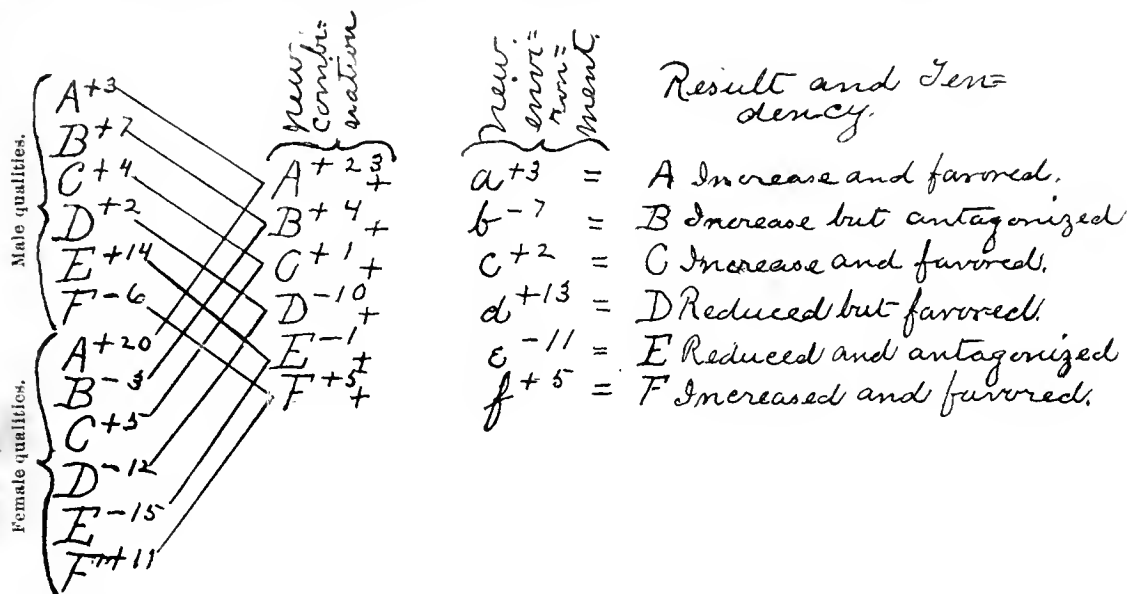
Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

above par in degree, but the process of extension or reduction is limited both by environment and a self-limiting property—a specific quality essential in the specific group, the *number, nature and order* of properties in any living individual and by virtue of which the laws of affinity and association insure the preservation and continuation of specie character. If this was not so there would be no limitation to divergence from type and no stability to organized forms. But this theory, although one of special creation, does not clash with evolution in nature, but assumes that changes in the progress of nature have paved the way for the birth of a new form of life introduced in the course of cosmic progression and dated by an epoch-making catastrophe. But the germinal essence—the differentiating and character-preserving power, although not produced or created by what we commonly regard as purely physical forces, is yet both made possible and conditioned by them. In other words, a kingdom has been prepared for a king.

But to return to our equation, which, though fragmentary, is representative as far as it goes, we may

Again, let $E+11$ represent a markedly superior power of reasoning in the male, and $E-15$ a markedly deficient power of reasoning in the female, we would naturally expect to find the offspring quite ordinary in this particular, but instead of which a superiority may result or even imbecility may appear. But the power of reasoning depends more on the relative fullness of all the other qualities of the individual than on any one portion, so that the energies which give it basis are so numerous and varied that the influences of circumstances will be the least likely to affect this faculty.

Having thus indicated how qualities are transmitted from generation to generation or apparently buried to reappear in a third or fourth generation, we may now notice a few of its practical illustrations. If we glance at the various races of man we observe not only distinctions in physical forms but a prevalent or characteristic difference in moral and mental conditions, and we will also observe that those that have mixed most with the world, present the highest degree of civilization. This would indicate that exclusiveness begets evils which preclude the attain-



suppose the capital letters as each representing not one quality but a group of qualities supporting one characteristic, for owing to the interdependence of the parts of an organism this must be the case. Then, as all qualities are represented by energies in their last analysis, and as energies have both transmutability and selective affinities, it is evident that the variations of environment in the course of development would have such an effect on the order of a group of qualities as would, to some extent, account for the rise or fall of an ancestral characteristic. For example, $A+3$ representing the eye in the male as being rather better than common, and $A+20$ representing the eye in the female as being markedly superior to common we might expect the offspring to inherit eyes even superior to those of the mother, and which may be the case, but not always, for some will inherit eyes quite inferior. This can only be explained by the fact that the eye represents many energies, part of which have become transmuted or transposed by selective affinity instituted by the new relations—the change of combination and other circumstances.

ment of the highest civilization. The exclusiveness exercised by royalty in requiring its members to marry within a very limited circle of choice, is likely the cause why it has shone so little in the fields of science, art, poetry or invention, and for that matter statesmanship. And this, notwithstanding almost all its members have been in the most favored position to exercise their talents under every advantage.

Exclusiveness has illustrated its effect on the propagation of cretinism by increasing it most in those settlements most isolated from the world, and thus forcing inter-marriage. But wherever these settlements have been opened up by the advances of civilization, cretinism has largely disappeared.

Another marked illustration of the effect of exclusiveness was shown in the old village of Ines in France, and which was isolated by a barren territory and bad roads to such an extent as to compel inter-marriage, and it is said that almost all the inhabitants had six fingers on each hand. But after free communication was established with the outside world, this peculiarity soon died out in the subsequent

generations. Thus it is seen, that the principal of "Free Trade" in marriage is a safeguard against the deterioration of family stock, and the only exclusiveness permissible with safety is that in the course of natural selection or in the just exercise of personal liberty.

When we consider the persistence of qualities it is obvious that the racial or historic comes first, then community, family and individual in due order. Many individual peculiarities inherited are very remarkable, as in the case of a slight accidental mutilation in a parent being represented in the same location in the child by a malformation. But mutilations are rarely inherited, although malformations arising in the course of development sometimes are. Defective eyes, slowly arising, are strongly hereditary, and it may be laid down, as a rule, that the closer the defective organ is associated with the brain the more likely is the defect, if it has been slowly acquired, to be transmitted in some form or other to the offspring. One case will suffice to show how a constitutional defect in a parent will display itself in different members of the same family. The mother had been confined to bed for several weeks with a peculiar nervous malady, but which was not correctly diagnosed until a physician from a distance was called, who was also requested to examine other members of the family—aged from 19 to 35 and five of them in all. Their troubles were all chronic and quite different. One had periodical headache; one had epileptic fits; one had spells of pugnacity; one had periodical neuralgia, and one had periodical attacks of gloom. It was evident the main cause of them all was inherited defects, making different manifestations by virtue of a difference in the number, nature and order of experiences in the different individuals, and the conservative forces of nature had not been permitted to operate above the maternal level so as to eliminate the inherited evil.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, Oct. 10, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

DR. ELIZA H. ROOT reported a case of

CELOSOMUS; VARIETY, SCHISTOSOMES. RECOVERY.

Celosomic fetuses are described as "Single monsters, characterized by a more or less complete eventration of the genito-urinary organs and various viscera. The entire contents of the abdominal cavity may be found in a pouch, the walls of which are formed by the cord. There are usually present in addition anomalies of the limbs, and the sex is usually female." (Charpentier.) Charpentier, with Hirst and Pierson, follow Saint-Hilaire in distinguishing cases where the monstrosity is limited to the abdomen and cases where it extends to the thorax, and separates them into varieties:

1. Aspalosomes: where there exists lateral or median eventration at the lower part of the abdomen, the urinary, sexual and intestinal system opening externally by three separate orifices, the situation of which are not normal. The genito-urinary organs are atrophied or absent. Monsters of this variety, born alive, quickly die.

2. Agenosomes: where the organs of generation and urination are absent or rudimentary. The anus is found in front where the external genitals should be. Abdomen and thorax normal.

3. Cyllosoma: where there is a lateral eventration at the

inferior portion of the abdomen and absence or lack of development of the pelvic limb of the same side.

4. Schistosomes: where there is lateral or median eventration throughout the entire extent of the abdomen, pelvic limbs absent or ill-developed. The abdominal wall is replaced by a thin membrane through which the viscera may be seen. This variety is very rare. (Saint-Hilaire and Charpentier.)

From the available literature I find on the subject, I am inclined to think that modifications in degree of this variety are not so very unusual. The case that it is my privilege to report I have placed under this variety as it seems to differ only in degree from the description of *schistosomes*. The remaining two varieties, *pleurosomes* and *kelosomes*, involve the eventration of the thoracic viscera, lateral or median, with absence of the thoracic limb on the cleft side. Cases belonging to *schistosomes* I find reported under various headings: *Exomphalismus*—"The whole contents of the abdominal cavity were outside the body." (Simpson of Edinburgh.) "The opening in the abdomen is about 1½ inches in diameter, and to right of cord attachment. Through the opening protruded a sac, composed of amnion and peritoneum, and containing the intestines, liver and stomach." (Fritt's and Simpson a similar case.) "The anterior aspect of the abdomen was covered by serous membrane only when "In both groins were a diminutive penis and scrotum." (Brown.)

Ectopia abdominalis is a term under which several cases are reported, the descriptions corresponding with those under *schistosomes*. "Abdominal cavity was open from sternum to pubes, the liver and intestines exposed and outside the body." (Kennedy.) This author states other complications were present but does not particularize. "There was a large tumor on the right side of the body, extending from the lower margin of the ribs to the crest of the ilium and from the median line in front to the axillary line, and containing the liver, stomach and intestines." (Dr. N. Montgomery. Jacobus reports a similar case.) "Male born at full term; opening extended from epigastrium to left of iliac fossa, with protrusion of abdominal viscera." (Chas. D. Roe.) "A case born at eight months, umbilical cord 2½ inches in length, protrusion of abdominal viscera complete, both feet clubbed." (Hawkins, Shattock and Herrigoyen report similar cases.) Simple descriptions without any attempt at classification, characterize the reports of several cases, as: "A large tumor of abdomen, covered by a thin transparent membrane." "A tumor or opening extending from ensiform cartilage to within an inch of pubes, viscera plainly visible." "The child presented a large elliptical opening three inches in length and two and one-half inches wide, through which protruded the whole of the small intestines, the stomach and right lobe of the liver." (Buchanan.)

Matzdorf, of Berlin, reports one case as *gastrocele*, another as *ectopia abdominalis*, and accounts for the abnormality as failure upon the part of the abdominal wall to unite, through the arrest in the development of the amnion and peritoneum. A case of *extrophy* of the abdominal viscera in a *phocomelus* fetus is reported. (John Collins.) Three cases of *extrophy abdominalis* are reported in which the abdominal cavities were so contracted that reposition of the viscera was impossible. (Stanton, Pichand and Laeconche.) The children died soon after birth. It is not stated if they were born at term or prematurely. *Extrophy abdominalis* is not confined to single monsters. Wands and Van Henkelen each report *extrophy abdominalis* in *thoraceopagus*, and Letitia Westgate a case of *xiphopagus*, born at the fifth or sixth month of gestation, which had a sac that contained all the abdominal viscera. There was but one umbilical cord and the feet were clubbed. This later case has all the characteristic of a true *schistosomus*, except that it is a double monster.

I find but few recoveries recorded: one is a spontaneous recovery. "A case of hernia of the abdominal wall, three inches in diameter, into which when the child cried a considerable portion of the intestines was forced. The child lived and the skin gradually grew over the transparent covering." (J. Tracy Simpson.) Peritoneum in all probability lined the amnion in this case.

"A tumor at the umbilicus, the size of an adult fist, containing omentum and intestines. Parts successfully restored by operation." (Barton.) Probably a case of *hernia funiculi umbilici*. I find but two recorded cases of recovery. The majority of the reports are silent as to recovery or death taking place. Dorsett operated on a case unsuccessfully.

In reviewing the cases that I find reported, incompleteness greatly mars their value for statistics or instruction in obstetrics. But we do learn that other deformities of the

body, other than the cleaving of the abdominal wall, are usual; that but few recoveries take place and only in cases where the opening is not more than three inches in diameter; that hydramnion is usually present, and delivery liable to be premature. Dr. Simpson, of Edinburgh, in the report of his case calls attention to several peculiar facts: 1, labor premature; 2, altitude of infant, the trunk being curved backward and to the right side, instead of the normal forward curve of the body; 3, malposition, transverse, with presentation of the visceral mass. One observer states that out of fifteen cases of exomphalisms (schistosomes) presentation of the abdomen was met with in thirteen. Time of delivery not mentioned.

In my own case labor was normal, time premature one month, with an uneventful lying-in. The mother, primipara, blonde, aged 24, entered the hospital in labor and was delivered five hours after entering by Dr. Isabella Herb, interne. Position, second presentation, vertex, occiput anterior. The babe weighed seven pounds, fairly well nourished but debilitated. The abdominal wall presented an elliptical opening, three inches in length by two and one-half in width. The cord was situated near the inferior left border of the opening, enclosed by the expanded end of the amnion of the cord. No other deformity of the body appeared. The kidneys and bowels performed their functions normally. The child took the breast well, but did not apparently gain in strength. The temperature rose with the appearance of a ring of inflammation about the border of the cleft. The abdomen became swollen and tympanitic, indicating the probable presence of peritonitis. Beneath the transparent covering patches of lymph were visible. The child was so weak an operation seemed unwise as it could only hasten the inevitable. On the fourth day after birth, about the time for the normal falling of the cord, rupture of the membrane seemed imminent. On the fifth day, when the dressings were removed in Dr. D. W. Graham's surgical clinic in the woman's medical school, the dreaded event occurred. The stomach, liver and intestines were protruding. Dr. Graham brought the edges of the opening together, after replacing the viscera, while the baby was under an anesthetic, as the doctor claimed "to make the baby decent for burial." The infant was returned to the hospital ward still sleeping. On waking it took nourishment and early in the evening passed a loose, green colored stool. Temperature 102.4 degrees F. The day following, morning temperature, 6 A. M., 103.8 degrees F.; M., 105 degrees F.; 6 P. M., 104 degrees F.; after which temperature fell to 101 degrees F. and then normal, varying from day to day; dressings removed on the fourth day after operation; all the sutures suppurating and part of them had pulled out of the tissues, evidently from tension. The edges of the abdominal walls varied from one-half to three-eighths of an inch apart; space filled in with lymph stained with fresh bile; loosened stitches removed, wound cleaned with bichl. hydrarg. sol. 1:2000; wound redressed with gauze and roller bandage which was soon stained through with bile. For several days the bile continued to escape freely and the child seemed in imminent danger of dying from inanition, the temperature, falling to 96 degrees and 97 degrees F. Gradual contraction of the opening continued, and just as a fatal termination seemed imminent a change took place. The bile flow decreased, the points of suppuration began to improve, the child rallied and progressed toward perfect recovery. Twenty-six days after birth and twenty-one after the operation the child was dismissed from the hospital with instructions to return for redressings for supporting the weakened abdomen. The opening was entirely closed, a linear scar one to one and one-half inches long remained. The child grew well and strong and was soon lost sight of.

DISCUSSION.

DR. D. W. GRAHAM—Mr. President, I have just arrived and did not hear all of the report. There is very little to say about it from my standpoint, except that it is one of those cases that surprise us sometimes. The case was brought to me in order that I might demonstrate congenital umbilical hernia to the class. When the clothes were removed the intestines were lying on the surface of the abdomen. The opening was very large. At the time, I regarded the case simply as one of congenital defect in the abdominal wall. The intestines were soiled with fecal matter and urine and gathered up with dirty hands as there was no time for preparation. They were restored within the abdomen with great difficulty and sutures inserted for the purpose, as Dr. Root said in her report, "of giving the child a decent burial."

¹ I am unable to account for the discharge of bile. There might have been some faulty development of bile ducts, or injury to gall bladder.

That was the idea at the time, but I was glad to learn at the end of a week or more that the child was recovering.

The opening required six or eight sutures, and before the last two or three were tied the abdominal cavity was flushed out hurriedly with warm sterilized water.

DR. D. D. BISHOP, Attending Dermatologist, and DR. LAWRENCE RYAN, Resident Physician, Cook County Hospital, Chicago, presented a paper entitled—

NOMA AND ALLIED DISEASES OF THE MOUTH. A REPORT OF THREE CASES, WITH PATHOLOGIC EXAMINATION.

The cases we have to report consist of one which was clinically noma, and two that belong more properly to the so-called stomatitis ulcerosa. The patients were brothers, all of whom had recently recovered from measles.

Case 1. *Noma*.—A. S., male, white, aged 18 months, came to the hospital Feb. 2, 1895. The patient was removed from the Home for the Friendless where, with his brothers he had passed through his late illness. On entrance the child was considerably emaciated. Skin milky-white, warm and dry. Lies quietly on his back, eyes nearly closed. A mucopurulent discharge escapes from the eyes. Pulse very rapid; respirations shallow and accelerated. Of most importance is the local condition, which is as follows: The upper lip, tip and margin of the nose for a distance of one-quarter inch



are covered by a thick, hard, black crust, which extends in a curved direction from the tip of the nose to the angle of the mouth on either side. The lower lip shows no external evidences of disease. The upper and lower left incisors and canine teeth are gone and the molars are quite loose. The alveolar processes on the left side are denuded of gums and periosteum. The sockets of the absent teeth are plainly visible. Much the same condition exists on the right side. The tissues of the floor of the mouth are gangrenous, but the tongue is not involved. The soft tissues of the entire palate may be stripped off in shreds. Upon removing the necrotic tissue more of the superior maxilla became visible, denuded of its periosteum. The inter-maxillary suture was softened so as to allow of movement of the separate bones. The lower jawbone was not involved but there were linear ulcers along the line of junction of the lip and gum. The nasal septum was visible. The necrosis advanced rapidly, so that at the time of death, which occurred forty-four hours after entrance to the hospital, nearly the whole nose, the cheeks on both sides to a point midway between the ears and mouth and a large portion of the chin were involved. The temperature during this time ranged from 102 to 104 degrees F.; pulse 150 to 160, and very weak; the respirations were

from 40 to 60 per minute. No autopsy was permitted. Some of the tissue was excised for histologic examinations, and cultures were prepared. The treatment employed was removal of the necrotic mass, cauterization with strong nitric acid, and antiseptic applications were freely used; liquid diet and strychnin or other stimulants internally.

Case 2. Stomatitis Ulcerosa—F. S., male, white, aged 3 years. Was admitted to the hospital Feb. 25, 1895. General condition is that of a healthy child. The patient had entirely recovered from measles about three weeks previously, but had suffered lately with sore mouth, accompanied by fever and general indisposition. Examination of the mouth shows an ulcer one-half-inch in diameter on the external surface of the upper lip to the left of the median line; small linear ulcers are situated along the margins of the gums and incisor teeth, both superior and inferior; a round ulcer one-half-inch in diameter is seen beneath the tip of the tongue, and a small superficial ulcer on the inner surface of the left cheek, this is three-quarters by one-half-inch in diameter; a similar ulcer in the corresponding situation on the right cheek; the floor of all the ulcers is covered by a grayish necrotic slough; there is slight enlargement of the cervical lymphatic glands. There was some elevation of temperature, rapid pulse and respiration for the succeeding four days, when they became normal and remained so. Local treatment consisted of cauterization, cleanliness and the use of antiseptic washes freely applied. The patient improved rapidly and was discharged eighteen days after entrance entirely well.

Case 3. Stomatitis Ulcerosa—C. S., male, aged 4½ years. Entered the hospital March 2, 1895. Had been treated for measles and considered well four weeks previously. The child seems quite well, except for ulcerations of the gums. Ulcers are to be seen about the left lower molar teeth, and quite marked ulcerations about all the teeth on the left side of upper jaw. The child suffered in no way, except for the local condition. Under treatment similar to that employed with his brother recovery took place in the course of ten or twelve days.

Cancrum oris, as defined by Starr,² is a gangrene of the mouth, beginning on the gums or the inner surface of the cheek, spreading with great rapidity and destroying every kind of tissue upon which it develops.

The various authors who have written on the subject agree as to the nature of the disease, but show some difference of opinion as to the starting point of the affection. Thus, Bohn,⁶ Eichorst,⁴ Osler³ and Ziegler say that noma of the mouth begins either in the mucous membrane of the gums or cheeks. Billroth describes it as a gangrenous nodule beginning in the middle of the cheek, while Moulin says it sometimes begins in the mucous membrane, but more often in the submucous tissue near the orifice of Steno's duct. Fagge² believes the gangrenous process begins in the inside of the cheek, always in the submucous tissue, and rarely starts in the gums.

The different authorities differ again as to the relationship existing between ulcerative stomatitis and cancrum oris. Bohn,⁶ Keating,¹ Starr² and Osler³ consider them under separate headings, while Eichorst⁴ and Uillemann speak of them as a single affection. Bohn, however, distinctly says that ulcerative stomatitis may be the beginning of a cancrum oris.

Predisposing Causes—Cancrum oris usually occurs in children between the first and second dentition. Several cases have been reported of late, however, in adults.⁵ It is more often seen in hospitals and public charities than in private practice. Eichorst speaks of it as occurring frequently in barracks. Both sexes are attacked nearly equally. Thus, Relliet and Barthez⁶ report 183 cases, 63 of which were in girls.

As to climate, it is seen most in temperate and cold-temperate regions, especially in the northern seashores. It is not limited to the cooler localities, however, as Galloway⁷ speaks of it as of frequent occurrence in Mexico, and cases have been reported from India. It is said to be more common in large cities than in the country. The cold and damp weather of spring and autumn seem to favor its development.

More than one-half the cases follow measles, but cases are reported of association with other infectious diseases, as pertussis, scarlatina, typhoid and typhus fevers. It is often seen in association with malaria, particularly in the northern countries, Komorowski⁸ having found the plasmodia in the blood of more than one-half of the twenty-three cases reported by him. It is often a complication of diseases in which cachexia or marked anemia are present. Finally, it is needless to say, that the disease is most frequently seen

among patients whose surroundings are unhygienic and whose personal habits are uncleanly.

As to the pathology of cancrum oris, the clinical picture speaks for a progressive inflammation and the histologic investigations seem to warrant this interpretation. Bohn⁶ describes the microscopic changes in the gangrenous tissue as consisting of molecular necrosis of the tissue elements, large or small drops of fat crystals, triple phosphates, derivatives from the blood, coloring matter and bacteria. The bones die as far as the periosteum is destroyed; this is usually superficial, but at times the whole thickness of the jaw becomes disorganized. The vessels are unaffected, except in the necrotic tissue itself, where they are thrombosed. The vascular changes are therefore of a secondary nature. The gangrene may remain dry but is usually moist. The visceral changes are inflammation and gangrene of the gastro-intestinal tract, pleuritis, lobular pneumonia and gangrene of the lung, hydrocephalus and thrombosis of the cerebral sinuses.

The pathologic investigations of our cases consisted of cultural examinations, inoculations of animals and histologic sections.

Case 1. Cultures—The cutaneous surface soon after death was burned, incised with a sterilized knife at the border of the gangrenous tissue, and cultures made from below the skin on 5 per cent. glycerin agar-agar. After incubating, the growth developed as a pure culture of an organism showing the following characteristics: 1. In tubes kept at 37 degrees C., fine white deeply-situated colonies about pin-point-sized were seen after two days. Though kept under observation for several days there was no increase in size above that described. 2. White transparent superficial colonies, pin-head-sized, with a denser white pin-point-sized area in the center. Under low power these appear of deep brown color in center and grow paler and thinner toward the edge; the edges are finely dentated; the surface is finely granular and broken by fine lines and furrows radiating from the center.

The growth on slant of agar-agar was white, shining, presenting a translucent surface and extended three-sixteenths of an inch to the side of the line of inoculation. The edges were irregular, being both finely and coarsely dentated. The organisms as seen in the hanging drop were rather short bacilli, non-motile and were frequently seen lying end-to-end. They were often collected into small clumps and but rarely single.

Staining Properties—With gentian violet anilin water these bacilli stain uniformly and intensely. The ends of some are pointed, while others show an expanded (pear-shaped) end; others again are curved. With Loeffler's alkalin solution of methylene blue they stain more intensely in segments, the ends usually more deeply and the central portion faintly. Gram's stain was also successful.

The growth on slants of 5 per cent. glycerin agar-agar showed fine white globules size of a large pin-head and becoming slightly confluent. The organisms reacted to stain in a manner identical with those described from plain agar-agar. On gelatin at room temperature a very slight white growth appeared which caused no liquefaction. Bouillon was rendered cloudy in twenty-four hours at 37 degrees C., while the growth settled to bottom of tube after forty-eight hours. Potato inoculations showed an almost invisible growth. Litmus milk gave no perceptible change in color, no coagulation. There was no gas production with glucose and lactose agar.

Cultures on Loeffler's blood serum mixture, kept at 37 degrees C., gave a white growth in twenty-four hours. Preparations stained with Loeffler's alkalin solution of methylene blue showed bacilli larger than those from the cultures on agar-agar with pointed or rounded ends, often irregular in form and staining irregularly. The individual and staining peculiarities were exactly like those of the diphtheria bacillus grown in the same medium.

Inoculations—1. A rabbit, two-thirds grown, was inoculated subcutaneously at the base of ear with 4 c.c. of a two-days' old incubator culture in bouillon. The only noticeable effect was slight swelling for twenty-four hours.

2. A full-grown guinea pig was inoculated subcutaneously in the abdominal wall with 1½ c.c. of a forty-eight-hour old bouillon culture; some local swelling followed and the animal was sick for two or three days. Recovery took place quickly and the animal remained well. As the pig was old and therefore less susceptible to the diphtheria bacillus the degree of virulence, if we are dealing with that organism, was necessarily hard to determine.

Case 2.—Surface cultures from the ulcers showed a bacillus which was in all its morphologic and cultured peculiarities

the same as that described in Case 1. Cultures made on Loettler's blood-serum mixture corresponded, as did those in Case 1, in every way morphologically and in staining properties to the diphtheria bacillus. Besides this organism the *staphylococcus pyogenes aureus* was present.

Inoculations—A guinea pig weighing 520 gms. received subcutaneously in the abdominal wall 3 c.c. of a twenty-four hour old incubated bouillon culture. Aside from the production of a local swelling and being sick for a few days no effects were observed.

Case 3.—Inoculations on cultures taken from the surface of the ulcers several days after the local antiseptic treatment had been instituted gave only the *staphylococcus pyogenes aureus*, and the *staphylococcus pyogenes*.

Histologic Sections—A piece of the buccal wall from the case of noma was removed just after death, cut so as to include some of gangrenous and adjacent normal tissue, partially hardened in Möller's fluid, finished in alcohol, coated in colloidin and stained with hematoxylin and eosin. Examined with the low power the greatest extent of necrosis is seen to be on the mucous surface; here the epithelium appears as a granular mass staining deeply with eosin and showing only a few fragments of nuclei; the submucous connective tissue, muscle and mucous glands are seen as necrotic remains, also diffusely stained with eosin. Here and there, both upon the surface and deeply seated in the necrosed tissue, islands of irregular shape, staining with the hematoxylin are seen; these, under high power, appear to be made up of microorganisms. The necrotic zone is succeeded by tissue more nearly normal, and just at the border line between the two zones there is an extensive leucocytic infiltration. As one observes the border of the section away from the point at which there is absolute necrosis it is noticeable that the superficial epithelial cells are entirely gone as deep as the retromucosa, while at a greater distance the loss is less and less until finally, at quite a remote distance the normal layers of cells are preserved. Corresponding with this gradual destruction of the superficial epithelial layers the migration of leucocytes becomes less and less as we pass away from the necrosis. The blood vessels are dilated and often plugged with leucocytes.

Sections stained by Gram's method showed deeply situated in the necrotic zone numerous bacilli quite closely packed together. These organisms are about twice the length of the tubercle bacillus, rather slender, thicker in the middle portion than at the ends. The ends are rounded in some instances, but pointed in others. The bacilli appear like a pure culture and stain best just at the point where the necrotic zone blends off into the inflammatory tissue. Sections stained with Loeffler's methylene blue shows a bacillus in the same situation and morphologically the same. On the surface of the necrotic border some of the same organisms are seen and in addition numerous large bacilli and micrococci.

The observations concerning the essential etiology of noma have been few. Up to quite recent times but little was done toward determining the real cause; the conditions which favor its development alone being described. Bohn⁶ in his classical description of the disease describes many bacteria in the sloughing border but assigns no special significance. The authorities to-day are inclined to the belief in a specific cause at work upon a well prepared soil. The frequent occurrence of the disease in public institutions, and the apparent preference for localization upon the mucous membranes of the different openings of the body suggests a microbic origin.

Previous to Lingard's⁹ contribution to the subject in 1888, no definite organism having anything like a constant relationship had been described. He found an extensive growth of a thread-like organism 4-8 micromillimeters long just at the line of extension of the necrosed tissue. Cultivations and subsequent inoculations into animals gave rise to appearances precisely similar to those seen in the original disease, and in the heart-muscle necrotic foci and clusters of a thread-like organism with a surrounding inflammatory zone were discovered. The intermuscular fasciæ were also infiltrated with the same bacterial growth. None were found, however, in viscera of the human subject dead from noma. Lingard recovered this organism in all of his five cases. He claims an identity between it and one found in ulcerative stomatitis in calves.

Schimmelbush¹⁰ previously described an organism quite like the one seen by Lingard, found in the same situations, which grew on gelatin. Inoculations in rabbits gave rise to abscesses. In 1890 Grawitz¹¹ found in sections at the line of living and dead tissue many bacilli which grew out into

long threads. The absence of micrococci and thick bacilli, which are usually seen in such necrotic tissue when exposed to the air, made it appear to him that only a single species of organism was at work. No cultures were made. Loettler, in discussing Grawitz's paper, remarked that the microscopic picture, including the zone of organisms resembled that seen in mouth diphtheria of the calf.

Masterman¹² in 1891 found micrococci in the lymphatics of one of his two cases. Cornil and Babes have found short streptococci and rods, and Ranke found the same streptococcus described by Koch as producing progressive necrosis in field mice. Rabbits, in which tissue was implanted, died.

Bartels¹³ in 1892 described in one of his two cases a slender bacillus in the gangrenous tissue and at autopsy the same organisms in the kidneys, lymph-glands, spleen and heart-muscle. These stained with Loeffler's blue and showed spore-formation.

In 1893 Elder¹⁷ found long bacilli running to a point in the tissues; cultures were unsuccessful, and Barnabei¹⁴ found the *staphylococcus pyogenes aureus* in a case of noma with septic-pyemia. Foote¹⁵ in the same year made bacteriologic examinations from the surface of sloughing tissues in a case of cancrum oris but only micrococci were found. He implanted pieces of the slough into the subcutaneous abdominal tissues of rabbits, but in the abscess formed only the ordinary pyogenic organisms were found. The animals recovered. His sections made from the skin covering the maxilla bone, showed numerous bacilli measuring $2\frac{1}{2}$ to $3\frac{1}{2}$ micromillimeters, often joined end-to-end and in long strings, situated just at the border of the necrotic zone, next to the inflammatory zone. Cover-glass preparations from the surface of the slough showed micrococci and a few bacilli. The blood in his case was that of an ordinary secondary anemia.

Siegel¹⁶ in 1894, in an article entitled, "The Identity of Cancrum Oris in Man, and Hoof and Mouth Disease of Cattle," describes a short bacillus, (0.5 to 0.7 microm.) This organism stains deepest at the ends, is immotile, and grows on gelatin without liquefaction. It also grows on potato, blood-serum and bouillon. Gram's stain was unsuccessful. It was pathogenic to doves, cattle and pigs.

Sansom¹⁸ in 1878, described certain moving bodies in the blood of a girl aged 4½ years, the subject of noma. These were granules and numerous small refractile bodies, showing rapid locomotion and resembling octahedral crystals. They were most numerous at the height of the temperature and became aggregated into zoogloea masses. Sansom did not find these in all the cases and he is inclined to believe the bodies were non-virulent organisms growing in the blood derived from the gangrenous area. Osler thinks they were blood-plates. Morse¹⁹ has confirmed Sansom's observations. No etiologic significance can very well be attached to these bodies.

Reviewing these reports then, we find the most constant organism and the one to which the most presumable etiologic importance may be attached is a long bacillus growing in threads and end-to-end, deeply situated in the necrotic zone, near the unaffected tissue. In Lingard's five cases these were recovered in the cultures, proved pathogenic to rabbits and again found in the tissues of the dead animals. Schimmelbush also cultivated his on gelatin and produced abscesses in rabbits. Foote's cultures were all unsuccessful but the organism described by him located in the tissues seems quite similar to those of Schimmelbush and Lingard.

Cultivations were also successful in Siegel's cases, but the organism differed from the others in being much shorter. Cultivations were unsuccessful with the other observers. The organism recovered by us in cultures, certainly presents all the characteristics of the diphtheria bacillus except its effect upon guinea pigs, to which it was only slightly virulent. Objections might be made, therefore, to calling it the Löffler bacillus. While there is good reason for such objection, the organism corresponds as closely to all the requirements as do those that have been found in throats of patients either having a pseudo-membrane or in which no clinical evidence of diphtheria were present, which have been described as "diphtheria bacilli with reduced virulence." The absence of the pseudo-membrane should in no wise be held as against the presence of the diphtheria organisms, for have not diphtheria bacilli often been found in situations where the deposit was entirely absent? We therefore feel justified in placing our cases upon record as additions to those such as lacunar tonsillitis, fibrinous rhinitis, otitis media, vulvitis, glossitis, gingivitis, and wounds²⁰ in which diphtheria bacilli were found, but lacking in clinical appearances.

As to the morphology of the bacilli found in the tissues, one can only say that they resemble the diphtheria organism as generally seen in exudates.

There would seem, therefore, to be no similarity between the organism found in cultures and tissues by us and those described by other observers. For they, on the one hand, found bacilli growing in long threads and end-to-end, while those seen by us were short, straight, curved and pear-shaped. In considering this apparently wide difference one must not forget the wide range of forms taken by the bacillus diphtheriae as one observes the growths upon different media and under different degrees of temperature. Further, Klein²¹ has demonstrated the diphtheria bacillus growing in long threads with granular swellings and knob-like terminals in the tissue of a cow inoculated with human diphtheria bacilli. He also observed all the stages of development from the ordinary forms as usually seen, up to the long thread-like forms. These observations of Klein may be looked upon then, at least, as evidence that the organism in tissues may assume a growth similar to the thread-like filaments found by Lingard and others. These facts will scarcely warrant any conclusions as to the identity of our organism with those of other observers, but might be looked upon as a possible connecting link between those widely different forms.

We can not refrain, in conclusion, from drawing attention to the probable identity of cancrum oris and ulcerative stomatitis. Such a statement seems warranted by the observation of three cases all in the same family, following the same disease, showing distinctly different grades of development from the mild ulceration to profound gangrene, and in two of these the demonstration in cultures of the same organism.

We wish to thank Dr. George H. Weaver for all of the bacteriologic examinations, also Dr. J. W. Walker for photographs of the fatal case, and Dr. E. H. Ochsner for clinical notes on one of the cases of ulcerative stomatitis.

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DISCUSSION.

DR. LUDVIG HEKTOEN—I desire to call attention to the great similarity between some lesions described in connection with noma and what is observed in connection with true diphtheria of the skin, of which there are now several undoubted cases on record, in which the diphtheria bacillus has been demonstrated by means of cultures and animal experiments.

The Doctors' Club.

At the regular monthly meeting of the Doctors' Club of Chicago held at the Chicago Beach Hotel, Oct. 25, 1895, the subject discussed was "the Dispensary Evil."

Dr. Marcus P. Hatfield presided and introduced the guest of the evening, Prof. Geo. A. Coe, Professor of Philosophy in the Northwestern University. He spoke on "The Ethics of the Free Dispensary."

Dr. Fernand Henrotin followed on "The Value of the Dispensary to the Poor." He dwelt upon the necessity of organized effort to furnish medical treatment and advice to the indigent and took the ground that the remedy for the evils of dispensaries lay in each physician taking care of his share of the poor of his neighborhood.

Dr. Edwin H. Dorland spoke on "The Injustice of the Dispensary."

Dr. T. A. Davis followed on "The Value of the Free Dispensary as a Clinical Instructor." He said that the student must get clinical teaching, and, since the Cook County Hospital's wards were closed to students, as also those of many other hospitals, the dispensaries filled a want in the line of education. He estimated, judging from letters received from members of the staff of the West-Side Free Dispensary, that the proportion of persons treated who were able to pay was less than 25 per cent.

Dr. N. H. Cazier spoke on the subject, "The Dispensary's Robbery of the Poor."

Prof. C. R. Henderson, of the University of Chicago, an invited guest, spoke on "The Relations of Dispensaries to Other Charities."

ETHICS OF THE FREE DISPENSARY.

By GEORGE A. CASE, Ph. D., Professor of Philosophy in Northwestern University.

The ethics of the free dispensary involves four particular, if not distinct interests:

1. The interest of the poor.
2. The interest of the physician who gives his services.
3. The interest of the physician whose income may be reduced through competition with the free dispensary.
4. The interest of medical science and education.

Any attempt to adjust so various, complicated, and apparently conflicting interests is certain to fail if it proceeds from the standpoint of any one of them alone. We must, if possible, discover a higher standpoint from which to discern whether there be any unity of interest underneath this diversity. This higher point of view is suggested in the conception of the unity of life with which the doctrine of evolution has made us familiar. Just as, in order to understand any species, we must consider it as a member of a series embracing all forms of life upon our planet, so in morals, we find the meaning of a particular life on the function of a particular class only as we grasp the connection of this one with universal humanity. Reflection upon life very soon convinces us that no man liveth unto himself and no man dyeth unto himself. The man who conceives himself as the sole end of his functions conceives an idea as unmanageable as that of fixed and changeless species. For we are all creatures of the social conditions in which we are born, grow up and functionate. For we are all products of the race, and, whether we will or no, the products of our activity return to the race for its enrichment or its impoverishing. From this it is but a step to the conclusion, though of course the grounds can only be hinted at, that we are truly moral individuals only so far as the life of humanity advances toward the goal of its development. This relation of the individual to the species is brought home to us chiefly in what we call society—in the municipality, State or other civil organization, and in the accepted customs of the people among whom we dwell. It follows, therefore, that the special function of the physician is to apply his specialized knowledge to the advancement of the civilization of which he forms a part.

This principle has direct application to the question in hand. In the first place, it determines the proper attitude of physicians toward one another as one, not of personal rivalry or selfish competition, but of friendly coöperation for the attainment of a social good. At the same time, since the physician is an organ of the social life, he himself must be maintained in the condition of greatest efficiency. It would be folly to educate men for the profession of medicine and then starve them; equally so to hinder their professional development at the very period when they are most capable of growing. We need not question the wisdom of letting them win their spurs. As Mr. Emerson says:

"Cast the bantling on the rocks,
Suckle him with the she-wolf's teat,
Wintered with the hawk and fox,
Power and speed be hands and feet."

Nevertheless this process may be made so painful as to interfere with efficiency, and this, plainly, would be unjustifiable. It is in every way for the interest of the medical profession to maintain the dignity and promote the development of its own members.

In the second place, our general principle sheds light upon the claims of the poor for free medical service. The medieval idea of charity was that of indiscriminate giving. It is well illustrated in the Legend Beautiful of Longfellow:

"It was now the appointed hour,
When, alike in shine or shower,
Winter's cold or summer's heat,
To the convent portals came
All the blind and halt and lame,
All the beggars of the street,
For their daily dole of food,
Dealt them by the brotherhood."

Whether this description could be applied to a modern free dispensary, I leave you to decide. In any case, however, such charity is of the kind that covers a multitude of sins against society. Sympathy unguided by reason or correct social ideals is as bad as liberty unregulated by law. For each of these tends, in its own way, to create a class which supports itself by preying upon the rest of society.

True charity, without forgetting the value to both parties of direct, sympathetic contact of a man with his neighbor, asks, first of all, what will promote soundness in the social organism as a whole. The relation of social classes is not unlike that of the organs of the body; the heart requires food from the stomach, and the stomach requires blood from the heart; and yet, after all, it is not the particular organ that makes the demand, but rather the organism in its entirety and unity. Similarly, the claims of the poor upon physicians neither originate nor terminate in the poor themselves, but in the need for social soundness and development. While this implies that the physician's personal desires are to be subordinated to the common good, it does not imply that he is to be at the beck and call of persons incapable of appreciating the cost of knowledge and skill. The poor and their philanthropic friends have no more claim on a professional man's time than they have on that of a business man. And yet I fear that any hesitation, at the demand of so-called charity, to scatter indiscriminately abroad the product of years of toil and study, while it would be commended in the merchant as business sense, would be condemned in the physician as selfishness or lack of sympathy. Wise unselfishness requires that charity be so dispensed as not to increase but rather to remove the need for charity. To love the poor is not merely to heal their diseases, but also to find and remove the causes of the same; not merely to give them things, but also to develop them toward physical and moral independence; not merely to keep them alive, but rather to show them how to live. The free treatment of persons able to pay seems to me utterly indefensible. I do not see how it can fail to pauperize them, or at least weaken their moral stamina. If they can not pay the ordinary fee, but can pay something, do not destroy their self-respect by assuming that they are already paupers.

Moreover, the danger in merely giving is doubled when charity is administered in a purely official, impersonal manner. It may be that diseases can be cured by machinery, but surely something more than machinery is necessary to develop the dependent classes into self-respect and self-support. Charity must be so administered as, while relieving present needs, to awaken manly and womanly feelings, and inspire with worthy hopes and ideals. And who has so good opportunity for doing this as the physician? His relation to the patient is intimate and confidential; and this of itself opens the way for mutual sympathy and good will. Then, too, the physician touches the moral life of his patient at its basis or substratum, for we need not hesitate to admit the implication of evolution, that the spiritual life waits for the physical organization, and that physical perfection is a condition of spiritual wholeness. To be complete men we must be perfect animals. There is moral value, then, in obedience to the laws of health. The patient who cooperates with his physician in the effort to attain physical soundness is already on the road to a self-respecting moral life. The personal relation of the physician to his charity patient is therefore of the utmost importance both to the patient himself and to society. Here the earnest practitioner can stimulate the nerve of social progress; but when medical charity becomes merely official, merely professional and technical in the benightedly narrow sense of those terms, then it fails of much of its social effect—it is charity with its most charitable part left out.

This brings me to the interest of medical science and education in the free dispensaries. This is a delicate point, for science is jealous, and rightfully so, of all her prerogatives. I yield to no one in point of loyalty to her and her demand for independence, purity, and the payment of all that knowledge costs. Neither pity for the pains of a few frogs and guinea pigs, or even an occasional man shall hinder her progress. If it is really necessary for her advancement that young practitioners should be deprived of a few patients, let

these practitioners make the sacrifice gladly upon the altar of science and philanthropy.

But is it not just possible that the sciences may be in danger of becoming fetishes? That our devotion shall lead to undervaluation of pain, undervaluation of social interests, and an abnormal demand for material for experiment and demonstration? Let us not forget that the sciences were made for man, not man for the sciences. As the philosopher Kant said, we should treat humanity in the person of every man, never as means merely, but always as an end.

Now, so long as patients are human beings and physicians also human, physicians must have a thought for something beyond the bodily mechanism. They must think of the humanity of their patients and of all other persons concerned. You will never succeed in putting the professional part of a physician into one pigeon-hole and the human part into another, or, if you do, you will have brought forth a monster.

Shall medicine mix itself up with morals, then? Not with the disputes of ethical theorists, to be sure; yet how blind should we be if we beheld naught of the social mission of every science, particularly of sciences like medicine, which have direct practical application. The obligation to further the ends of social evolution pursues us whithersoever we go. If we ascend into the heaven of religious contemplation, it is there; if we make our bed in politics, behold it is there; if we take the wings of the morning and fly to the uttermost parts of commerce, even there doth it find us; if we say, Surely the seclusion of the study and the specialization of science shall hide us, even our science becomes a light about us to show us our duty. The science of medicine, let me repeat, is a function of social life, and its end the furtherance of social evolution.

But you will say, You have not yet told us how to reconcile the four clashing interests. No, I have not done this, and shall not attempt to, for my purpose is not to devise ways and means, but only to put into clear light the ethical principles involved. I bear, however, the optimistic conviction that whatever ought to be done can be done, and that this body of representative physicians, if agreed as to the social mission of their science and skill, will be able to execute that mission without sacrificing the real interest of any one.

THE RELATIONS OF DISPENSARIES TO OTHER CHARITIES.

Abstract of remarks of C. R. HENDERSON, Professor of Sociology, University of Chicago.

Most delightfully and clearly has my colleague, Prof. Coe, laid down the fundamental principles which bear upon this discussion. And both of us gratefully acknowledge our debt to the physicians whose practical applications of these principles, out of a rich technical knowledge, have been extremely suggestive to us. Personally, I thank you for the opportunity of bringing before this body of men, representatives of a profession whose service is a ministry of goodness, the organizing work of the Civic Federation in the field of relief and prevention. Your interest and sympathy will be an important factor in the success of this measure.

The action of the Civic Federation in sustaining the work of the Bureau of Charities assures its existence, but only a very general cooperation will insure its adequate and permanent triumph. Only very slowly does this conception of democratic fellowship in contrast with aristocratic patronage take root in a vast community. Customs of conduct and habits of mind have a momentum and an inertia which are only slowly modified.

And yet, you gentlemen have for years expressed your conviction based on daily contact with the poor, that a vastly deeper and broader social work must be done if we are to do more than merely mitigate and palliate the awful course of pauperism. In this great service of anticipating the misery of poverty, and employing prophylactic measures, all classes, and not the rich alone, must unite for a long, costly and patient campaign. Our city charities tend to separate us from the poor and widen that chasm between classes which threaten to swallow our civilization.

Justly, and not in vain, we turn to the medical profession for help in this work. We do not compete with any of the numerous relief societies. We are the friend of all beneficent agencies which are honestly and efficiently managed, and in no sense their rival. The city of Chicago, it is asserted by authorities, spends \$2,000,000 a year through about 200 agencies, public and private. If any of you were building a house costing \$38,000,000, whose annual expenses would be \$2,000,000, you would not think 1 or 2 per cent. fee for architect and superintendent would be excessive. When we consider the interests of happiness and misery which are

at stake we shall be all the more anxious to see that public relief does as little harm as possible, and that the vicious stream of causation in social conditions be stopped near the fountains. Only a deep faith in principles and large social forces can lift us out of the alms-giving rut of ages and enable us to believe in measures directed against the very primal sources of misery. We solicit your membership, your support, your counsel, and we shall be grateful for the continuance of your confidence.

THE DISPENSARY'S ROBBING OF THE POOR.

BY M. H. CAZIER, M.D.

Mr. Chairman and Gentlemen: I have been edified by the remarks of the gentlemen who have preceded me in paying respects to the "Free Dispensary" as it is, particularly so by the remarks of Prof. Coe. I want to thank him now, both for myself and for the Club, for his very able presentation of the subject from the ethical standpoint. It must, however, be remembered that it is the province of ethics to point out the ideal for which we should ever strive but can never attain, because of the imperfection of means. True to this principle, therefore, Prof. Coe has admonished us to "aim high" very properly, for in the language of the agrarian philosopher, "if one don't hit the bull's one may make a pretty good shot."

It now remains to present my cause to the jury, and as may have been anticipated it is none other than an indictment for *grand larceny*. I would not have you assume the prerogative of a court of last resort, and that our mind and thinking shall be the dictum by which others *must* be guided. Yet if it shall appear that the poor are being robbed under the guise of charity, and if it shall be brought home to the door of the medical profession that they are fostering a cancer which is preying on the life blood of society, then, gentlemen, we can not escape responsibility. It is therefore highly important that we, now and here, realize our obligations—yours as jurors, my own as an advocate to the end that truth shall prevail, and that we "render unto Caesar the things that are Caesar's, and unto God the things that are God's." As medical men we have a knowledge of the facts; each one of us has an abundance of testimony, but it is not in the capacity of physicians that we are to decide public questions—questions which have to do with the welfare of society. As *witnesses* you are *physicians*, as *jurors* you are *men*.

If we mistake our obligation and think and act only as prompted by professional instincts, actuated by the first law of nature, and recognizing no higher obligation, we descend to the level of the city alderman who asks, "What is there in it for me?" And as a profession we must remain hopelessly divided, for those of us connected with dispensary work and aided by its emoluments, will defend it, with all its vileness, while those not so committed will demand its unconditional abatement. It is upon a higher plane, therefore, than thoughts of self aggrandizement can place us, that the demands of the hour require us to act. Gentlemen of this Club, much as I value the distinction of being a *physician*, much more do I esteem the privilege of being a citizen of this city and of this commonwealth of States; much as I respect a *doctor*, a thousand times more do I respect a *man*. It is in the light of the intelligence of the physician shorn of his selfishness and prejudice, and supported by that manhood which is awake to our obligations to society and to the State, that I ask you to look with me at the side of this question which deals with the subjective influence on the recipient.

Let us, therefore, banish from our eyes the glaucoma of sordid greed and look broadly and see if possible the whole truth. Competition for dispensary patients, between the various medical colleges and private enterprises of those not favored with college-teaching positions, is so fierce that advertising in its various guises is resorted to to attract people to the places where "*distinguished physicians*" and "*learned professors*" may be consulted and medicines furnished "without money and without price." *Armies* of people in this city who, if not thus enticed, could have maintained themselves, their self-reliance and self-respect, have taken their first step into mendicancy by the by-road of the *free dispensary*.

"Who steals my purse steals trash; but he who filches from me my 'self-respect' robs me of that which not enriches him, but makes me poor indeed."

Any one who has given study to the subject of scientific charities understands the danger which lurks in the giving of "out-door relief." The danger is to the beneficiary; it tends to pauperize the dependent, and, doing so, the injustice is visited upon society and the State. Thus the individual is robbed, society is damaged and the State is put to expense

because of this pernicious, indiscriminate alms-giving, and the *free dispensary* is the most perennial robber of them all! Watch the course of the candidate. A morbid desire for gratuity robs the mind of thoughts of higher purpose. The vial of dispensary tonic creates an appetite for free hams, free flour and free coal. Attendance at the dispensary is certified to the town agent, who is importuned to supply all temporal needs; in this manner the malingering finds encouragement, the dependent is pauperized to the detriment and damage of us all, while the premium stands on indolence and disgrace.

Can the robbery of the poor be made more complete than by changing to a pauper a person capable of self-support? Can anything be more baneful than to induce one to cease to depend upon the strong arm of self-reliance and become a recipient of gratuitous commodities.

"There are more diseases than hysteria that people love to suffer with, and the dispensary-affection is an example. There is no evil that is more ruinous than the awful one of communism. When a man gets that poison in his blood he will be a curse to the world until he is well hanged, thoroughly dead and everlastingly buried. There is no curse so fatal as the curse of desiring to get something for nothing. It is the half-hidden rock upon which the very ship of state, democracy itself, is running headlong. Nothing is serving so subtly and so powerfully to prevent physical and social health, and to keep the world in the thalldom of disease, as medical beggary and medical communism. When a man buys medical service for nothing he pays a high price for it. He cultivates the habit of lazy reliance on medical aid, and grows careless of hygiene. The people think they are fortunate in being treated for nothing, but instead of curing, the "treatment" really fastens the disease perpetually upon the very heart of the body politic."

I desire not to be understood that the dispensary is the only source of pauperism. It is simply the topmost flower of a weed that is sapping the life blood from myriads of useful plants. Shall we welcome a reform?

"There can be no doubt that the instant influence of the necessity of treating crowds of mingled deserving poor and indistinguishable spongers, acts disastrously upon the physician's disposition and manners. The very work wherein gentle kindness is as the sunshine's benediction over the gracious harvest fields of benevolence is transformed into bitterness and harshness. What is more disgusting than arrogance and dictatorialness in a physician? What is more common in hospitals and dispensaries? A dog judges of his master's mood by the manner and the *timbre* of voice, although he understands hardly a word of language proper. Every hospital patient, likewise, forms quick conclusions as to the man's character under whose care he comes, and instead of gratitude for the service rendered the ungentlemanly physician is breeding through the community a condition of mind that bodes no good for medicine. The patient thinks himself sharp to secure some benefit from grudging surliness, and the overworked, non-paid, half-excusable doctor is glad to get through his job in one or another wretched way. 'He has the European habit and style'—such is the patient's verdict. The patients know well enough when they are looked upon as 'clinical material.'"

In the city of Philadelphia, in this respect the worst cursed city on the continent, the Bureau of Charities offered its assistance to see that impostors should be excluded from the dispensaries. The physicians in charge declined, saying, "We want the impostor for his influence, we want the doors left wide open, let everybody come." In this we have an exhibition of the willingness of men, and must I say physicians, to compromise principle, to compromise the good of society and the State, not to say the profession, to their own individual selfish aims. I therefore appeal to you as citizens of this, the *greatest city of the greatest nation*, to use the intelligence of the physician to guide you in your duty as men to reform this evil which menaces society. Not solely because it robs the doctor of paying patients, but because it robs the individual—the recipient—of his self-reliance, of his self-respect, places barriers between him and honor and turns his face toward the dust!

This side of the free dispensary evil, this pauperizing of dependents, this robbing the poor of their right and title to respectability, appeals to you; it appeals to every medical man in Chicago, and if we who are connected with the evil, and likewise those who are not, shall choose to lie supinely upon our backs and wait, we will find that the

¹ "Hospitalism," by A. M. Gould, M.D., Phil.

² "Hospitalism," A. M. Gould, M.D., Phil.

awakened intelligence of society will visit upon us the sad necessity of becoming followers in a reform we should have led. The study of scientific charities is fast carrying the seed of truth where it will bear most fruit, and if we would regain the respect and social standing accorded our fathers we must awaken to the demands of the hour. Stated plainly, the evils which require correction are as follows:

1. Prevent the physician or surgeon, who does dispensary work, from using his office as a "cats-paw to rake the chest-nuts from the fire."

2. Prevent every one from receiving treatment at dispensaries except those actually too poor to provide for themselves.

This will decrease attendance 50 per cent. I say 50 per cent. on authority³ of all those who have made investigations. I must question the reliability of the estimate made by Dr. Davis. This should also stop the use of dispensary patients as decoys for private waiting-rooms and make dispensary work honorable.

To this end it is necessary that there shall be selected a board of censors with sense, and who shall become incensed if abuses continued.

THE DISPENSARY EVIL—INJUSTICE OF THE DISPENSARY.

By E. H. DORLAND, M.D., Surgeon to Lakeside Hospital, Chicago.

Our subject defines itself. It is not for us to discuss a doubtful proposition, but the dispensary evil. It is then assumed, believed and recognized, that the free dispensary is an evil, and that it requires no argument, no array of facts in this presence, to convince our hearers that the free dispensary is an evil. It may be further assumed then that the scope of the discussion is to be confined to the exposition of the evil, and to the means to correct that evil. While the profession is, in the main, responsible for this dispensary evil, the individuals, the organizations, churches or what not, that furnish the money to equip and maintain the free dispensary, make a great mistake and do the medical profession a great injustice. There are so many ways of spending money for the benefit of the whole community without wronging any part of it, that with slight exception, the man who endows a free dispensary does vastly more harm than good to the community, and directly wrongs the medical profession. From a humanitarian standpoint, one heavily endowed and well-equipped laboratory for the promotion of sanitary science would do more for Chicago than all the free dispensaries in the city. The motive of the man of money, or the charity ball, or the high-toned gambling scheme of the church social, may be good, but their efforts, and the result of their efforts are bad. The well-meaning, but misguided minister who urges, even implores his church on "Dispensary Sunday," to contribute a goodly sum for the free dispensary, is enjoying the delusion that he is working for a noble charity; and a side-factor is the dispensary doctor, who is working the church for advertising purposes, and who is specially active and conspicuously officious on these occasions. Many of us have observed a man with a Solomon-Levi appearance, a prominent bidder at a church fair free dispensary push, pay \$20 for a thing worth 20 cents. An allusion to these "tricks of the trade" is sufficient; it will bring to mind the long and disgusting list of practices under the guise of charity that it is hoped that enlightened charity will banish from good society in the near future. There are degrees of this evil; there are comparatives and superlatives of this evil. There are two special divisions of the injustice of the free dispensary to medical men: First, the direct injustice in that it takes a very considerable number of patients from their offices that could and would pay something for treatment; second, that far greater and more damaging injustice, that of prostituting a profession consisting of a body of learned men, men constituting preëminently the learned profession, to a standing below that of a trade, or even a day laborer, in that their services can be had for nothing. The free dispensary educates people to expect something for nothing, than which no greater evil to a community can be done. This phase of the subject should be continuously emphasized, as the people can see and appreciate this side of the subject more readily and clearly than any other. One of the most humiliating spectacles in the whole round of this dispensary evil, and one that does the medical profession the greatest wrong and injustice, is that of the man who perpetrates the

farce of diagnosing and prescribing for ten, twenty-five or fifty cases in an hour. If it was for legitimate teaching for the boys on the benches, two cases properly handled, properly and correctly diagnosed and skillfully prescribed for, would serve the purpose infinitely better. Another form is exhibited in the voluminous writings of the dispensary doctor. The free dispensary literature, and reports of cases treated at free dispensaries, are wholly untrustworthy, and are wholly worthless to the student of medicine. I believe I voice the consensus of opinion of the medical gentlemen of my acquaintance when I say that I believe that there has never been such a volume of stuff in the shape of reprints and clinical reports as at the present time flood the offices of the profession. I believe further that I state a fact in saying that from 60 to 90 per cent. of this "stuff" is not worth the paper it is printed on to the profession, and that the light of it is most observable when used as kindling with which to light the evening fire on the grate, by the warmth of which to read books written after an exhaustive study of the subject in hand, and in which scientific facts are stated and the doctor left to draw his own conclusions. The obvious injustice to the profession exhibited in the rough, gruff, unseemly and boorish manners of the dispensary doctor is another great wrong and misrepresentation of the medical profession. Practice in the dispensary unfits a man for practice among refined people. Of these people that crowd into the free dispensary the doctor knows nothing; knows nothing of their habits, manner of living, thinking, speaking, working, eating, drinking, or their environment in any way. The whole free dispensary tends to teach the people to hold us in contempt. The spectacle of doing business *free* exists in no other walk of life, and it has always been true and is true to-day, that the people do not appreciate that which costs them nothing. The teaching factor in the free dispensary is as near worthless as anything can be. It is a very rare thing that a physician who enjoys an experience in a refined private practice attends a free clinic. If there is nothing there desirable for him to learn, can that instruction be of any real value to the medical students? If the dispensary doctor is there for his own instruction it would seem that it takes him a long time to "learn his trade," whatever he treats, whether it be eyes, or throats, or wombs or feet.

The impression is kept very prominently before the people that they will be examined and treated by the great professor at the free dispensary, and it seems that some of our medical men favor and prefer the title of "Professor" to that of "Doctor." This impression, this figure-head of the "Great Professor" is, in the main, a gigantic fraud practiced upon the people. As in politics, so in dispensary professorships, a man of money, or influence, or ability holds the office, but some one else does the work. We can teach the people that the free dispensary is for paupers; that the service at a free dispensary is not at all like that of a private office; that the acting free-dispensary doctor is not the best doctor; that he is a man of little or no experience and is there to experiment. Let the dispensary doctor, if he is sincere, do what he can, and he can do a great deal more than he does do, to weed out and kick out the dispensary parasites. In this corn and hog city of ours we have a large class of people of very little refinement and less taste, that will accept the free-dispensary service and is wholly unworthy of it in every particular. The free-dispensary doctor will perscribe for this class of people and belittle and humiliate himself, and disgrace the profession in doing so. Charity is greatly exaggerated and overdone in Chicago, but no charity is so terribly abused as the free dispensary. A careful estimate will show that there is no legitimate need for more than one-fourth of the free dispensaries that now exist, unless it is to advertise the doctor that is giving his life for the people. It is often a most pathetic sight to observe the efforts of "Mrs." Free-Dispensary Doctor, or her mother-in-law, as solicitor of funds to maintain the free dispensary. It is very apparent, too apparent in the main, that the free clinic is an advertising institution. I venture the statement that the better you know the free dispensary, its professors and its methods, the less you will admire the free dispensary, its professors and its methods. As ever, so now, bigotry is universally an evidence of ignorance. Let us not deceive ourselves into the belief that unqualified statements and bold assertion are indications of erudition. Let us withhold our approval and discontinue all patronage to the men that are willing to lend themselves to the perpetuation of this gigantic abuse and injustice. There are plenty of better doctors than those that are mere teachers. The profession is, to a degree, responsible for the bigotry, too prominently and painfully observable in the free-clinic professor. The average free-dis-

³ Warner's American Charities, chapter on "The Destitute Sick." Investigations in New York of several thousand dispensary habits revealed that 25 per cent. were found to be abundantly able to provide for themselves; another 25 per cent. had given the wrong address to conceal themselves. This left 50 per cent. who were rightfully entitled to participate, and who were being robbed by the impostors.

pensary promoter is just about the size mentally to be spoiled by the admiration and applause of first-year medical students. We can do much to correct this abuse by raising the matriculation grade for all medical students. Let a bachelor's degree be required to enter any medical college. When this is done our young men will attend the full four or six years' course at the universities of medicine instead of stock company medical colleges. University professors do not need to resort to any such methods. The number of patients that are treated free has more than doubled per 1000 in the last ten years. Are the people less able to pay for medical service than they were ten years ago? There is nothing within the confines of medical practice that has wrought such harm and injustice to the profession of medicine as the lesson the people have so readily and all too well learned—that they can get medical and surgical treatment for nothing.

BOOK NOTICES.

Medical and Surgical Report of the Children's Hospital, 1869-1894. Edited by T. M. ROTCH, M.D., and HERBERT L. BURRELL, M.D. Boston: Published by the Board of Managers. 1895. 8vo, cl.

This sumptuous volume with its elegant paper, beautiful illustrations and well-written text, tells the story of the founding, the development, and, we were about to say, the perfection of the hospital. The contents of the volume are as follows:

Division i—(administrative). 1. The History of the Hospital, by Francis H. Brown, M.D., who has been Secretary of the organization from the beginning in 1869. 2. The Executive Management of the Hospital, by the lady Superintendent, Sister Caroline. 3. The Convalescent Home. 4. The Outdoor Relief Department.

In Division ii (medical)—we have a series of interesting short essays: 1. Typhoid Fever, by F. Gordon Morrill, M.D. 2. Value of Milk Laboratories for Hospitals, by T. M. Rotch, M.D. 3. Relation of Aural Service to the Needs of a General Hospital for Children, by Clarence J. Blake, M.D. 4. Malaria in Children, by E. M. Buckingham, M.D. 5. An Epidemic of Scarlet Fever, by Thos. F. Sherman, M.D. 6. Etiology of Chorea, by Chas. W. Townsend, M.D. 7. An Epidemic of Diphtheria Apparently Stopped by Use of Antitoxin, by F. Gordon Morrill, M.D.

Division iii (surgical)—is divided in three parts, the first being a description of the work done in the surgical wards of the hospital, in the surgical out-patient department, and in the surgical appliance shop. The second part gives a description of the standard routine of procedure in the classes of cases treated at the hospital. This includes description of the arrangements for the operating room, sterilization and dressings, gymnasium, form of records and blanks, etc. Third part contains a series of original papers by E. H. Bradford, M.D., R. W. Lovett, M.D., Herbert L. Burrell, M.D., W. N. Bullard, M.D., H. W. Cushing, M.D., and E. G. Brackett, M.D.

Few hospital reports are of more practical value, and as an exponent of *fin de siècle* medicine and surgery its authors will take a front rank.

A System of Surgery.—By American authors. Edited by FREDERICK S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc., assisted by JOHN S. BILLINGS, M.D., LL.D., D.C.L., Deputy Surgeon-General U. S. A. To be completed in 4 im. 8vo vols., 900 pp. each, with index. Profusely illustrated with figures in colors and black. Vol. III, 908, pp., 207 engravings and 10 colored plates. Price per vol., \$6 cloth; \$7 leather; \$8.50 half Morocco, gilt back and top. For sale by subscription. Philadelphia: Lea Brothers & Co.

This volume has been continued on the same plane of excellence as its predecessors. The plan of the work makes this volume include among its contributors the names of several well-known specialists outside the ranks of the surgeons. The contributors to this volume include Drs. D.

Bryson Delevan, Henry H. Mudd, Charles B. Porter, Willard Parker, Fredrick S. Dennis, George E. de Schweinitz, Henry D. Noyes, John E. Weeks, Gorham Bacon, Louis McLane Tiffany, William A. Hardaway, J. William White and Robert W. Taylor.

Dr. White gives a great deal of space to the subject of castration in certain cases of prostatic hypertrophy, and Dr. Dennis presents a conservative view of pulmonary surgery. Dr. Parker an excellent resumé of bronchial cysts, and Dr. Taylor gives some very recent methods of bubo treatment, and we might easily say some very late views on the general subject of syphilis. The volume as a whole is fairly representative of the existing state of the topics under consideration. A book of this kind, as a rule, does not assume to promulgate original investigations, but only to record the science of the day as it is understood. Whether the more ephemeral topics and methods shall be included largely depend on the judgment and tact of the editor. In all such matters, Dr. Dennis has so far displayed a taste and judgment creditable alike to his wise discretion and to his common sense. We shall look with renewed interest for the appearance of the concluding volume.

Diphtheria and Its Associates.—By LENNOX BROWNE, F.R.C.S., editor. Illustrated by the author. London: Baillière, Tindall & Cox. Philadelphia: J. B. Lippincott & Co. 1895. 8vo, cl.

This monograph is one that will naturally attract much attention, not only on account of the deep interest attaching to the subject itself, but because of the high standing of the author. There are thirteen chapters in the book, namely: i. History of Diphtheria. ii, iii and iv. Etiology. v. Pathology. vi. Bacteriologic Diagnosis of Diphtheria and its Associates. vii. Clinical Diagnosis of Diphtheria and its Associates. viii. Record of Illustrative Cases, etc. ix. Elements of Prognosis in Diphtheria. x. Treatment of Diphtheria and its Associates. xi. Laryngo-tracheal Diphtheria-Croup. xii. Hygiene and Prophylaxis. xiii. Formulæ for Remedies in Diphtheria.

There is an appendix in which the serum treatment of diphtheria is discussed in all its bearings. This section is an exhaustive summary of the existing knowledge of the subject. The accidents of the serum treatment are not extenuated, but on the contrary, as will be seen by reference to another column, its use is distinctly condemned. But leaving aside the question of serum-therapy, the book will stand as an able and authoritative exposition of the subject of diphtheria.

Electro-Therapeutical Practice.—A ready reference guide for physicians in the use of electricity. By CHAS. S. NISWANGER, Ph.G. Flexible covers, pp. 30. Chicago: 1895.

This book is said in its preface to teach "plain facts and simple rules" for practitioners. The method adopted by the author is, to say the least, peculiar. The common list of diseases is presented, and under each name the manner of applying electrical treatment. There is no half-way or faint-hearted system recommended in this book for this pharmacy graduate has no pathologic or diagnostic doubts, but like the "plain, blunt man" that he is, he goes right on to apply electricity without let or hindrance to all kinds of diseases and conditions, from an abortion to a case of exophthalmic goitre. There are some good points of technique, but as a whole the book belongs to a class that had better not have been written.

Outline of Materia Medica and Pharmacology.—A text-book for students. By H. M. BRACKEN, M.D. Philadelphia: P. Blackiston, Son & Co. 1895. 8vo, cl. Price, \$2.75.

The author informs us that it is intended the book "shall serve the purpose of a text-book; for use in the study of materia medica; to facilitate note-taking in the lecture room, and to aid in the laboratory study of drugs." The metric system has been given the preference throughout. The book has been carefully compiled, and in our judgment is destined to become a very popular text-book. Although particularly intended for students, the practitioner will find it instructive, especially with respect to the newer remedies, and as a convenient work of reference.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,

NO. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.

W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, DECEMBER 14, 1895.

SERUM-THERAPY IN DIPHTHERIA.

Just as we were growing comfortably settled in the conviction that if there was anything in the doctrine of serum-therapy, it was surely in cases of diphtheria that its strongest statistics were to be found, along comes one of the ablest Laryngologists of Great Britain, MR. LENNOX BROWNE, and in an able discussion of the subject,¹ reviews the question adversely. After stating as a result of his experience that with serum-therapy "a greater number of children have been found liable to attacks of cyanosis and fainting, with a correspondingly increased demand for nervines and stimulants," and that "complete recovery is for the most part found to be greatly delayed, and an unexpected fatal result at a late period is more frequent," he continues: "When drawing attention at a meeting of the Clinical Society last December to an increased liability to the most grave complications of diphtheria, viz., anuria, nephritis and cardiac failure under the use of serum, we took occasion to express a hope that further experience might prove that the disadvantages of serum would be more than outweighed by its benefits."

Having carefully compared the results of 1,000 cases in which there were 284 deaths, and divided them into hundreds, he states that "the actual mortality was the same, namely, 27. It was 27.10 on the whole number—1163—treated during the year 1894 at the hospital whence our comparisons were made."

After a lengthy weighing of the result of his observations he thus concludes:

"The foregoing observations as to the effects of serum treatment will, we trust, have made it clear that the injection of antitoxic serum into a patient

attacked by diphtheria is not altogether free from an added danger, notwithstanding that the amount of active principle administered can be measured only by millionths; and we have seen that the power of this serum to do good and *per contra* its capacity for inflicting injury is in proportion to the duration of the disease—in other words, to the degree of the toxæmia.

"As a corollary, we might be able to pronounce that the power of antitoxic serum to act as a prophylactic against a possible attack of diphtheria is in proportion to the rigor and healthy blood condition of the individual in whom it is employed; but the very minute dose administered for this purpose is evidently capable of being soon broken up by cellular action in the healthy.

"We can, therefore, understand the general admission as to the evanescent character of the immunity so obtained. Moreover, reports of cases are not wanting in which noxious and even fatal results have followed the use of serum when employed as a prophylactic.

"On all these grounds, therefore, we do not feel justified in recommending serum for this purpose. More real methods of preventing the spread of diphtheria are to be found in improved sanitation, in prophylactic surgical treatment already detailed, and in efficient isolation and disinfection."

It is pointed out that in many of the continental hospitals where the results of serum-therapy are asserted to show such remarkable diminution of mortality, that the former mortality statistics in the same hospitals were greatly in excess of those obtained by strict adherence to the classical treatment so ably carried out in some of the British hospitals.

The JOURNAL in thus giving its readers the conclusions of one of the ablest specialists of London, wishes once more to emphasize the necessity of making haste slowly in accepting every continental fad that is forced upon us. Let the memory of the BERGERON treatment, and of the tuberculin be a sufficient warning, without making ourselves ridiculous by undue haste. There are so many opportunities for having new theories tested on a large scale in the world's great hospitals, that the general practitioner may well exercise patience while the great problem is being worked out. In the matter of diphtheria let us remember that wherever the disease is *immediately treated* by appropriate local remedies, recovery is the rule. Frequent inspection of the children's throats, and thorough cleansing of the nasal passages, will prevent the disease in many cases. Prevention is not only better than cure, but the dangers of hitherto unknown horse toxins, may be avoided.

Larger and more extended experiments, which we would by no means discountenance, may indeed demonstrate the truth of the claims brought forth by those anxious to herald a new discovery, but in the meantime the general practitioner can afford to adopt more stringent precautionary measures, more active local methods, and WAIT!

¹ Diphtheria and its Associates, 1895.

THE NEEDS OF THE MEDICAL DEPARTMENT OF THE NAVY.

The annual showing of the Surgeon-General of the Navy exhibits the medical corps of that service at a still lower level in its *personnel* than a year ago. One by one, its men of experience are lopped off from the top by the statutory limitation of age, though in the full vigor of mind and body, while a rare addition to its foot at long intervals, of an occasional recruit fails to arrest its steady ebb. Fourteen vacancies in a corps which only consists of 170 members, when its ranks are filled, at a time when employment is eagerly sought by young men in every vocation, are significant of something wrong in a body which was once recognized as the *corps d'élite* of the Naval Service.

The examinations for admission are no more severe than formerly, and are probably not so exacting as in the days of the old Philadelphia Board, when it was considered high honor to pass its ordeal and when men were examined in anticipation of vacancies, which sometimes did not occur within the year, compelling the successful candidate, for whom there was no place, to submit again to a trial a year later. Then faculties urged the brightest of their graduates to go before the Naval Medical Board, and rival colleges took pride in the number of their men who passed. To-day there is not a school or teacher in the whole land that does not dissuade their young men from entering the Naval Service. The reason is plain enough—the unsatisfactory position of the medical officer of the Navy, and the relative inferiority of his status and pay to those of his professional brethren in the Army. The profession properly resents the degradation of the bearers of its diplomas to the level of school boys from the Naval Academy, and the studied contumacious treatment to which they are subjected throughout their whole career by the tyrants of the quarter-deck.

The leading national medical organizations have appointed committees during the past year to urge upon the next Congress, now about to convene, remedial legislation looking to the elevation of the status, pay and emoluments of the Naval medical officer to those of the medical officer of the Army; though the Army itself has cause for complaint in the matter of its insufficient numbers, but its medical officers are officers in fact, as well as in name, and they are recognized and treated as such, without any of the wretched evasions and discriminations which prevail in the Navy. An Army medical officer *commands* his hospital; a naval medical officer is only “in charge” of a naval hospital, though in it there may be two or three hundred officers, employees and patients, enlisted men, sailors and marines, who are subject to his orders, who are punished by him for infractions of discipline, and who in all things bear the same relation to him that the officers and

crew of a vessel or those at a shore station do to the line officer at their head; yet though the latter be only an ensign or even a cadet, and his vessel a tug-boat or a mud scow, he *commands* the half-dozen men who constitute its complement. In the Army the Surgeon-General himself orders boards of medical officers to do the duty required of them and to report to him; the Surgeon-General of the Navy can only request that the line commandant of a station “*may be pleased to order*” a board of medical officers to do precisely the same duty, and the commandant orders that the board shall report its findings *to him* in triplicate, though it be concerning a strictly professional matter, of which he is entirely ignorant and therefore incompetent to judge and approve. When associated boards of Army and Navy medical officers are engaged upon the same investigation, the ridiculous and humiliating difference is bitterly felt by the Naval medical officers. In the Army, medical officers sit as members of general courts-martial for the trial of line as well as staff officers, and when senior in rank, act as the presiding officer; while in the Navy, medical officers are only permitted to be members of such courts when one of their own corps is under trial, and then only in a helpless minority.

During one of the many futile attempts to obtain from the line of the Navy the equivalent status for medical officers which is unhesitatingly accorded in the Army, one of them was asked to explain his idea of the relation of the senior medical officer of a naval hospital to his subordinates, and he replied: “Oh! he does not command them. He only *exercises disciplinary control* over them;” and this in face of the fact that the medical officer’s commission as an officer of the Navy is framed in identical terms with that of the line officer, requiring obedience to his orders from all officers, seamen and marines under his command.

What wonder then, that the Navy is divided into two irreconcilable hostile camps? It is idle to expect common sense or justice from men who advance such puerile quibbles as argument, and it only remains for Congress to take the settlement of the naval *personnel* in its own hands and by adopting the Army model, forever end the unhappy contentions which disgrace the naval service, and for which there is no precedent in any foreign service. Especially do we urge this necessity upon the ten or twelve medical men who are annually returned as Representatives of the people, and who can, for the good name of the profession to which they belong, put a stop to the indignities their colleagues in the Navy have so long suffered.

The regular edition of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION this week, is the largest ever issued.

MODIFICATION OF THE "RED CROSS OF GENEVA" AS THE PROPOSED SYMBOL OF MEDICINE.

Some of our friends find time to work out the symbolism and esthetics of their profession. When they do this cunningly and tastefully they well merit our thanks. Accordingly, the editor of the *Boston Medical and Surgical Journal*, in his issue for Nov. 14, has our gratitude, since he appears to have hit upon a proposition that may meet with a very general approval. His advice, in brief, is that the Geneva Cross, somewhat modified, be adopted as the emblem of medicine, whether in art, literature or organized undertakings.

It appears that the question of proper insignia has been under consideration by officers of the medical department of the Army. When their conclusion shall have been reached such selected insignia will probably also be accepted by the militia of the different States. Possibly the medical department of the Navy will adopt the cross, with a suitable distinctive modification.

The editor of that journal says: "Recently published remarks concerning a distinguishing device for the medical department of the Army bring to mind the whole subject of medical symbolism, in both its civil and military application. After extended research among the histories and other records of ancient and modern times, together with observation of customs yet extant among socio-religious communities, a form has been found which appears to answer the requirements necessary to appropriate insignia by which to characterize medicine. It is well known, to those informed in such matters, that the caduceus—the emblematic staff and serpents—also serpents in different postures and variously associated with other objects, and the cross in its many forms and combinations, are outgrowths of one and the same root. Numerous other things, more or less used as symbols of medicine, such as the oak, palm, gallus, *et alia*, have the same origin. Moreover, the Geneva Cross, of the Red Cross Society, is now recognized the world over in its best practical application.

"We have here, therefore, a proper symbol of the healing art, fitting in its origin, significance and actual use by civilized humanity. The ordinary design might be improved upon by lengthening, very slightly, the arms of the cross, so that the square forming the center would be a trifle smaller than the corresponding part of the actual Geneva Cross. This variation is recommended for the reason that in the common form of the red cross, the great mass of color in and about the center causes an apparent lack of proportion, by making the middle square look larger than it really is. This optical illusion would be corrected by this suggested modification. For use on military uniforms the cross might be of some handsome shade of red, made of durable material set in gold. If the red cross is used as a medical emblem, it should be recognized that it is of international significance, and

a red cross with gold about the edges is ornate and might serve for a collar device to designate a medical officer."

The red cross is an emblem of neutrality, and should be easily distinguishable at a distance, and thus protect those who by the treaty of Geneva are classed as non-combatants, though it is probable that, with the present long range firearms, non-combatants, whether medical officers or newspaper correspondents, will have to take the common chances. There is one other suggestion that may be made in the carrying out of the hints given in the foregoing paragraphs; namely, the central square made by the four outlying arms may be left uncovered, so as to receive a lettering or emblem suitable to the respective subdivision of the army, navy or militia. This central square may be graded by the use of gold, silver or other materials, for higher and lower ranks, or other distinctive markings or colors may be developed according to the variant occasions for differentiation.

THE EVILS OF A LIMITED TENURE OF OFFICE OF HEALTH OFFICER.

By reason of a strong paper before the recent meeting of the British Medical Association, read by Dr. WHITELEGGE, on the above subject, a concerted movement is being made in England to secure a fixity of tenure of Medical Officers of Health in a greater degree than already exists. A far larger proportion of English sanitary officers has permanency of tenure than is the case in this country, but altogether too large a number feel the pinch of uncertainty and its accompanying handicaps. The editor of the *Sanitary Record* comes trenchantly to the front on behalf of these slighted officials, whose very livelihood may be in jeopardy from the caprice or parsimony of the respective local boards of more or less ignorant and politically-inclined laymen. Politics and health administration mix with as little facility as do oil and water—when they do mix, to any good purpose, it is by dint of prolonged agitation. The agitation in this particular instance has been begun, and will without doubt be continued to the end. In this country, no such beginning has been made and can scarcely be hoped for until we have, at least, as a starting-point for the building up of a consistent and uniform code of sanitary regulations, a NATIONAL DEPARTMENT OF HEALTH.

The remarks of the editor of the *Sanitary Record* on fixity of tenure for medical men in sanitary life are, in part, as follows:

That it is in the highest degree desirable that competent officers should be so far independent as to be able to act in the way they deem best for the public good without the fear of dismissal or of reduction of salary, should they, in the performance of their plain duty, give offense to a member of the Board, or to some person of local influence, no one can seriously doubt, but the question is by no means so simple as

that of securing the like protection for the Sanitary Inspectors; for the duties of these latter officials, and the areas over which they exercise them, are not likely to undergo any very great change. But the medical branch of the sanitary service is at present in a state of chaos, presenting a serious obstacle to progress, which it would be folly to perpetuate. Though some few Medical Officers of Health have succeeded in combining the efficient performance of their official duties with private medical practice, their cases or their circumstances have been exceptional. The ordinary practitioner finds himself hampered at every step; his attention is divided, his time is not his own; the calls and interruptions of practice render continuous investigations wellnigh impossible, and every difficulty felt by the Medical Officers of Health at the mercy of a Board is felt a hundred-fold more painfully by a man who can not afford to give umbrage to his patients, to say nothing of possible friction with other medical practitioners. Twenty years ago such appointments were a practical necessity, but it was, doubtless, in view of their gradual supersession in the not distant future by others of experts to larger areas, that these were made in the first instance for periods not to exceed five years. Some of these men have developed into experts, a new generation of specialists has arisen, and a number of whole-time appointments and of combined districts have been created without our being much nearer the realization of the ideal, since the appointments originally intended to be provisional are repeated on all sides, and those fulfilling the conditions required for permanency are still made temporary.

The question is one that only a strong Government can take in hand, but the present time seems most opportune. No doubt the army of small officers who add various sums from £5 to £100 to their incomes by accepting or assuming functions for which they have no special aptitude, just as they would take the more congenial work of a club or a poor-law appointment, will resist the change, but it must not be longer delayed, and for any medical officers who really have their hearts in the work, plenty of room could be found in the new combinations.

OVERDONE STERILIZATION.

There is a golden mean in all things and even the most salutary and sanitary practices can be carried to excess. In what may be termed microbophobia, the extremes of caution as to the exposure to pathologic germs, there may be a danger on the other side; one may, in avoiding the Scylla of organic infection fall into the Charybdis of chemical poisoning, or starvation. These thoughts are suggested by a paper by DR. LOUIS STARR in the December number of the *American Journal of the Medical Sciences*, in which he gives details of three cases of infantile scurvy due to the exclusive use of sterilized milk; and he further states that he has seen five other cases in consultation within eighteen months. He attributes the disease to the alterations that occur in the milk during the process of sterilization, especially in the lactalbumin which has its solubility diminished, and in the fat globules which coalesce with each other

and with some of the insoluble albuminous matters. All the cases recovered promptly on a diet of unsterilized milk together with raw beef juice and orange juice and tonics.

DR. STARR seems to have no doubt as to the chemic nature of the toxic agent, but the suggestion is not a very unnatural one that there may be even some organisms in the diet that are beneficial if not essential to its wholesomeness. It is, it is true, generally held that the enzymes or unorganized ferments play the chief part in human digestion, but the final word has not yet been spoken on the question and there may still be a possibility of a certain utility of the lower organisms in digestion in man as there is undoubtedly in the herbivora, or the microbes, while not acting directly in digestion may, by their presence and products, indirectly aid the chemical changes in the process. While admitting the probability of the chemical alterations caused by the sterilization process being sufficient to account for the phenomena of innutrition and scurvy that were observed, it may be as well also to not altogether lose sight of other possibilities.

In our warfare against pathogenic germs it is well to remember that, as a rule, they require a suitable soil for their development, a point of least resistance for their attacks, and that most of them are comparatively harmless where this is lacking. We send consumptives to swarm together in Colorado and California, and to their advantage, notwithstanding the concentration of infection we thus produce; and likewise, whenever we lower the systemic tone by seriously modifying natural processes and conditions we open the way not only to outer infection, but perhaps still more to the dangers of auto-intoxication from the toxins produced in the system which require its normal condition for their safe disposal.

There is an extreme in this matter, that, baldly stated, would seem to any one ridiculous, such as the carbolated kiss; but there are more common practices less radical than this that fall somewhat short of the sweet reasonableness that should govern the conduct of a scientific physician, and, as we have seen, even apparently rational procedures sometimes fail of being fully on the safe side.

It is not intended here to say anything against reasonable precautions, but simply to call attention to a possible danger from lack of a comprehensive view of all the possibilities in any particular case.

SALE OF MEDICINES IN ORIGINAL PACKAGES.

The "original package" and "interstate commerce" contention has now, after a season with almost everything else ranging from liquors to pianos, been attached to the sale of medicines. Iowa has a statute which requires, under penalty, that any itinerant vendor of any drug, nostrum, ointment or appliance

of any kind intended for the treatment of disease or injury, who shall by writing or printing or by any other method publicly profess to cure or treat diseases or deformity by any drug, nostrum, manipulation or other expedient, shall pay a license of one hundred dollars per annum, to be paid to the treasurer of the commission of pharmacy. This statute, it was argued in the case of *State v. Wheelock*, decided by the Supreme Court of Iowa, Oct. 10, 1895, is repugnant to the clause in the federal constitution which provides that Congress shall have power to regulate commerce among the several States. The defendant here was an itinerant vendor of drugs and nostrums, without a license, within the meaning of the State statute, while the medicines he sold were in the original packages in which they were shipped into the State. Thus was fairly presented this important question.

To begin with, the courts admits that the power vested in Congress to regulate commerce among the several States is a power complete in itself to prescribe the rules by which that commerce is to be governed; that it is coextensive with the subject on which it acts, and can not be stopped at the external boundary of a State, but enters it, and is capable of authorizing a disposition of articles of commerce so that they become a part of the common mass of the property within the State. But, citing several decisions of the Supreme Court of the United States, it says that it has been held that State laws which do not discriminate between residents and products of a State and those of another State; which are not designed to interfere in any manner with interstate commerce, as those, for example, which are in the nature of a simple tax upon sales of merchandise, imposed alike upon all persons, whether residents or non-residents of the State, are not repugnant to the constitutional provision in question. However, after pointing out that there is no discrimination in the statute under consideration, the court goes on to state that its primary object is not to derive a revenue for the use of the State, but in large part, at least, to protect its citizens against solicitations and harmful practices of irresponsible and unknown traveling vendors of drugs and other articles intended for the treatment of diseases or injury, who, in carrying on their business, publicly profess to cure or treat diseases, injuries, or deformities and thus promote the sale of their wares to the credulous. Indeed, the act here prohibited might be committed without any actual sale.

The conclusion of the court is that the enactment in question is within the police power of the State. Narrowing the discussion, it says that the right to sell, in original packages, medicines brought from another State, does not include the right to have sold by an unlicensed itinerant, who, to make sales,

professes knowledge of the art of healing. Statutes which apply to such sales are not, in any sense, regulations of interstate commerce, but a reasonable exercise of the police power of the State, which may be applied as well to articles of interstate commerce in the hands of the vendor, and offered for sale in the original packages, as to articles produced within the State.

The amount of the license fee required by the statute, the court declares not to be excessive, and the regulations thereof, it pronounces reasonable.

THE DEPARTMENT OF PUBLIC HEALTH.

As announced in our Washington column last week, the Chairman of the Committee on the Department and Secretary of Public Health, Dr. JEROME COCHRAN, has appointed an auxiliary committee in Washington, consisting of Drs. H. L. E. JOHNSON, S. C. BUSEY, C. H. A. KLEINSCHMIDT and J. R. WELLINGTON. The Association bill has not been introduced this session, but the old Bureau bill has been introduced in the House. The Association does not ask for a Bureau; it wants a Department, and intends to be satisfied with nothing less.

CORRESPONDENCE.

The Atlanta Meeting.

ROCKFORD, ILL., Dec. 6, 1895.

To the Editor:—Permit me to suggest that the Transportation Committee of the Association soon begin considering and agitating the question of railway rates to the meeting at Atlanta next May. It is not sufficient that transportation be secured for the editors of medical journals who have secured a square or half-page of advertising from railways and connecting lines to Atlanta. These journals may "whoop up" the meeting, but the rank and file, the bone and sinew of the profession, will not get there unless some generous concessions are made by the transportation companies.

Would it not be a good plan to secure a pledge in advance from the city or cities bidding for the Association to guarantee a cheap railway rate? The G. A. R., the political and the secret society conventions do this, or begin work early to secure minimum rates. The National Teachers' Association has just secured a rate of one cent per mile to Buffalo. The Knights of Pythias are contesting for the same, and the G. A. R. had this guaranteed in advance for the last three years. There is no reason why the AMERICAN MEDICAL ASSOCIATION should receive less consideration from these corporations than other organizations. I was going to say kindred organizations, but there is no Association that is akin to ours in any sense as far as regards great good to the common community of humanity; certainly the very antithesis of railway corporations in humanity's arena.

The JOURNAL has now secured a place and has a strength in affairs in the profession and out of it that will command attention. It outranks all other medical journals, and securing a large attendance at the meetings will secure a large subscription, and members will soon learn that the JOURNAL fills all the requirements of the general practitioner, and that he can dispense with the subscription price of three or four for which he has been paying and apply the same toward liquidating the expense of his trip the ASSOCIA-

tion meetings where he may, after a few successive attendances, acquire confidence enough to rise and express his views, not leaving the entire field of discussion to self-assured specialists or practical politicians and parliamentarians.

D. L.

Women Medical Missionaries.

BOSTON, MASS., Nov. 30, 1895.

To the Editor:—We are desirous of finding a fully qualified medical lady to go to Ceylon as a missionary of the American Board of Commissioners for Foreign Missions at as early a date as possible (not later than Oct., 1896), to open the work of the Woman's Medical Mission in North Ceylon. The new buildings are in process of erection and will be completed according to the contract, furnished throughout and ready for occupancy within a few months. The Medical Mission House for the residence of the lady doctors, is large and commodious. The hospital will accommodate about forty patients. The Nurses' Training Home will accommodate sixteen nurses and a matron. Dr. Louisa H. Grieve (who is acting as a temporary supply until two permanent lady doctors can be secured for this work) has, at the branch dispensary, two days in each week, from fifty to one hundred patients each dispensary day. The branch dispensary will be continued and the new dispensary, which is ten miles distant, will probably receive as many patients. The American Board of Commissioners for Foreign Missions, the oldest and one of the most responsible Missionary Societies in the United States, which, on our recommendation, will appoint the lady doctors and have the general supervision of their work, will provide for the two medical ladies the usual allowances toward outfit, passage and salary, and will provide sufficient funds for the support of a staff of native helpers and for the current expenses of this Medical Mission for Women.

Location. The northern province in Ceylon, in which the Woman's Medical Mission is located, has a population of 300,000 people, all of whom speak the Tamil language. All the women and children would be accessible to the lady doctors.

Missionary Work. Ten missionary families, connected with three societies, are carrying on missionary work. There are about 3,000 native Christians who are communicants, and about 15,000 children under instruction in mission schools.

Medical Mission Work. Rev. Dr. and Mrs. Dr. Scott, both fully qualified doctors and missionaries of the A. B. C. F. M., have the oversight of the Medical Mission for men, which is located about a mile distant from the W. M. M. Last year they treated over 4,000 patients, and they are now enlarging their hospital accommodation. They have expressed their willingness to act as consulting physicians to the W. M. M.

Funds. The value of the land, buildings, furniture, equipment, medicines, instruments, and cash in hand of the W. M. M. is over \$20,000, and the annual income is estimated at about \$3,000.

Climate. The climate is an even one, the thermometer ranges from 78 degrees to 93 degrees in the shade. The rainfall averages about forty inches in a year. The dry heat is less enervating than the moist heat of many other places in Ceylon and India. Missionaries have lived and labored, in not a few instances, for thirty, forty, and in some cases even fifty years in this Province.

If any fully qualified medical ladies who are readers of your journal, and who have work in the foreign field in view, would write to us, we would gladly give them any further information they might desire regarding this work.

Yours truly,

MARY AND MARGARET W. LEITH.

The Oldest but Latest Fad—Hypnotism.

To the Editor:—You will agree with me that it is a difficult matter to make *one cause* explain all phenomena. Sometime in the past I wrote an article for the JOURNAL under the heading, "Modern Insanity" and in a jocular way put it as a cause of many unique acts. At that time I had not "read up" on "Hypnotism." Since reading the last number of the JOURNAL I have reason to modify some of my views. Hypnotism in its latest phase assists wonderfully in explaining a phenomena heretofore not understood. For instance. *One* who is a *multiplex personality* can say in regard to his *unusual* acts, that Number 2 or Number 3, did the act, and therefore Number *one* is excusable. Whether or not he could make a court or jury believe him is another question. The average juror looks upon himself as a *unit* and may be hard to convince that any other individual is *more*. Evidently the "Fool Killer" is dead or has ceased work. How a medical man can be led astray by such idiotic "fads" as spiritualism, hypnotism, clairvoyance and other superstitions is hard to understand; and how a man can believe in hypnotism and yet not believe in "faith cures" is still another mystery. The idea that a man can influence another hundreds of miles away without any means of communication is not mysterious but simply untrue. The believers in hypnotism all agree that a man can not be hypnotized who is not willing. Does this not prove that hypnotism is not a *remedy*? Can a man by will power alone resist the influence of remedies? Can he keep calomel from purging or ipecac from vomiting by will power? Does it not "make you tired" to think that leading men in the profession will not only listen to this preposterous "fad" but will write it up, and indorse it in the leading medical journal in the United States? I am a little surprised that the editor allowed the "fad" space. When a man loses his identity and becomes two or three or a dozen different men then it is time to quit. When I am in a happier mood I may say more along this line, but for the present am done. Very respectfully submitted,

W. P. HOWLE, M.D.

Oran, Scott Co. Mo.

The Sun Glass as a Caution.

WASHINGTON, D. C., Dec. 10, 1895.

To the Editor:—I notice in the last issue of the JOURNAL, a reference to the use of the sun glass as an actual cautery. Permit me to call attention to the fact that this is one of the oldest cauteries. Pliny, writing in the first century, Book XXXVIII, chap. 10, (Bohn's edition), says:

"I find it stated by medical men that the very best cautery for the human body is a ball of crystal acted on by the rays of the sun."

It is unfortunate that Pliny forbore to give his authority for I can find no other reference to this method of cautery in the ancient writings that I have consulted. Perhaps some of the learned readers of the JOURNAL may inform us.

Truly yours,

AN OLD MEMBER.

Sulfonal in the Vomiting of Pregnancy.

ALLISON, IOWA,

To the Editor:—I have found this medicine a sure relief for this most obstinate trouble. I have been using it over a year, have recommended it to neighboring physicians and never knew it to fail. Those who have tried it say it works like magic. It will relieve hiccough as effectually as well. My method of giving is 10 to 15 grains (60 to 1), dissolved in two tablespoonfuls boiling water, and given as hot as the patient can bear it. Sulfonal will stop vomiting of most any character, the quickest, safest and surest of any remedy in the category of medicine. I believe every physician should know this and hope the JOURNAL will pass it around.

S. E. BURROUGHS.

PUBLIC HEALTH.

Hygienic Examination of Water.—At the twentieth meeting of the Society for the Care of the Public Health, at Stuttgart, in September, Flügge's opinions were embodied in the following conclusions: 1. The usual hygienic consideration of water, based solely on the clinical, bacteriologic and microscopic examination of submitted samples are in almost all cases worthless. 2. A single examination of a water must consist first of an inspection and an expert investigation of the source and nature of the surroundings. In many cases this alone will decide as to its safety for use. Usually a rough, physical examination and a determination of the iron and the hardness are a desirable addition. Seldom is a further clinical, bacteriologic or microscopic examination necessary to make the decision sure. In case of a new supply of ground water the freedom from germs must be especially assured. 3. For the continued control of water supplies, the bacteriologic and sometimes the clinical analysis is advantageous. The hygienic importance of noteworthy results of analysis is generally to be gathered only from the repeated inspection and examination of the sources of supply.—*Deutsche Medicinische Wochenschrift*, Oct. 31, 1895.

The House We Live In.—This is the advice of the late lamented Prof. J. M. Coates: "Think deliberately of the house you live in, your body; make up your mind firmly not to abuse it; eat nothing that will hurt it; wear nothing that distorts or pains it; do not overload it with victuals or drink or work; give yourself regular and abundant sleep; keep your body warmly clad. At the first signal of danger from the thousand enemies that surround you, defend yourself. Do not take cold; guard yourself against it; if you feel the first symptoms, give yourself heroic treatment; get into a fine glow of heat by exercise; take a vigorous walk or run, then guard against a sudden attack of perspiration. This is the only body you will ever have in this world. A large share of the pleasure and pain of life will come through the use you make of it. Study deeply and diligently the structure of it, the laws that should govern it, and the pains and penalties that will surely follow a violation of every law of life or health."—*Indian Med. Rec.*

Boiled Water a Preventive of Autumnal Fevers.—The *Bulletin* of the Tennessee State Board of Health, for November 20th, contains a discussion of the prevention of the fevers that follow a hot and dry summer in the southern belt of States. From the first settlement of Tennessee and the surrounding States it has been noted that a long, hot, dry summer or autumn was the sure precursor of the unusual prevalence and virulence of malarial fever. This axiom has never failed in its forecast. It is equally true now as it was in the early quarter of the present century. Those who have been wise, even from earlier days, have found their advantage in the boiling of their drinking water. Moreover, it is now known that the great prevalence of the fevers of the fall is not dependent wholly upon the climate, high temperature and decaying vegetation, but more upon the condition of the water supply in the regions affected. To quote the pen-picture as sketched in the *Bulletin*: "The long-continued drought converts beautiful creeks into rocky beds, with loops of stagnant pools. The springs often go dry. The wells are almost empty. Thus the water becomes foul from seepage, and no longer fit for drinking." It is important, therefore, to press home the simple preventive measure of water-boiling upon the attention of the millions inhabiting the richest fields of the South and Southwest. This vast region has been captiously condemned by many writers because of the autumnal fevers. "It has been pronounced a malarial-cursed region, always doomed to mental inferiority thereby. In all districts above described, the practice should be universal of boiling all water intended for drinking; also, this water should be cooled in covered vessels, thus avoiding contamination by any impurities in the atmosphere." The closing paragraph of the *Bulletin* is, in effect,

as follows: "If this simple and cheap means of changing very unhealthy water into innocent drink were universally adopted in all the malarious districts throughout Tennessee, the country would be as free from malarial affections as are the cities. In our cities the few cases of autumnal fever that occur, especially if they be called typhoid, attract much attention and alarm. In the country they are hardly noticed, because of their common occurrence. At present, it may be safely affirmed that a hundred thousand Tennesseans, or neighbors, living within a city, are in better health than the same number dispersed through the hills and valleys of two or three beautiful counties. In the city sanitation has become a main object with the people. In the country they are still asleep." *Boil the water.*

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Arizona: Nogales, Dec. 1, 1 case.
Michigan: Detroit, Rochester and Park townships, Nov. 23 to 30, smallpox reported.
Louisiana: New Orleans, Nov. 23 to 30, 11 cases, 1 death.

SMALLPOX—FOREIGN.

Nogales, Mexico: Dec. 1, 1 case.
Madrid: Nov. 12 to 19, 9 deaths.
Montevideo: Oct. 26 to Nov. 2, 8 cases, 1 death.
Odessa: Nov. 9 to 16, 7 cases, 1 death.
Rio de Janeiro: Oct. 19 to Nov. 2, 130 deaths.
Rome: Nov. 14 to 21, 1 death.
Rotterdam: Nov. 16 to 23, 4 cases.
Warsaw: Oct. 26 to Nov. 16, 2 deaths.

CHOLERA—FOREIGN.

Bombay: Oct. 29 to Nov. 5, 6 deaths.
Calcutta: Oct. 19 to 26, 36 deaths.
Ceava: Oct. 24 to 31, 2 cases, 2 deaths.
Osaka and Hiogo: Oct. 26 to Nov. 2, 1 death.
Yokohama: Oct. 25 to Nov. 1, 4 cases, 4 deaths.

YELLOW FEVER—FOREIGN.

Cienfuegos: Nov. 24 to Dec. 1, 4 deaths.
Rio de Janeiro: Oct. 19 to Nov. 2, 13 deaths.
Vera Cruz: Nov. 21 to 28, 1 death.

RIO DE JANEIRO, NOV. 5, 1895.

Supervising Surgeon-General WALTER WYMAN, SIR: I have the honor to remit report for the week ended Nov. 2, 1895.

There were ten deaths from *accessio pernicioso*, an increase of 2; 9 from yellow fever, an increase of 5; 54 from smallpox, a decrease of 26; 2 from Beriberi, a decrease of 2; 3 from enteric fever, the same as in the foregoing week; 45 from tuberculosis, a decrease of 10; and none from measles or whooping-cough. From all causes there were 338 deaths, a decrease of 65.

Yellow Fever—With the late increase in the temperature, there are appearing more cases of this disease, though, as yet, there is nothing to cause alarm, there appears to be a general uneasiness on this subject.

Smallpox—In this week there is a great decrease both in deaths and cases of this disease, though it is still rife enough, and in the last three days it is still declining, what was to be expected with the hot weather. In Victoria it still persists though it is further toward the equator; to the south and in the interior towns it is declining according to telegraph reports.

Respectfully yours,

R. CLEARY, M.D.,
Sanitary Inspector, M. H. S.

NECROLOGY.

EPHRAIM W. BULL, M.D., of Concord, N. H., died Sept. 27, in the ninetieth year of his age. He was a benefactor of his fellow countrymen in the discovery of the Concord grape-vine and some others not so well known. A writer in the *Independent* writes of his career as follows: "Dr. Bull was a native of Boston and physician there until ill health compelled him to give up his practice, in 1882, and remove to Concord, where he bought a small place about a mile from the station. He was a lover of flowers and fruit and a close observer of nature. The stories differ as to how he discovered the parent of the Concord vine. The common one has been that Dr. Bull noticed a wild vine of the *Vitis Labrusca*

species growing on a fence, the fruit of which seemed a great favorite with the birds. The skin of the berries was thin and tender and the flesh sweet and pulpy. He removed it to his garden where it still remains, and grew thousands of seedlings from it, one of which became the Concord. A visitor to the place has stated that Dr. Bull told him he found the original vine on the place, removed there by a former owner. Another account says that the Concord itself was the vine found growing along a woodland path. However, the fact remains that it was Dr. Bull who long and patiently experimented to improve and make the best of the native vine."

J. EDWIN MICHAEL, M.D., dean of the University of Maryland, died at his home in Baltimore Dec. 2, of Bright's disease. Dr. Michael was born in Hartford county, Md., May 13, 1843. His parents were extensive land-owners. After receiving his early education in the schools of the county and being prepared for college by a private tutor, he entered Princeton, graduating in the class of 1871. He then came to Baltimore and entered the medical department of the Maryland University, from which he graduated in 1873. He was not known as a brilliant student at first, failing twice in anatomy, the branch he afterward made his specialty. After leaving the University he traveled through Europe, taking courses in medicine in Vienna and Wurzburg. On his return to this country Dr. Michael settled in Baltimore, where he built up a large practice. In 1876 he was elected demonstrator of anatomy in the University of Maryland and professor of anatomy and clinical surgery in 1880. In 1890 he was elected to the chair of obstetrics, immediately following his election to the deanship of the University. He was a member of the American Surgical Association and ex-president of the Clinical Society of Maryland. At the time of his death Dr. Michael was president of the Medical and Chirurgical Society of the State.

DAVID M. MILLER, M.D., of Elizabeth, N. J., who died at his home Dec. 3, was prominent as a surgeon in Union and adjacent counties of his native State. He was born in 1858 in Jersey City, and educated in arts at Princeton College, and obtained his medical degree from the College of Physicians and Surgeons, New York, in the class of 1883, and soon after settled permanently in Elizabeth.

PROF. VOITOV.—The death is reported from the Crimea of M. Voitov, Professor of Bacteriology in Moscow, who has fallen a victim to his favorite science.

LUTHER PATTEE, M.D., of Manchester, N. H., died Nov. 27. He was born in Warner, N. H., Dec. 1, 1831, and was the son of Asa Pattee of that place. After a thorough preparation under the direction of various medical men he entered the medical school at Woodstock, Vt., from whence he was graduated in 1853. After practicing medicine in Canada for several years he removed to Manchester, where he remained until 1870, at which time he went to Boston. After practicing in that city nearly five years he returned to Manchester, where he has since resided.

A. J. SAYLOR, M.D., of Frankfort, Ind., Dec. 1, aged 45.—John A. Jones, M.D., of Mansfield, Ohio, Dec. 3, aged 64. He leaves an estate valued at \$200,000.—A. J. Hobart, M.D., of Columbus, Iowa, Dec. 6, aged 67.—H. K. Palmer, M.D., of Pueblo, Colo., Dec. 7, aged 65. He was a brother of Senator Palmer, of Illinois.

SELECTIONS.

Physicians in the French Ministry.—The new French Ministry includes three representatives of the medical profession. M. Berthelot, the Minister for Foreign Affairs, is a member of the Institute and of the Academy of Medicine; he took the M.D. degree in 1865. M. Viger, the Minister of Agriculture, and M. Combes, Minister of Public Instruction, are also Doctors of Medicine. MM. Berthelot and Viger have each already formed part of several ministries. M. Combes, who now for the first time holds a portfolio, is Vice-President of the Senate, in which he sits for the Charente Inférieure.—*British Medical Journal*.

Military War Trains.—The Canadian Pacific Railway, after many months of labor, has constructed at an enormous cost two special military or war trains, comprising fourteen cars for men, two cars for cooking, two Pullman cars for officers, two cars for arms and stores, and two dining cars. The officers' cars are luxuriously fitted out, and contain state rooms, lavatory, smoking room, etc. Each train is composed of eleven cars and engine, and gives ample sleeping accommodations for 306 men and 15 officers, although over 100 more men could find room. The men's cars are well finished and furnished with modern improvements. The kitchen car has all the utensils of a large-sized hotel, and requires six cooks and two helpers. This one car can turn out over one thousand five hundred meals a day. During a trip from Halifax to Vancouver on the war train, 5,500 meals for officers and men were prepared. The Canadian Pacific Railway expect to cover the distance from the Atlantic to the Pacific in five and a half days.—*British Medical Journal*.

Anthrax Septicemia in Man.—Blumer (Bulletin of the Johns Hopkins Hospital, vol. vi, Nos. 54 and 55) describes an unusual case of anthrax septicemia in a man, associated with acute endocarditis and peritonitis due to anthrax bacilli. The patient was a laborer 59 years old, employed in a hair factory, who scratched his right eye with his hand while working with hair from South America. The following day the eye was swollen and on the second day still more so. By means of incision a thin fluid was obtained from the eyelid which was found to contain anthrax bacilli in pure culture. Four days after the onset of the swelling, there was some fever while the edema had extended over the face and head, especially the right side. A day later, symptoms of interstitial disturbances and of peritonitis developed. Death occurred six days after the first sign of any swelling about the eyelids had made its appearance. At the autopsy there was found, in addition to the edema of the subcutaneous tissue, a recent vegetative mitral endocarditis, a sero-hemorrhagic peritonitis, and acute anthrax lesions of the intestines. The bacteriologic examination showed anthrax bacilli in the heart's blood, the spleen, the peritoneum, the liver and the lung. The especially interesting features in connection with this edematous form of anthrax, which is certainly very unusual in this country, are the clinical symptoms of intestinal lesions and peritonitis and, anatomically, the development of an anthrax endocarditis upon a previously normal valve.

A Case of Tuberculous Parenchymatous Keratitis.—Zimmermann (*v. Graefe's Arch. f. Ophthalm.*, Bd. xli, No. 1) records a case of parenchymatous keratitis which he observed clinically and subsequently subjected to microscopic examination. The clinical course was that of a parenchymatous kerato-iritis, while the microscopic findings showed a well-marked tuberculosis of the cornea, the sclera, and the iris, the posterior portion of the eye being free from tuberculous changes. Except some ozena there were no other disturbances in the health of the patient, who was free from hereditary influences. The especially interesting feature in this case is the demonstration of a well-marked tuberculosis in the cornea with giant cells and tubercle bacilli. In spite of the negative clinical history and objective examination the author believes that the process is not due to a primary, but to a secondary infection of the eye.

MISCELLANY.

Fatality from Overeating.—The New York papers contain an account of a remarkable case of gluttony with a tragic ending. Last Sunday a man indulged in seven pickled pig's feet, or "Triblys," as they are called. Twenty-four hours later he was dead; *causa mortis* acute indigestion and colic.

Increasing Volume of Medical Work by Missionaries.—The Church Missionary Society is one of the largest and best endowed of the organizations of that kind in England and in the world. It is constantly making use of the medical man as a missionary and conservator of their forces in the numerous fields in the uncivilized world. In 1894 there was a considerable hospital extension; there were 5,000 in-

patients under hospital treatment, and 370,000 out-patients. These are probably the largest annual totals ever presented by this or any other similar society.

Tuberculosis Loves a Shining Mark.—The fell leveler phthisis has his relentless hold upon the brother of the Czar of all the Russias, and the condition of that prince is precarious. The following is the latest item of news by cablegram:

Drs. Simanovski and Sheresleffski, court physicians, have been summoned to Abbas-Tuman, in the Caucasus, to attend the Grand Duke George, the czarowitz, whose condition has become very much worse. The dowager czarina, the grand duke's mother, and her daughter, the Grand Duchesse Xenia, and her husband, are also hastening to the czarowitz' bedside.

Bad Basis for Expert Opinion.—It is not competent, the Supreme Court of Minnesota holds, in the case of *Miller v. St. Paul City R. Co.*, decided Oct. 15, 1895, for a medical expert to give in evidence an opinion as to the cause of a person's physical condition or injuries, based in part upon information which he has derived from private conversations with a third party. The opinion rejected in this case was based on an examination made by the expert on the morning of the day it was given and on the statement and the history of the case which the attending physician furnished him at the time the examination was made.

Medical Counts and Barons.—Among the titled personages of France who have gone into medical pursuits are Baron Henri de Rothschild, Counts de Sinety and Goyan, and the Duke de Rivoli. The *Gaulois* states of the Count de Goyan that he is a prominent royalist, formerly a member of the Chamber of Deputies, and has taken the degree of Doctor of Medicine at the Paris Faculty with the object of giving himself up to the treatment of the sick poor. In this, Count de Goyan has followed the example of the Duc de Rivoli (also a former Deputy), Count de Sinety (member of the Jockey Club), and M. Rembielinski (well known in Paris society). All these gentlemen began the study of medicine after the age of thirty, and went through the prescribed course, passing their examinations and taking their degree in the ordinary way. Baron Henri de Rothschild, who is also preparing for the medical profession, entered himself as a student when very young. He has a pronounced taste for surgery, and his present intention is said to be to found a surgical hospital at his own expense.

Albany Medical College Alumni Association of Greater New York.

—A large number of representative medical men, many of them prominent in this and adjoining cities who are graduates of the adjoining Albany Medical College, met at the residence of Dr. Horace S. Hanks on Madison Avenue on the evening of Dec. 5, and organized an association with the above title. The following officers were elected: President, Dr. John W. Warner; Vice-President, Dr. Horace S. Hanks; Secretary, Dr. Warren C. Spaulding; Assistant Secretary, Dr. Robert F. McFarlane, Long Island City; Treasurer, Dr. Allen S. Fitch. Governors, Dr. Henry F. Müller, of Brooklyn Dr. L. N. Lanehart, of Hempsted, L. I., Dr. Robert E. Finney, Dr. John A. Cutter, of New York. Inasmuch as there are over 100 graduates in greater New York these gentlemen feel a certain pride in honoring their alma mater and have taken this course to do so. The first annual dinner is to be given Thursday, Jan. 9, 1896.

Bacteriology and the Farmer.—The address on medicine at the annual meeting for 1895 of the Canadian Medical Association was delivered by Dr. Edward Farrell, of the Halifax Medical College. His discourse led him to a consideration of the rapidly increasing money-value of bacteriology as a utilitarian, rather than a purely scientific pursuit. In order to show what science can do in building up a trade, he called attention to the extraordinary fact that Denmark at the present time almost controls the market of England in the supply of the best articles of butter. The farmers of Den-

mark have no special advantage over the farmers of England other than this, that in Denmark the government has established scientific schools in which the subject has been closely studied. Their bacteriologists have succeeded in isolating the various types of germ that produce special changes in the course of butter production, and by the artificial application of these they control and direct the fermentive process. Dr. Farrell urged upon the association that, inasmuch as medicine had given bacteriology to the world, the association was in duty bound to urge upon the government the advantages of schools of experimental science constructed upon a liberal plan and generously supported. Regarding the details, wherein the bucolic and pastoral interests are linked with the work of the bacteriologist, the address made some reference. The interesting whole may be read in the *Montreal Medical Journal* for September, of which the following is a part:

"In most countries it is the farmer who is the real wealth producer. In this country farming is by far the most important industry; to it we look for the production of the food supply of the world. When we consider the enormous amount the export of the product of the farm returns to this country we can gather some idea of the immense importance that agriculture is to us. It is not necessary, then, to prove that everything that tends to give a more successful yield to the labor of the farmer should claim the special attention of the government. I am glad to see that the fact is being recognized, though slowly, that the pursuit of agriculture requires an education in science, and so we find that schools of agriculture, experimental farms, and other means of teaching scientific farming are growing up among us. But we are only waking up to the importance of this special scientific training, and though we lead the mother country in this respect (for this subject is to a large extent neglected in England), still we are only making a small part of the effort that should be made in this direction. In many European countries, by reason of the fact that science is fostered and supported by the government, its influence upon agriculture, manufacture and the arts is more quickly recognized and applied than in England or America. This new science of bacteriology has an especial relation to agriculture. As we now know that bacteria have a direct influence upon human life and its diseases, so the life of other animals and plants must be equally under the power of bacterial growth. To show the extent to which this is true it is only necessary to name some of the diseases of animals that are known to be due to microorganisms, such as glanders, tuberculosis, with its poisoning power on meat and milk, anthrax or wool-sorters' disease, actinomycosis or lump-jaw. In addition to these there must be other diseases due to bacteria in the various animals used for human food, and the raising of our food products in a perfect and healthy form is most important to the trade interests of the country. Then there must be the special bacteriology of each plant with its various blights, a thorough knowledge of which must be necessary to successful agriculture. The products of the dairy, butter and cheese, are governed in the changes that take place in their manufacture by what is known as fermentation. We now know that this fermentation is a complex process brought about in its different forms by various kinds of microorganisms and that each organism has the power of influencing the color, taste and quality of the product."

The Journal of Experimental Medicine (Quarterly).—Messrs. D. Appleton & Co., of New York, announce that in January, 1896, will appear the first number of *The Journal of Experimental Medicine*, a periodical devoted to original investigations in physiology, pathology, bacteriology, pharmacology, physiologic chemistry, hygiene and practical medicine. Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, is to be the editor of the new journal, and with him will coöperate a board of twelve associate editors as follows:

For Physiology—H. P. Bowditch, M.D., Professor of Physiology, Harvard University; R. H. Chittenden, Ph.D., Professor of Physiologic Chemistry, Yale University; W. H. Howell, M.D., Ph.D., Professor of Physiology, Johns Hopkins University.

For Pathology—J. George Adami, M.D., F.R.C.S., Professor of Pathology, McGill University; W. T. Councilman, M.D., Professor of Pathologic Anatomy, Harvard University; T. Mitchell Prudden, M.D., Professor of Pathology, Columbia College.

For Pharmacology—John J. Abel, M.D., Professor of Pharmacology, Johns Hopkins University; Arthur R. Cushny, M.D., Professor of Materia Medica and Therapeutics, University of Michigan; H. C. Wood, M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Pennsylvania.

For Medicine—R. H. Fitz, M.D., Professor of the Theory and Practice of Physic, Harvard University; William Osler, M.D., F.R.C.P., Professor of Medicine, Johns Hopkins University; William Pepper, Professor of the Theory and Practice of Medicine, etc., University of Pennsylvania.

In addition to the above forty-two gentlemen have consented to act as "collaborators."

Practical Notes.

Extirpation of the Spleen.—Schalita (*Arch. f. Kl. Chirurg.*, Bd. XLIX, II. 3) describes a case in a woman, 36 years of age, who had always been well, but in whom there had gradually developed a fluctuating tumor in the region of the spleen that filled the larger part of the left half of the abdomen. A laparotomy was made in the linea alba, and a large quantity of fluid of a brownish color was evacuated through a trocar. Splenectomy was then made and recovery ensued. The tumor, which was as large as a man's head, was attached to the inferior surface of the spleen. This tumor or swelling is regarded as the result of hemorrhage either from the rupture of an aneurysm of a branch of the splenic artery or from a subcapsular hemorrhage due to other causes, in consequence of which the cyst gradually formed. Examination of the blood for some time after the splenectomy did not show any changes in the corpuscles.

Treatment of Pneumonia by Digitalis.—The author, who has tried in sixty-four cases the treatment of pneumonia by digitalis according to the method of Petresco (de Bucarest), sums up the results he has obtained under the form of the following conclusions:

1. Digitalis in large doses forms one of the most powerful therapeutic means against pneumonia.
2. It causes a favorable action on the heart, lungs and blood.
3. In large doses, digitalis shortens the duration of pneumonia and gives an increase of the leucocytes.
4. A dose of one gram of the powdered leaves, and daily doses of four to five grams, are borne without convenience.
5. Hydrotherapy (cold water) assists in these conditions the action of the digitalis.—Naegeli-Akerblom: *Centralb. f. Innere Medic.* 1895, No. 32. *Revue Internationale*, No. 22.

Diseases of the Prostate.—Dr. Gabriel Colin ends a general review on the treatment of diseases of the prostate in the *Revue Internationale de Médecine et de Chirurgie Pratiques*, with the following conclusions:

1. It is important to be able to promptly diagnose prostatic hypertrophy, and to employ from the beginning such vigorous treatment as will arrest the disease or cause it to retrograde in its progress. If the bladder empties itself easily, a medical and hygienic treatment will be sufficient; if it does not, one will have to have recourse to catheterism, repeated frequently, so that the bladder may never become over-distended.
 2. In case of enormously enlarged prostate, great difficulties in catheterism, false passages, retention with distension, free hematuria, or serious infection, catheterism, Guyon's *mandrin sonde a demeure* will almost always suffice to meet these accidents.
 3. When it is well proven that these methods have failed or are insufficient (but only then) a more active surgical interference should be attempted. We have the choice, according to the case, between the operations that we have studied (exceptional operations for exceptional situations).
- Such are, I believe, the rules and the course to be followed by every conscientious physician, bearing in mind that we ought to go from the simple to the compound, commencing by the ordinary and current methods before proceeding to more serious interventions, and that it is the duty of every surgeon to operate without hesitation when he has the proper indications, but always to wait for these.

The recent operations, of which we have said some words, do not permit us to lose sight of what we may deduce from the old and methodic treatment, the rules of which have been so masterly studied by Prof. Guyon. Imbued with these principles, we will be prepared in the present state of urinary surgery and therapeutics to afford the most important aid to our sufferers from prostatic diseases.

Poisoning by Creolin.—Dr. O. Pinner, physician to the Jewish hospital at Hamburg, reports in the *Deutsche Medizinische Wochenschrift* what he believes to be the seventh recorded case of poisoning by creolin. His case was that of a female 60 years of age, who had attempted suicide by swallowing seventy-five grams of creolin. It was at first not known which of the preparations called creolin had been taken, but the druggist from whom it was purchased subsequently stated that he only sold Pearson's. The woman was found unconscious in her room and was taken to the hospital two hours after the attempt on her life. She was then comatose, with livid face, moist skin and blue lips; her right pupil was larger than the left, and there was no reflex action on the cornea. Her temperature was 36.6 degrees C., her pulse 112 and regular, and her respiration deep and snoring, with tracheal rales. In the pharynx there was a large quantity of white mucus; the palatal arches and the posterior wall of the palate were covered by a grey superficial coating. There was a strong smell of creolin in the breath. By the stomach-pump 300 grams of a thick, grey fluid mixed with mucus were withdrawn, and pressure on the pylorus caused thick, brown drops of pure creolin to come through the tube. The first urine (150 grams) was of a light yellow color, without albumin, sugar or indican; the bromin water test showed traces of tar acid in it. Microscopic examination revealed nothing abnormal. Milk given through an esophageal tube was immediately vomited, but was eventually retained.

An hour after admission into the hospital there were well-marked symptoms of shock, for which injections of ether were successfully made. There were also copious diarrhea, and the stools had an odor of creolin. Some hours later the patient regained consciousness and afterward became better. She complained of severe pain in the epigastric region and in the pharynx. The urine (80 grams) was now of a dark green color, had an odor of creolin, and contained traces of albumin; by the tribromphenol reaction it was estimated that 7.5 c.c. of tar substances were present in 100 c.c. There was no hemoglobinuria, and only a small quantity of leucocytes and red corpuscles and some casts. The patient slept very well during the first night, and on the following day there was an obvious improvement, the pulse, temperature and respiration being normal, although she still complained of headache, want of appetite and hoarseness, and an erosion on the epiglottis and the arytenoid cartilage was observed with the laryngoscope. On the fourth day there was more diarrhea, the stools still smelling of tar products. The urine continued for a week to be of a green color and contained 1.5 per cent. of albumin, with much indican. After four weeks the patient was able to leave the hospital in perfect health and did not show any trace of injury from the poisoning. Notwithstanding the alarming symptoms of the first few hours, the patient very soon recovered, the creolin being obviously removed by the kidneys, which, though disordered for a short time, did not sustain any permanent injury. Creolin, therefore, according to Dr. Pinner, must be regarded as a comparatively innocuous substance, although it is remarkable that such extremely severe symptoms followed almost immediately after the poison had been swallowed. Creolin, he says, used to be considered harmless because it could not be absorbed by the stomach, but in the above case the gastric juice very soon transmitted the creolin into a form which very quickly passed into the circulation and appeared after two hours in the urine.

Death of One of Koch's Earliest Tuberculin Patients.—Dr. J. G. Adami, Professor of Pathology at McGill University, has given to the *Montreal Medical Journal*, September, an account of the autopsy made by him upon one of the first patients

treated by tuberculin, in 1890. The patient was nearly a year under Koch's treatment at the Victoria Hospital of Berlin, and under the usual periodic inoculations with tuberculin he began to regain appetite and body weight; his night-sweats passed away, and his general health appeared to be restored. The patient, a native of Finland, aged 33 years, a highly intelligent man, a skilled mechanic in engineering, was taken down for the first time early in 1890, with cough, hemoptysis, night-sweats and progressive emaciation. The patient from Berlin went to Finland and thence, in 1893, to Montreal. He remained apparently in perfect health until January of this year, when the cough returned, and all the old symptoms—night sweats, loss of flesh and bodily weakness. In March there was an hemoptysis, about half a gallon of blood being lost; there were two other severe hemorrhages later. From this time until April 18th, he being now a patient at the Royal Victoria Hospital, there was constant slight expectoration of blood with but little cough. On this last date severe hemorrhages occurred, in all about a quart of blood being lost. Following upon this, there was rapid loss of vital power, and the patient died ten days later. At the autopsy it was noticeable that there was no indication of tuberculosis other than in the lungs, save for some quite recent and minute ulcers in the jejunum and ileum. The lungs, however, presented very characteristic tubercular changes. There were firm adhesions at both apices—so firm that on the left side the knife had to be employed to separate them. Both apices showed old tuberculosis in the shape of well-encapsuled caseous masses and small contracted cavities with dense envelopes and smooth but uneven internal aspect. In addition, the upper two-thirds of the uppermost lobe of the right lung and the upper half of the upper lobe of the left lung were greatly consolidated, contracted and presenting very well-marked interstitial fibroid change. Here evidently in both apices were to be seen the results of treatment in 1890-91—abundant signs of arrest of the tubercular process. It was, however, clear that the process had only been arrested—for the rest of the lung tissue was the seat of numerous rather large miliary tubercles, which from their distribution were broncho-pneumonic—distributed along the course of sundry bronchi. Injecting the pulmonary arteries with water led to the escape of the fluid through one of the main bronchi of the upper lobe of the left lung. Following this up a long cavity was entered into containing a globular laminated clot over what was the seat of rupture of the artery. Some difficulty was experienced in finding the actual lesion, the artery filled with thrombus escaping detection for some little time. Bringing all these facts together it would seem most probable that the second attack of advancing tuberculosis was not a second infection, or infection anew, but originated in the old arrested foci of the disease, where the process lighting up again in the walls of one of the old incompletely contracted cavities had been followed by dissemination of the virus throughout the air passages, and had prepared the way for rupture of arteries passing along the walls of the cavity.

Hospital Notes.

The annual report of the Mercy Hospital, conducted by the Sisters of Mercy, in Chicago, shows that 1,373 patients have been treated during the year.—At a meeting of the trustees of the new Western Hospital for the Insane held in Springfield, Ill., Dec. 9, it was decided to erect the institution in Rock Island. The site is said to be the handsomest one for hospital purposes in the State.

Society Notes.

THE THIRD INTERNATIONAL CONGRESS OF PSYCHOLOGY will take place at Munich, Aug. 4-7, 1896. President, Prof. Stumpf, Berlin; Vice-President, Prof. Lipps, Munich; General Secretary, Dr. Schrenck-Notzing, Munich. The International Committee of Organization includes the names of many of the most distinguished psychologists of the world: Bani, of Scotland; Baldwin, of Princeton; Bernheim, of Nancy; Delboeuf, of Brussels; Donaldson, of Chicago; Ebbinghaus, Breslau; Ferrier, London; Fullerton, Philadelphia; Stanley Hall, Worcester; Hitzig, Halle; James, Harvard; Lehmann, Co-

penhagen; Liégeois, Nancy; Witmer, Philadelphia; Mendelssohn, St. Petersburg; Monokow, Zurich; Morselli, Genoa; Myers, London; Newbold, Philadelphia; Preyer, Wiesbaden; Richet, Paris; Schäfer, London; Sedgwick, Cambridge; Sully, London; Ward, Cambridge. The invitation to membership is extended to all interested in psychology, and the membership fee is 15 marks. The work of the Congress is to be carried on in four Sections, viz: Psychophysiology, including cerebral anatomy and physiology, and psychophysics; Normal Psychology; Psychopathology; Comparative Psychology. Those interested in the work of the Congress and desirous of learning the details of the preliminary program will receive the invitation and announcement on sending name and address to Dr. C. G. Chaddock, 610 N. Garrison Avenue, St. Louis, Mo.

MITCHELL DISTRICT MEDICAL SOCIETY.—The midwinter meeting of this Society will be held at Bloomington, Ind., Thursday and Friday, Dec. 26 and 27, 1895. A sufficient number of papers have been promised to insure the success of the meeting. The address on the evening of the 26th will be delivered by Prof. Daniel R. Brower, of Chicago, on "The Marks of Disease in the Habitual Criminal and the Remedy, Illustrated by the Stereopticon." The program will be issued Dec. 20.—The annual meeting of the Syracuse, N. Y., Academy of Medicine was held Dec. 3. The following officers were elected for the ensuing year: President, John Van Dusen; First Vice-President, Eli Van de Warker; Second Vice-President, D. M. Totman; Secretary, T. H. Halsted; Treasurer, E. L. Mooney.—The annual meeting of the Baltimore and Ohio Association of Railway Surgeons was held in Pittsburg Dec. 3. The following officers were elected: President, J. M. Spear, Cumberland; First Vice-President, S. S. Good, Meyersdale; Second Vice-President, P. B. Short; Secretary and Treasurer, J. A. McKean.—The monthly meeting of the McLean County Medical Society was held in Bloomington, Ill.—The fifty-first semi-annual meeting of the Northwestern Ohio Medical Association was held at Findlay, Ohio, Dec. 12 and 13.—The sixty-first annual meeting of the Fox River Valley Medical Association was held in Aurora, Ill., Dec. 10. Officers were elected as follows: President, H. W. Richardson, Marengo; Vice-President, M. M. Robbins, Aurora; Secretary, J. W. Bumstead, Dundee. The next meeting will be held in Elgin.

Detroit Notes.

THE CHILDREN'S FREE HOSPITAL is now assured, thanks to the \$125,000 that the noble philanthropic citizen Mr. Hiram Walker gave, which gift he has set aside for the purchase of the ground and building, and whatever surplus remains, to be devoted to current expenses. The Children's Free Hospital Association was first organized in 1886, and was connected with Harper Hospital; but as the facilities were inadequate, it was moved to a large building corner of Seventh and Fort Streets. The Association is under the government of a Board of lady residents well-known in the noble work of charity, assisted by an Advisory Committee of prominent business men. The affairs of the hospital are under the direction of a Superintendent assisted by a head nurse. A house physician resides in the hospital. During the first year, the hospital cared for 80 children, second year, 136, increasing each year until the number of admissions reached 259 the past year. The percentage of children discharged cured each year has averaged from 50 to 60 per cent. of admissions, improved from 20 to 25 per cent., unimproved about 5 per cent.; while the death rate has never exceeded 10 per cent. of admissions, which is a strong argument in favor of an institution of this character if one were needed, when it is taken into consideration that the majority of children treated in it would drag along without any medical treatment or tender care bestowed upon them, until death relieved them of their misfortune. The medical staff is composed of prominent physicians of the city, each a specialist, with Dr. C. A. Devendorf as chief of staff. In connection with the hospital there is an outdoor clinic, established in 1893, where patients not sick enough to be admitted to the hospital, yet needing care, are treated free of charge.

The proportion of children admitted this year exceeds the average, and at present there are 32 children in the hospital under treatment and convalescing, while over 250 have re-

ceived treatment in the outdoor clinic since Jan. 1, 1895. The new hospital, now almost completed, has all modern conveniences. The boiler-room being entirely separate from the main building, and all rooms will receive the sunlight. The hospital will accommodate 64 children, and will be ready for occupancy April 1, 1896.

THE WAYNE COUNTY MEDICAL SOCIETY at its regular meeting Thursday, Dec. 5, listened to a very interesting paper on "Anesthetics," by Dr. Kenneth Gunsolus, in which he took up the discovery, history and use of anesthetics. The majority of the members were of the opinion that chloroform was the preferable drug, excepting in such cases as it was counter-indicated.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the regular meeting of this Association, the secretary, Dr. Anderson, read a paper by Dr. Charles A. Oliver, of Philadelphia, entitled, "The Action of Hydrobromate of Scopolamine Upon the Iris and Ciliary Muscle." Dr. Daniel La Berte read a paper entitled, "Club Foot." The doctor also exhibited a patient upon whom he had operated by the Phelps's method.

HEALTH OFFICE REPORT for week ending Dec. 7, 1895: Deaths under 5 years, 31; total 78. Births: Male 43, female 41; total 84. Contagious diseases: Diphtheria: Last report 38, new cases 26, recovered 25, died 9, now sick 30. Scarlet fever: Last report 19, new cases 11, recovered 9, died none, now sick 21. Small-pox: Last report 2, new cases none, recovered 1, died none, now sick 1.

St. Louis Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—Report shows a continuance of the direful effect of diphtheria in the occurrence of 17 deaths, and 4 deaths attributable to croup. There were 2 deaths from scarlatina, 4 from typhoid, and 1 from cerebro-spinal fever during the week.

THE ST. LOUIS MEDICAL SOCIETY.—The program for Dec. 7 announced a continuance of the discussion of the subject of hematomyelia; demonstrations of a method of diagnosing diabetes by the condition of the blood, by Dr. Ludwig Bremer; and a paper on "How to Cure Acute Middle Ear Disease more Quickly," by Dr. Robert Barclay. Dr. Bremer's demonstration was most interesting as bearing upon the possibility of detecting diabetes under circumstances where there was an object in concealing the disease, as in examination for life insurance. The method consists of a staining of the blood which produces a marked macroscopic differentiation between normal and diabetic blood. It was claimed that after sugar had ceased to appear in the urine as a result of dietetic measures, by this method it could still be detected in the blood.

THE CITY BOARD OF HEALTH has framed a resolution looking to the appointment of a corps of competent physicians whose duty it shall be to make daily visits to the public schools and examine all ailing children, and children that come from homes where sickness exists. The prevalence of diphtheria is taken as the warrant for this measure.

THE HEALTH COMMISSIONER has caused to be printed for gratuitous distribution a pamphlet devoted to a popular exposition of the means of preventing, avoiding, and suppressing communicable diseases, with a resumé of the laws respecting the duties of physicians when in attendance upon cases of contagious disease, as well as of the city ordinances related to the duties of the principals and teachers of private and public schools in such cases. Diphtheria is first given attention, and then follow scarlet fever, tuberculosis, smallpox and typhoid fever. The public diffusion of knowledge of the duty of physicians and teachers in cases of contagious disease will assist both classes in the performance of what is often a disagreeable task because of the frequent dissatisfaction arising out of the necessity to placard a house or to exclude children from school. The pamphlet is most opportune, and can not fail to have a decided influence now and hereafter in restricting the spread of disease.

THE MISSOURI STATE UNIVERSITY LABORATORY is now well started in the work of producing the antitoxin of diphtheria, under the approval of the State Board of Health. The Board is also taking steps to collect statistics concerning diphtheria and the results of the new treatment.

THE MARION SIMS COLLEGE has been made defendant in a suit to recover anatomic and pathologic specimens, by Dr. Louis Bauer. The college asserts that Dr. Bauer donated the specimens in question to the college museum, and therefore refuses to release them until ownership is proved.

THE BARNES MEDICAL COLLEGE has broken ground on Garrison Avenue for its new building.

A NEW LAW concerning the punishment of crimes committed by persons under the age of 18 has received its first application here during the week, and has given rise to some discussion. The law is framed to prevent the commitment of youthful criminals to the penitentiary, and to place them in the Reform Schools. There can be no question of its general wisdom in cases of minor crimes; but it is pointed out that a boy just under 18 can commit murder in the second degree, and the crimes of arson, criminal assault, and robbery in the first degree, and his punishment be fixed by the law at only three years in the Reform School.

THE ANNUAL REUNION of the editorial staff of the *Medical Fortnightly* will take place at the Mercantile Club, Thursday evening, Dec. 12.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICE.—The report of the Health Office for the week ending Nov. 30 is as follows: Number of deaths (still-births not included): White, 63; colored, 44; total, 107. Death rate per 1,000 per annum: White, 17.5; colored, 26.0; total, 20.2. Death rate per 1,000 per annum corresponding week last year, 16.2. A slight rise took place in the number of deaths reported at the Health Department during last week as compared with the preceding week. The mortality was 107, as against 99 reported the week before. The annual death rate was 20.2, which is 3.6 below the annual average for the District of Columbia. The notable feature of the week's health history is the continued abeyance of the dangerous contagious diseases, there having been but one death from diphtheria. The mortality from brain maladies reached 10, of which 5 were from apoplexy. There was a material increase in the deaths from acute lung diseases, 16 of them being from pneumonia and 7 from congestion of the lungs. The deaths from typhoid fever were 4, as compared with the same number the preceding week, while in the corresponding week of last year, there were 5 deaths. Aside from these exceptions, the general health of the city is favorable, with an annual death rate materially below the normal.

GOLD MEDAL FOR DR. TAYLOR.—Dr. Thomas Taylor, of this city, has recently received through the Georgetown custom house a gold medal, which was awarded him by the International Society of Hygiene in recognition of the value of his original investigations on butters and fats and the edible mushrooms of the United States in the interest of hygiene. Dr. Taylor furnished by request a paper which was read at the last annual meeting of the society, held in Rome, Italy, 1894.

WASHINGTON BOARD OF TRADE.—At a recent meeting of the Board of Trade Dr. Samuel C. Busey was elected a member of the Board of Trustees. Dr. W. P. C. Hazen has been added to the Committee on Public Health. Acting on the recommendation of the Committee on Public Health the Board has appointed a Special Committee to prepare a sanitary code for the District. The medical men on the committee are: Drs. Geo. L. Magruder, Chairman, and Health Officer W. C. Woodward.

WHISKY INSPECTION.—The chemist of the District has completed an analysis of fifty specimens of whisky secured by the Excise Board. The research shows an entire absence of

strychnin and nitroglycerin. The usual adulterations found were water, red pepper, burnt sugar, and in a few cases traces of fusil oil. The results are better than were expected.

MEDICAL SOCIETY OF THE DISTRICT.—At the regular meeting of the society held on the 4th inst., the clinical aspect of diphtheria treated by its antitoxin was discussed by Drs. C. W. Richardson, S. S. Adams, Kinyoun, Walter Reed, W. W. Johnston and others.

THE WOMAN'S DENTAL ASSOCIATION.—The Woman's Dental Association, at its monthly meeting, held at the residence of Dr. Jessie Kappeler, discussed a constitution and by-laws, and then adjourned to meet the first Monday in January.

THE SEWER BOND BILL FOR THE DISTRICT.—Senator Proctor has re-introduced into the Senate a bill introduced in the last Congress by Mr. Harris which provides for continuing a system of trunk sewers in the District of Columbia, for completing the system of sewage disposal, and to protect against floods. The bill provides that the treasurer of the United States shall carry out the provisions of an act entitled: "An act to lay out a system of highways in that part of the District of Columbia lying outside of the cities," approved March 2, 1893. The bill authorizes the Secretary of the Treasury to make available without delay a sum not to exceed \$2,650,000. The bill formerly introduced by Mr. Harris fixed the sum to be expended for this purpose at \$1,500,000, and further provided that it should be expended by the Commissioners of the District of Columbia. In order to secure money necessary to defray the cost and expense of works authorized by this act, the Treasurer of the United States is authorized to cause bonds of the District of Columbia to be prepared in denominations of \$10,000, \$1,000, \$100 to the amount of \$7,500,000, bearing date Jan., 1896, and to be payable fifty years after date, bearing interest at 3 per cent. per annum.

MEDICAL PRACTICE BILL.—Senator Harris has introduced a bill into the Senate to regulate the practice of medicine and surgery in the District, and provide penalties for its violation. The board of examiners will be a mixed one, being made up from the regular, homeopathic and eclectic schools.

TYPHOID FEVER REPORT.—Dr. Geo. M. Kober, who was appointed by the Health Officer to investigate 500 cases of typhoid fever reported during the past year, reports as follows with recommendation: Of the cases selected, 436 were contracted at home, and the remaining 64 outside of the city limits. Of the cases contracted, 289 were consumers of well water, 132 consumers of Potomac water, 5 of spring water, 3 of Columbia lithia water and 3 consumers of melted Kennebec ice, and while many of the consumers of well water also used Potomac water, for reasons already given, the principal water supply during the heated term was derived from the pumps. Of the 421 infected houses, 261 had sewer connections, 152 had privies, 2 had cesspools, 4 had surface privies or sinks, and 2 had no privies. The Board also recommends the closing of every well in the District wherever a better water supply can be obtained, the completion and extension of sewers, the abandonment of all box privies, stringent laws for the prevention of soil pollution, a rigid inspection of box privies in suburbs, the improvement of the Potomac water by filtering basins, and extension of supply to the suburbs. Also, measures to improve the sanitary condition along the Potomac and Eastern branch, for reclamation of stagnant and polluted marshes, and the prompt disposal of the sewage; enactment of a law requiring notification to the Health Officer of all cases of typhoid fever and other infectious diseases; a rigid enforcement of the building regulations requiring the cementing of cellars and basements, and the systematic inspection of dairies. As a preventive measure thorough disinfection of the excreta from typhoid fever patients, and greater care on the part of those connected with the sick, together with boiling the water and milk supply is recommended.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 236th meeting of the society was held on the 6th inst. Dr. F. S. Nash (late of U. S. N.) read a very flowery essay entitled "A Plea for the New Woman and the Bicycle." Dr. Bromwell reported a successful case of placenta prima—both mother and twins were saved, notwithstanding there was only one placenta, a battledoor. A full and instructive discussion followed on both subjects.

DR. BARKER'S BANQUET.—Dr. H. H. Barker entertained some of his medical friends at "Over Look Inn" on the 3d inst.

Philadelphia Notes.

UNIVERSITY OF PENNSYLVANIA.—The Hospital of the University of Pennsylvania has had its facilities enlarged by the addition of a new wing, known as the William Pepper Laboratory for Clinical Medicine. This new department owes its existence to the liberality of the former Provost who desires to commemorate in this tangible manner the service rendered by his father to clinical medicine. A letter was read from Dr. Pepper, which contains the following reference: "My father, the late William Pepper, held the chair of the theory and practice of medicine in the University of Pennsylvania from 1860 until the spring of 1864, when he was forced to resign by the progress of the disease which caused his death on Oct. 10, 1894, in the 55th year of his age. Already at that time a few young men had formed the definite hope of reforming the system of medical education in America, and of placing it on the sound basis of clinical teaching. I can say for some of them, including my brother George, who died in 1872 at the age of 32 years, after a brilliant and all too short career, that the eloquent advocacy of clinical teaching and its effective application by my father supplied at once the inspiration and the exemplar. Both father and son wore themselves out in the service of humanity and science and fell victims to the terrible scourge of pulmonary consumption." This laboratory is extended exclusively for post-



THE WILLIAM PEPPER CLINICAL LABORATORY.

graduate research in bio-chemistry, histology, bacteriology and allied subjects connected with the causes and nature of disease. The building and equipment cost over \$25,000, the remainder of Dr. Pepper's gift of \$50,000 being held as a nucleus for an endowment, which it is confidently expected will soon be raised to two hundred thousand dollars, all of which will be needed in order to establish the laboratory upon a permanent foundation and meet current expenses. The opening exercises were held Dec 4, being held in the clinical amphitheatre of the hospital. Addresses were delivered by Dr. John S. Billings, Director of the Hospital and Professor of Hygiene, who prepared the plans for the laboratory, by Prof. Wm. H. Welch of Johns Hopkins University, and by Provost Harrison. It was stated that no hospital had ever received a specific gift for the construction and maintenance of a separate building to be devoted entirely to chemical, microscopical, and bacteriological investigations and to post-graduate teaching of clinical laboratory methods.

The laboratory building is connected on the west side with the hospital and with the several floors by inclosed corridors. It is located on an eligible site on the corner of 36th and Spruce streets, West Philadelphia. The building is 62 feet long by 42 feet wide, and four stories high, with a basement cellar. It is built of brick and terra cotta on a stone base to the first floor, with a green slate roof. On the ground floor there are three rooms. The one on the southwest is specially arranged for chemic investigation. It is not the intention to follow the ordinary routine of chemic analysis

and investigation here, but only the practical study of the chemic processes taking place in the human body in health and disease. Adjoining the chemic room on the north is the room devoted to bacteriology, the most active department on account of the importance which bacteriologic investigation has attained in recent years. Close attention will be devoted in this work to a study of the conditions under which bacteria thrive and the influences that can be brought to bear to cause their destruction. The room is equipped with microscopes of the highest power, and large incubating ovens in which the microorganisms can be safely cultivated. The rooms of the Director and Assistant Director, on the second floor, will be used as offices and for their own personal studies. On the third floor there is a single large room which will be used in teaching the post-graduate work requiring the aid of the laboratory. There are four rooms on the fourth floor. One of them is fitted up as a library, and will be used as a meeting-room for the Fellows and Associates of the laboratories. At the head of the staff is Dr. William Pepper, Director. The Assistant Director is Dr. Alfred Stengel, and instructor in medicine and assistant physician to the University Hospital. The members of the staff are trained specialists, and are as follows: Chemical Department, Dr. Casper Wistar Miller and Dr. George Stanley Woodward; Microscopic Department, Dr. Alonzo E. Taylor, Dr. Thomas S. Kirkbride, Jr., Dr. J. Dutton Steele; Bacteriologic Department, Dr. Samuel S. Kneass; Physical Department, Dr. Joseph Saylor, Dr. David L. Edsall, Dr. Samuel McClintock Hamil.

A BANQUET and testimonial was given in honor of Dr. John S. Billings, who has recently removed his residence to this city and been appointed to the new chair of Hygiene in the Faculty of the University of Pennsylvania; he is also Director of the University Hospital. The dinner was given at the Hotel Bellevue, Philadelphia, Nov. 30, 1895. Dr. L. Wier Mitchell presided as chairman and speeches were made by Drs. J. M. DaCosta, S. Weir Mitchell, John S. Billings, J. R. Chadwick of Boston, Robert Fletcher of Washington, A. Jacobi of New York, and William Osler of Baltimore. A list of foreign contributors were read and a cheque for the amount of \$10,000 was given to Dr. Billings with some most appropriate remarks by the Chairman.

THE annual meetings of the Geological Society of America, the American Society of Naturalists, the American Physiologic Society, the Association of American Anatomists, and of the American Psychological Association will be held in Philadelphia, on Dec. 26, 27 and 28, in the halls of the University of Pennsylvania. Prof. E. D. Cope is Chairman of the Committee on Arrangements, Dr. Horace F. Jayne, Treasurer, and Persifer Feazle Secretary. The remaining members being Drs. Harrison Allen, Edward J. Reichert, and W. R. Newbold.

AN UNUSUAL case was reported to the Academy of Surgery by Dr. Thos. G. Morton at its December meeting. A healthy woman, 34 years of age, engaged in house work, sneezed violently and soon afterward appeared much prostrated. A few hours later she was taken to the Pennsylvania Hospital in a state of collapse, and she soon died. At the autopsy, there was found in the superior aspect of the stomach, near the smaller curvature, a ragged opening as large as a five-cent piece, but without much expulsion of contents of stomach owing to location. An unhealed ulcer of smaller size was also found in the vicinity of the first one. There had probably been adhesion between the stomach and diaphragm as a result of the ulceration process, and this adhesion was torn apart by the violence of the movement of the diaphragm in the act of sneezing.

AT THE College of Physicians, Dec. 4, Dr. John B. Deaver read a communication on "Some Salient Points in the Diagnosis, Pathology, and Treatment of Appendicitis." The paper was based upon two hundred operations for appendicitis performed by the lecturer with only two deaths, both of which occurred in the first series of one hundred cases, giving a mortality of 1 per cent. after abdominal section for appendicitis. He bases the diagnosis upon the three cardinal points of suddenness of onset, rigidity of muscles upon right side, and pain and tenderness in right inguinal region. He had found some cases with pain complained of on left side, and in these cases he had found the appendix toward the left side of the pelvic region. The abscess may discharge into the bladder; therefore, the presence of pus in the urine does not always decide the diagnosis in favor of pyone-

sis. When the tip of the appendix occupies the pelvis, symptoms of vesical irritability occur and are of diagnostic value. He advocated early operation with removal of appendix before the stage of pus-formation. He did not think it wise to operate upon a patient in collapse, but where an operation is to be done he advised a thorough operation with removal of the appendix in all cases. The practice of simply opening the abscess and draining, he pronounced incomplete surgery. He said in conclusion that there is no medical treatment that will cure appendicitis, and quoted Osler's remark that, in these cases, "the surgeon is often called too late but never too early."

THE PUBLIC SERVICES.

Surgeon George W. Stoner, M.-H. S., sailed for Europe on the *Kaiser Wilhelm II.* last week. He will be absent several months.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 30, 1895, to December 6, 1895.

Capt. William H. Arthur, Asst. Surgeon, is relieved from duty at Ft. Columbus, N. Y., and ordered to Ft. Myer, Va., for duty. First Lieut. John S. Kulp, Asst. Surgeon, leave of absence granted is hereby extended one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending December 7, 1895.

Asst. Surgeon George C. Hubbard, detached from instruction at the Naval Laboratory, New York, and ordered to the "Vermont."

P. A. Surgeon E. R. Stitt, detached from the "New York," and ordered to the coast survey steamer "Bache."

P. A. Surgeon G. H. Barber, detached from the "Bache," and ordered to the "New York."

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended November 30, 1895.

Surgeon C. S. D. Fessenden, placed on waiting orders, Nov. 22, 1895. Surgeon F. W. Mead, granted leave of absence for thirty days, Nov. 21, 1895.

P. A. Surgeon W. P. McIntosh, to proceed from Boston, Mass., to Portland, Me., for temporary duty, Nov. 25, 1895.

P. A. Surgeon W. J. Pettus, relieved from duty at Buffalo, N. Y., and directed to proceed to Cape Charles Quarantine, and assume command of Station, Nov. 16, 1895.

P. A. Surgeon G. M. Magruder, granted leave of absence for thirty days, Nov. 20, 1895.

P. A. Surgeon T. B. Perry, relieved from command, Cape Charles Quarantine, and directed to proceed to Buffalo, N. Y., and assume command of Service, Nov. 16, 1895.

P. A. Surgeon W. G. Stimpson, granted leave of absence for thirty days, Nov. 20, 1895.

Asst. Surgeon L. E. Cofer, placed upon waiting orders from Dec. 1, 1895, Nov. 21, 1895.

Asst. Surgeon J. A. Nydegger, when relieved from temporary duty at Mobile, Ala., to rejoin station at Savannah, Ga., Nov. 27, 1895.

Asst. Surgeon W. J. S. Stewart, granted leave of absence for fourteen days, Nov. 29, 1895.

Asst. Surgeon E. K. Sprague, relieved from temporary duty at Key West Quarantine, and directed to rejoin his station at Mobile, Ala., Nov. 27, 1895.

Asst. Surgeon Emil Prochazka, to proceed from Detroit, Mich., to Buffalo, N. Y., for temporary duty, Nov. 16, 1895.

Asst. Surgeon J. B. Greene, granted leave of absence for thirty days, Nov. 20, 1895.

Change of Address.

Blodgett, A. G., from West Brookfield, Mass., to Ware, Mass.
Chancellor, E., from 515 Olive Street, St. Louis, to 613 Pine Street.
Werner, O. E., from Tipton to Brillion, Wis.
Woodbridge, John Eliot, from Youngstown, Ohio, to 637 Prospect Street, Cleveland, Ohio.

LETTERS RECEIVED

Ashton, W. W., Alexandria, La.; Andrews, Edmund, Chicago.
Brauns, E., Chicago, Ill.; Battle Creek Sanitarium, Battle Creek, Mich.; Barbour, Llewellyn P., Tullahoma, Tenn.
Conibear, W. H., Morton, Ill.; Caverly, C. S., Rutland, Vt.; Cutter, J. A., New York, N. Y.; Cochran, Jerome (2), Montgomery, Ala.; Conner, Leartus, Detroit, Mich.; Chancellor, Eustathius, St. Louis, Mo.
Dakin, F. C., Evanston, Ill.; Dudley, E. C., Chicago.
Edwards, John B., Milwaukee, Wis.
Forline, H. H., Chicago, Ill.; Fehr, Julius, Hoboken, N. J.
Gonley, J. W. S., New York city; Galloway, D. H., Chicago.
Hummel, A. L., Advertising Agency, New York, N. Y.; Houghton, R. E., Richmond, Ind.; Hill, Julian P., Buffalo, N. Y.
Jones, Joseph, New Orleans, La.; Jordan, J. R., Montgomery, Ala.
Kober, Geo. M., Washington, D. C.; Kime, R. R., Atlanta, Ga.
Lusk, Z. J., Warsaw, N. Y.; Loeb, H. W., St. Louis, Mo.; Lilly, Eli, & Co., Indianapolis, Ind.; Lehn & Fink (3), New York, N. Y.
Macey Company, Fred. The, Grand Rapids, Mich.; Maltine Mfg. Co., New York, N. Y.; Mitchell, W. S., Susquehanna, Pa.; Manley, Thos. H., New York city; Montgomery, E. E., Philadelphia, Pa.
Nihart, G. W., Mendon, Mich.; Norton, A. C., Rockwell City, Iowa.
Parke, Davis & Co., Detroit, Mich.; Pugh, F. H., Bryan, Ohio; Parker, E. F., Charleston, S. C.; Pattee, A. F., Boston, Mass.; Pettit, J. W., Ottawa, Ill.; Parish, Orleans, New Orleans, La.; Paquin, The Paul, Laboratories (2), St. Louis, Mo.
Rowe, S. B., St. Louis, Mo.; Reed, R. Harvey, Columbus, Ohio; Risley, Samuel D., Philadelphia, Pa.
Shlensky, L., Wilmington, Del.; Schimmell, M. S., Baltimore, Md.; Silver, D. R., Sidney, Ohio; Scherer, Otto, Detroit, Mich.; Sourwine, J. D., Indianapolis, Ind.; Spaulding, Warren C., New York city; Smart, Chas., Washington, D. C.; Senn, N., Chicago; Suiter, A. Walter, Herkimer, N. Y.; Smith, Q., Cincinnati, Austin, Texas; Simpson, Wm. K., New York city.
Utley, H. M., Detroit, Mich.
Williamson, A. R., New London, Conn.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, DECEMBER 21, 1895.

No. 25.

ADDRESS.

THE INTERNATIONAL SCIENTIFIC LANGUAGE.

The Annual Address read before the Association of American
Medical Editors, May 7, 1895.

BY JOHN B. HAMILTON, M.D., LL.D.
CHICAGO.

GENTLEMEN OF THE ASSOCIATION:—As I look around me to-day, and see the distinguished membership, I can only say that he who would interest this audience, or inject into our annual meeting a thought out of the common run, must have either extraordinary ability or remarkably good luck. I shall therefore only attempt to discuss a question which has been more or less prominent and with which all are more or less familiar.

All are not born lexicographers like our brother Dunglison, nor do they achieve lexicography like our brother Foster, or our Vice-President Gould, and as for having it thrust upon them—why, that depends on the enterprise of our friends the publishers, and the same may be said of philologists. Most medical editors are more concerned with the simple proposition, that in all cases the “nominative case shall govern the verb” in the articles they publish, than in that deeply interesting philologic problem of whether the Chinese and North American, or the Semitic, Indo-European and Turanian languages were first to follow the hieroglyphs.

The truth is that the progress of science has demonstrated the great advantage—nay, the necessity—for an easier means of communication between the scientific men of the world, than is now found.

Although at some of our International Medical Congresses the number of official languages have been reduced to three, viz: English, French and German, yet even that limitation was not narrow enough to bring all together, for comparatively few are able to understand more than two spoken languages. It is granted that it may be done, and that here and there are brilliant linguists in our profession, who not only understand and speak two, but four or five, like our Surgeon-General Sternberg of the Army, or Gihon of the Navy, or the laryngologist Braun of Trieste, who seems equally familiar with five languages. This admission of possibility does not imply that it is likely that any considerable number of scientific men will ever set themselves to work to memorize the immense vocabulary that is necessary to accomplish such a feat, and there can be no question but one's time might be employed to better advantage if we can only agree upon what particular language we shall adopt.

Unfortunately, there are so many side issues. The old Adam in men, which makes them selfish, and which selfishness is so often mistaken for patriotism, makes each nation so tenacious, so absolutely certain

that each has the very best language that can by any possibility be constructed, that they are but little nearer coming together on the point than they were at the time of the confusion of tongues at the Tower of Babel—and the seeming impossibility of agreement led to the construction of an alleged language called *Volapük* which, up to this time, has been spoken by nobody and only written by doctrinaires. The *Volapük* is a language that to most men is at once so difficult and forbidding, that it has made little or no progress since first invented by Herr Schleyer in 1879. But when we reflect that it has taken centuries to create the existing languages, we see that the propagandists of *Volapük* have more to contend against than intrinsic ugliness, lack of harmony or difficulty of acquirement.

This inherent slowness necessarily dampens our personal interest, for no one can take a very deep interest in that very remote posterity that may speak *Volapük* and enjoy it. Naturally, then, we turn to the question of whether we shall use a living or a “dead” language. The objection to the use of a living language is mainly that it is difficult to secure agreement, although the diplomatists long ago settled the matter by making French the universal language of diplomacy. The fate of nations and their international relations are too important to be trifled with, and we see that with few exceptions all diplomatic conventions hold their proceedings in the French language.

Dr. Achille Rose in this country, and several medical authors in Europe favor Greek. The Greek language has constantly undergone changes from its origin. As a population has always remained in Greece, it is a mistake to consider Greek as a “dead” language. The idea of change is essential to our idea of life; from the seed to the plant in the vegetable world, from the egg to the animal in the animal world, and in language a constant change, as restless, as varying as the waves of the sea. This change in the Greek is well shown in the cuts I show you here. Plate 1, p. 1066, is the fac simile of the first page of the chapter of Hippocrates' “*De Morbis*,” as published by Chouër in Geneva in 1657, and plate 2 is the chapter of Aretæus of Cappadocia, “*De Causis et Signis Acutorum Morborum*,” published at Leyden, 1730, and plate 3 is from the recent work of Georgios A. Kostomoire, published at Athens, 1887.

This last work is on “The Ophthalmology and Otology of the Ancient Greeks, from the Most Ancient Times Down to that of Hippocrates.” One would suppose on general principles, that Hippocrates was ancient enough for all ordinary purposes, but Kostomoire has shown us something of the immense riches of medical literature anterior to Hippocrates. It is as well to remove Greek from the list of dead languages, because the Greek language has had a continuous existence from the days of Homer. That

Pag.



ΑΡΕΤΑΙΟΥ ΚΑΠΠΑΔΟΚΟΥ

ΠΕΡΙ ΑΙΤΙΩΝ ΚΑΙ ΣΗΜΕΙΩΝ

ΟΞΕΩΝ ΠΑΘΩΝ

ΒΙΒΛΙΟΝ Α.

Ἡ ἀρχὴ λείπει.

ΚΕΦΑΛΗ Ε.

ὡς παρξυσμὸς ὀπληπτικῶν.

ARETAEI CAPPADOCIS

DE CAUSIS ET SIGNIS

ACUTORUM MORBORUM

LIBER PRIMUS.

Principium deficit.

CAPUT QUINTUM.

'De Comitialis morbi accessione.

* ἀμβλυότης, ἰλιγγίαι, τενόντων^α βάρειαι,^β φλεβῶν
ἐν τῷ τραχήλῳ πληρώσεις καὶ διαπύσεις, ναυτία
πρὸς πολλὰ μὲν ἐπὶ στίσις, ἄχ^γ ἥκιστα δὲ καὶ
ἐπὶ ἀσιτίῃσι, καὶ^δ βληχρῇ, καὶ^ε φλέγμα ἐμύ-
ται συχνόν^ς ὁποσότη καὶ ἀπιψίῃ ἐπὶ συμφορῇσι ἐδε-
σμάσι-φυσώδεσι, ἐπιρμένσι ὑποχόνδρεια. πῶς μὲν
οὖν διηγεῖται. ἢ δὲ πλεονάζει^ς εἶδος ἢ τὸ παροξυ-
σμῶν, κύκλω μαρμαρυγῇ ἀπὸ τῆς^ς ὀφθαλμοῦ παρφυ-
ρέων ἢ μελαίνων, ἢ πάντων ὁμοῦ συμμειγμένων,
ὡς δοκεῖν^ς ἢ ἐν ἑρῶν^ς τεταυρωμένῃ ἱρῖν. ἤτοι ὥτων,
βαρυδμῆ, ὀργίλοι, πικροχολοὶ παραλόγως. κατ-
έπεισαν γὰρ πῖες ὑπὸ προφασί^ς ἐξ ἀθυμίας^ς
μετεξέτεροι δὲ ρεύματι ὡπαμῶ ἀπνέες ἐνιδόντες, ἢ
τροχῶ δινευμένῳ, ἢ^ς βέμβικι ἐλαιομορῇ^ς ἄλλοι
δὲ ὁρμητικῆς βαρέων ὁσμῶν^ς κατέβαλε, ὥσπερ
γαγάτα λίθας^ς πῖς δὲ μὲν ἂν ἐν τῇ κεφαλῇ τὸ
κακόν

A

* hebetudines, vertigines, tendonum gravitates,
venarum colli repletiones & distensiones: nausea
frequentius quidem a cibis, non minimè tamen
& ab inedia, pusilla quædam nausea sequitur, &
uberius pituita fit vomitus: paucis assumptis
cibis fastidiunt, & crudi sunt, flatibus replen-
tur, præcordia elata habent. hæc sanè perpe-
tuò comitantur. quum vero accessio appropin-
quat, splendores quidam purpurei, aut nigri,
aut omnes unà permixti ob oculos in orbem ver-
santur, ac discurrunt, ut in caelo iris prætentia
esse videatur: aures sonant, foedum odorem sen-
tiunt, iracundi sunt, bilis præter rationem accen-
ditur. 1 quibuldam igitur concidendi causa, æthor
animi fuit: aliqui intentè fluminis decursum, aut
totam quæ circumvolvitur, aut turbinem, qui in or-
bem agitur, conspiciat: alios autem rerum graveco-
lentia, ut gagatis 1 lapis odoratus, prostravit: his
A utique

B

^α Βαρία Henisch. ὁ. φλεβῶν τῶν ἐν τῇ. Petit. rep. in MS.
c. 'Α'. Henisch. ^β Βαρυδμῆ. Goupyl. rep. in MS. c. Βαρυ-
μα Henisch. ^γ ἰλιγγίαι. Henisch. ^δ ἀπνέες δι' ἰδίας Henisch. rep.
in MS. ἰλιγγίαι δι' ἰδίας. Goupyl. rep. in MS.
πρὸς τὸν δι' ἰδίας, si prope sit metus accessionis: h. e. si ac-
cessio infat, imminet. Petit. rep. in MS. ^ε ὁφθαλμοῦ. He-
nisch. ^ς ἢ ἐν τῇ κεφαλῇ Henisch. ^ς βέμβικι Henisch. rep. in MS.

^α Κατάλοι. Henisch. rep. in MS. 1 τὸ γαγάτα. Henisch.
^β De Accessione Comitialium juxta Plinium ^γ ^δ ^ε ^ς
emendi. ^ς Circuli ignei, ut Caelius Aurel. habet L. b. 1.
tard. pass. Cap. 4. Petit. ^ς Quidam igitur levi dē causa,
utpote ob animi angorem, ceciderunt. Henisch. La-
pidis. Henisch.

Τομ. I.

ΠΕΡΙ
ΟΦΘΑΛΜΟΛΟΓΙΑΣ ΚΑΙ ΩΤΟΛΟΓΙΑΣ

ΤΩΝ ΑΡΧΑΙΩΝ ΕΛΛΗΝΩΝ

A.

ΠΩΣ Η ΝΥΝ ΟΦΘΑΛΜΟΛΟΓΙΑ ΚΑΙ ΩΤΟΛΟΓΙΑ ΠΑΡΑ ΤΟΙΣ
ΑΡΧΑΙΟΙΣ ΛΕΓΕΤΑΙ ΚΑΙ ΠΩΣ Ο ΟΦΘΑΛΜΟΛΟΓΟΣ ΚΑΙ ΩΤΟΛΟΓΟΣ.

Περὶ τῆς τῶν ἀρχαίων Ἑλλήνων ὀφθαλμολογίας καὶ ὠτολογίας συγγράψαι ἐπιχειρήσας, εὐχαιρον ἡγοῦμαι εἶπεν, πῶς ἡ νῦν ὀφθαλμολογία καὶ ὠτολογία λεγομένη τοῖς ἀρχαίοις ὠνόμασται καὶ πῶς ὁ ὀφθαλμολόγος καὶ ὠτολόγος.

Καὶ ἐν μὲν τῇ Ἱπποκρατεῖ συλλογῇ 2,152 *Περὶ ὀφθ.* ἐπιγράφεται τὸ περὶ ὀφθαλμῶν παθῶν βιβλίον· ὅθις γὰρ παρ' Ἱπποκράτει ὅτε μὲν ὀφθαλμὸν ὥς ἐνταῦθα, ὅτε δὲ τὴν ὄρασιν, ἄλλοτε τὸν κερατοειδῆ καὶ τὴν ἱρίδα καὶ ἄλλοτε τὴν κόρην σημαίνει. Ἐν τινι δὲ τῆς Φλωρεντίας χειρογράφῳ τὸ αὐτὸ βιβλίον ἐπιγράφεται *Τοῦ αὐτοῦ περὶ ὀφθ. λόγος κε'*. Τοῦτο δ' ἀπόσπασμα εἶναι νομίζεται τοῦ περὶ ὀφθαλμῶν βιβλίου, τοῦ ἐν τῷ *Περὶ παθῶν* μνημονευομένου, ὃ τῷ Πολύβου ἀποδίδεται 4,214· «Ταῦτα μὲν ὅσα ἀπὸ τῆς κεφαλῆς» φέρεται νοσήματα, *πλὴν ὀφθαλμῶν*: ταῦτα δὲ ἰδίως γεγράφεται». Ἄλλ' ἐν τῇ λέξεως τοῦ χωρίου τούτου τοῦ Πολύβου εἰκάζειεν ἂν τις, ὅτι ἡ Πολύβου ὀφθαλμολογία οὐκ ἐπεγράφετο *περὶ ὀφθ.*, ἀλλὰ *περὶ ὀφθαλμῶν ἢ περὶ νοσημάτων ὀφθαλμῶν ἢ περὶ παθῶν ὀφθαλμῶν*. Οἱ δὲ μετέπειτα ὡς πῶς τὴν ὀφθαλμολογίαν αὐτῶν ἐκγράψουσιν· οἷον, Γαληνὸς μὲν ἐν *Εἰσαγωγῇ ἡ ἱατρῶν* 1στ'. 14,767· *Περὶ τῶν ἐν ὀφθαλμοῖς συνισταμένων παθῶν*. Ἀίτιος δ' ἐν *αρχῇ τοῦ Ζ'* καὶ Ἀλὲξανδρὸς Τραλλιανὸς ἐν τῷ *Περὶ θεραπειῶν ὀφθαλμῶν Β'*. II,3

PLATE 3.

CAPITOLO VI.

PRESSIONE ATMOSFERICA.

§ 1.

La pressione atmosferica è uno degli elementi più importanti nella costituzione del clima, epperò ha un grande significato fisiologico. Scoperto il barometro, si potette constatare che in ragione noi ci eleviamo nell'aria avvertiamo un abbassamento nella colonna barometrica, esattamente proporzionato al peso degli strati d'aria sottostanti. Di talché si son potute osservare le differenze della pressione, alle quali sono sottoposti tutti i corpi situati alla superficie del globo, ed in ispecie il peso totale che il corpo umano sopporta, sotto la pressione di una colonna d'aria equivalente a 761^{mm}, che è il massimo, tenendo conto dell'altezza normale del barometro al piano del mare. Considerando la mobilità della grande massa aerea, e le continue vicende meteoriche cui la medesima va soggetta, si sarebbe indotto a credere alla facile mutabilità della pressione atmosferica. Epperò, dice Lombard¹, esiste per ciascuna località un'altezza normale del barometro, e le oscillazioni della colonna mercuriale sono di due ordini differenti: le une si presentano sotto forma periodica, e si riproducono in certe ore del giorno, in certi mesi o stagioni, ed in certe circostanze di altezza e di latitudine; altre al contrario, comunque si mostrino anche con una certa periodicità in certe circostanze, di cui faremo parola, sono pertanto essenzialmente irregolari, e molto più transitorie, essendo sotto la dipendenza immediata dei venti e della umidità atmosferica. Intanto è mestieri si conosca che, tranne le grandi differenze che si osservano nella colonna barometrica per le altezze, o nel caso di intense correnti di venti, o di terremoti, o di tempeste, le modificazioni della pressione atmosferica, le quali non sorpassino pochi millimetri, non esercitano che una debole influenza sulla nostra economia.

1°) Nello scopo di avere una media esatta dell'altezza barometrica normale si possono tener presente certe ore, le quali rappresentano le

PLATE 5.

ORIBASII MEDICINALIVM COLLECTORVM,

AD IMPERATOREM IVLIANVM CAES. AVG.

LIBER PRIMVS,

Ioanne Baptista Rafario medico, No-uariensi, interprete.



P I T O M A S, quas tu olim Diue Iuliane Cæsar mihi conficiendas mandaueras, iam pridem, cum in Gallia citeriore essemus, ad finem, quemadmodum tu voluisti, perduximus: quas quidem ex ijs solis confeceram, quæ Galenus conscripssisset. cumq; tu eas laudauisses, alterum mihi laborem adiunxisti: ut perquisitis omnibus quæ medici præstantissimis maxime opportuna dixissent, & quæcunque ad medicinæ finem pertinerent, unum in uolumen redigerem. id quod ego pro virili parte me prompto animo facturum decreui: cum existimem hæc collecta fore utilia ijs in quorum manus incident, vt statim, quid semper ijs, qui auxilio indigeant, utile sit, comperiant. Nunc vero cum superuacaneum & omnino ineptum putem eadem sæpius adscribere, & quæ ab optimis medicis, & quæ ab ijs, qui non ita diligenter res tractauerunt, scripta fuerint: ea solum colligam, quæ nobis reliquerunt ijs, qui cæteris præstiterunt: sed nihil omitam eorum, quæ Galenus dixerit: siquidem ex ijs, qui easdem res pertractauerunt, ipse & uia ac ratione, & distinctione cæteris omnibus antecellit, ac principia & sententias Hippocratis imitatur.

A tur.

PLATE 4.

T. LUCRETII
C A R I
DE RERUM NATURA.

LIBER SECUNDUS.

S uave, mari magno turbantibus æquora ventis,
E terra magnum alterius spectare laborem.
Non quæ texari quæquam est iuicunda voluptas,
Sed, quibus ipse malis cæceat, quia cernere solet.
Suave etiam belli certamina tueri
Per campos instructa tua sine parte periculi:
Sed nihil dulcius est, bene quam munus tenere
Edita dell'ima sapientum templa ferena:
Despicere unde quæsi alios, palliuntque videre
Errare, atque tuam palantes querere viam.

LUCRÈCE,
DE LA NATURE,
DES CHOSES.

LIVRE SECONDE.

I L est doux lors que l'on est sur la terre ferme, de voir la mer agitée par les vents, exercer sa fureur sur des mal-heureux: ce n'est pas que l'infortune d'autrui donne du plaisir; c'est parce qu'il est agréable de se voir à l'abri du malheur, de la même manière que la scène d'un combat furieux, plaît à ceux qui n'en sont que les spectateurs, sans avoir part au péril: Mais il n'y a rien de plus charmant, que d'être admis dans ces Temples élevés des Sages, dont la doctrine rend l'esprit tranquille & ferait: C'est du haut de ces Temples que vous regardes les mortels dans une

F 2

PLATE 6.

there have been many changes, that it is still changing, is positive proof that it is alive and takes note of the changes and mutations brought about by science and the flight of time.

Dr. Rose, whose enthusiasm for the Greek language seems stimulated by the romantic history of that interesting people, seems to think that we should adopt modern Greek because of that history. The reason is not a valid one; the only real question before the scientific world is: What language can we adopt as

that one which will require the least expenditure of time and energy, consistent with accurate transmission of ideas? The question of history has nothing to do with it. We are to consider the actual need and the best means of supplying it. Shall we return to Latin? Here there is no change, and for nearly one thousand seven hundred years that was the scientific language of the world. Less than two centuries have elapsed since Latin ceased to be the common language of science. It was abandoned simply because it was inelastic; it failed to accommodate itself to the new inventions and discoveries which created a new world to be named, and myriads of objects quite unknown to the classic Roman. The

Chap. xii.

The thyrd boke John

isouderin
catnarius

wyth a caustyke of capstell, whan the mattier is aboute the skynne. Than afterwarde lette the place be mundysed wyth Unguentum egyptiacum, mengled wyth Unguentum apostolorum, or wyth oure pouder of mercurye, or wyth a troiscque of minium. And than lette the place be purified, wyth hony of roses, and wyth a mundificatyue of Smallege, and incarnated wyth oure pouder incarnatyue, the description whereof is after thys sorte. R. of Aloes Hepatyke. 3. lii. of myrthe, of Frankencense, of Sarcocolle. aa. 3. i. mengle theym. And yf you adde of cleare Cerebentyne. 3. v. of honye of roses strayned. 3. ii. it shall be verye profitable. Lette the place be sealed vp, and cicatrised wyth oure pouder cicatrizatyue, and wyth water of Alume, and wyth vnguentum of minium, whych bene wyttē in our antido tarpe, wherunto resorte.

The. viii. treatise speaketh of the apostemes of the hyppes, thyghes, legges. And of the Apostemes of the lyuer, and scrophules and fugilles whych chaunce vnder the arme holes.

The fyrste chapt. treateth of apostemes of the hyppes hote, and colde, santouise and not santouise.

Apostemes
of the flanc-
des. &c



If Apostemes of these partes, some are engedred in the outwarde partes as in the stonkes the flancdes, the fundamente, of whych we haue spoken. Wee wyll here speake of an Aposteme that is engen-

dred in the inner partes. The curatiō of thys aposteme differeth not fro the comune cure of other Apostemes, wherof we haue spoken, in the former chapyters. Wherfore if it be a colde aposteme, for the resolution, and molificatiō, and other intentions, ye shal procede as in the cure of colde apostemes. And likewise if it be hote & come to maturatiō, let it be opened, mundified, incarnated, and sigilled. &c. as is declared in the former chapters.

Neuertheles thys is to be noted, & it requireth a discrete chirurgien, whā there is mattyer or corruption in the place or not, bycause of the thycknes of the muscles, and of the flesh. Wherfore good William Placentine in his tyme resistyng chirurgiens, that said that thys Aposteme was not sanious obtayned greate worshoppe, and profite. For he made incision in the presence of chirurgiens, and found great quantitie of mattier or corruption in the aposteme. Thus endeth. &c.

The. ii. chapter of hote and cold apostemes of the knees, thyghes, and legges.

The Apostemes of the thyghes, knees, & legges, haue no differēce (touchinge the curatiō) froin apostemes of the shoulders, elbowe, & of the bone of the arme called adiu-toriū. Wherfore for all the intentions of the cure of the same, ye shal resorte to the former chapyters. Neuertheles they differē in one thyng, that is that the patientes muste not exercise them selues in goynge & cōpyng, as much as shall be possible. Thus. &c.

The thyrd chap. of the swellynge of the knee.

There

modern Italian, while still spoken best in the soft Tuscan sound, and is based upon ancestral Latin, differs as widely as Spanish or French from the original tongue. I present you a page from Oribasius, which is from the famous press of Aldus, of Venice, printed in 1560, showing the Latin page of the sixteenth century, plate 4, and a section from Fazio's hygiene, printed in Italian, at Naples in 1887, plate 5. The wide departure from the Latin could scarcely be made more plain, and it is quite clear that even the Italian would scarcely find the Latin language easier to him than to the Spaniard, the Portuguese or the French.

Indeed, we may easily see that there is a close correspondence between the French of the seventeenth century and the Latin where, as in this page of Lucretius, printed in Paris in 1692, we have side by side the Latin and the French, plate 6. Nor is the divergence of modern French very great from the Latin. We may exclude English from consideration on account of its extreme difficulty. It is not strange that it should be difficult when we reflect from what varied roots the English language is derived. The Teutonic, Gothic, Celtic and French contribute to its common stock, while its scientific language is mainly of Greek and Latin parentage, and this conglomerate, more rich in words than any other, except perhaps the monosyllabic tongues of the Orient, are more varied and flexible than any other. But the scientific foreigner can only acquire our language with extreme difficulty, and he rarely if ever learns to speak it without a betraying accent. All arguments considered, I have come to the conclusion that the French language is that most easily acquired by other nations, and the one that can be used for the purposes of an international scientific language with least friction.

As already mentioned, it is now the language of diplomacy and polite society throughout the world. Nearly every medical man who learns a language in addition to his own, learns French. This is absolutely true of all Latin nations. At the International Medical Congress of Berlin, I never met a physician from Mexico or Central or South America who was unable to speak French, and I attended a dinner at Prof. Martin's, where nearly every country was represented, and the language spoken was French, notwithstanding our host was German and we were in the great German capital. In Roumania and Turkey the medical publications are largely in French, and in Buenos Ayres and Brazil medical pamphlets are usually published in French even if published in the native Spanish or Portuguese, and in many cases such documents are duplicated.

It seems to me that laying aside all questions of sentiment, either of romance or patriotism, and keeping steadily to the utilitarian question confronting us, we must admit that we may meet more people on a common level by the use of the French language in all international gatherings, than by the use of any other known tongue. The transition from Latin to French is so easy that almost anybody who has conquered the rudiments of Latin, may acquire a translating knowledge of French in a very short time.

I quite agree with Dr. Rose in the statement that in learning a language we must learn it by ear as well as by the eye, and instances are numerous where one with good translating knowledge of a language, has no knowledge whatever of its sound. For this reason, if there were no other, the study should be carried on conversationally as well as by reading the

written or printed word. This applies with as much force to French as to any existing language.

The changes in the French language in the last three hundred years are much fewer than in the English language of the same period. If you examine one of the English black letter scientific books, such for instance as this section from an English translation of John de Vigo, printed in 1550, plate 7, you will doubtless have to look twice to realize that it is English, as it was written; but the French of the same period, while naturally changing somewhat, remains so nearly the same that it may be read without difficulty.

I conclude, gentlemen of the Association, not with a certainty that the question is settled, but with the firm conviction that you are increasing the scholar class in our profession and that you will be able to unite on some language which we may all choose as our second language, to be used at our international gatherings to the glory and advancement of medicine throughout the world.

LECTURES.

OPENING LECTURE OF THE COURSE ON MILITARY HYGIENE.

BY MAJOR CHARLES SMART.

SURGEON U. S. A., ARMY MEDICAL SCHOOL WASHINGTON, D. C.

Hygeia was the Goddess of Health, the daughter of Æsculapius. Hygiene is the science of Health. It was called by Prof. Parkes the art of preserving health; but since he wrote the introduction to his classical work hygiene has been developed by study and observation into a science, and its art or the practical application of its laws has relieved the name of sanitation. We are here to study the science and its practical applications, not only that we may protect the soldiers of the United States from the attacks of disease, but that we may preserve their physical powers at their maximum of vigor.

The duties of an army surgeon are various. They require him to be a many-sided specialist. When a soldier becomes sick the army medical officer has to treat him as his attending physician; when accidents or injuries occur he has to be prepared for the emergency as operative surgeon, but at all times he has to watch over the health and strength of the command as its sanitary or health officer. In this last respect his duties do not differ materially from those of the health commissioner of a municipality. The health officer of a city has to guard the community against the introduction of infectious diseases by a system of quarantine or of careful inspection. If any infectious disease, such as smallpox, scarlet fever, measles, diphtheria, cholera, or yellow fever, should make its appearance in the city, notwithstanding his precautions, he must endeavor to prevent its spread by isolation, disinfection and other special means, meanwhile determining, if possible, its derivation and the measures to be adopted to prevent the occurrence of other cases from the same source. He has likewise to guard the city against any outbreak of disease from local insanitary conditions, or in other words, to see that all nuisances are abated. He has to look after the wholesomeness of meat, milk and vegetables, and the condition as to purity or adulteration of various articles of food. He has to keep guard over the water supply, whether general from the city reservoir or local from wells or springs, and to pro-

vide for the satisfactory removal of offal, garbage, waste water and night soil. Lastly he is responsible for the accuracy of the vital statistics of the community. To enable him to perform these various duties he has the assistance of a staff of expert employes, including sanitary, police and plumbing inspectors, bacteriologists, analysts and statisticians.

The army medical officer has similar responsibilities, but he has no such staff; he must be prepared to undertake by himself any or all of these duties as the occasion may require. Hence the necessity on his part for a more intimate knowledge of the methods of practical hygiene than is usually conveyed in the curriculum of a medical college.

It is only in recent years that the status of the army medical officer as a health officer has been officially recognized. It is true that in the early years of the republic he was charged by the Regulations to do everything in his power to eradicate contagion; but this meant only contagion in the hospitals, the contagion of hospital gangrene and of the deadly typhus fever, and gave him no power over the general well being of the troops. The Regulations of 1828 provided that when troops were in quarters the surgeon should from time to time inspect the rooms and kitchens, the quality and preparation of the food, and the location and condition of the vaults, reporting defects and suggesting improvements to the commanding officer, who was thereupon directed to take such action as seemed to him necessary and proper. The surgeons did this honestly and faithfully, inspecting and recommending until they became tired of making recommendations that were never carried into effect, for the commanding officers of those days seldom considered it needful or proper to take any action, but instead often regarded the medical officer as officious and meddlesome, and his report and recommendations as reflections on their administration. For many years the Regulation was, therefore, a dead letter; but in progress of time the popularization of sanitary science became such that military commanders began to have a better appreciation of sanitary recommendations, and as a result we have now vastly improved conditions and lessened rates of sickness and mortality. At the present time most military officers are as interested in the sanitary condition of their men as are the medical officers themselves.

I have told you that the duties of the military health officer do not differ materially from those of the civilian officer; they are both based on the same principles. It may be well, therefore, to outline briefly some of the salient features in the history of hygiene that you may the better appreciate the value of sanitation in improving the condition of the human race. Ordinarily medical men in dealing with medical history drop back to Hippocrates, the Father of Medicine, who lived in the fifth century before Christ; but hygiene was known and hygienic rules followed long before his time. Among the Greeks the very name *hygeia* suggests its existence as far back as the mythical time of Homer's Iliad; while about the same time in the wilderness of southern Syria the leader of the Israelites elaborated a system of sanitary rules for the protection of the nation which he had formed out of the Egyptian bondsmen. In doing this, however, it is probable that he gathered up into one system of sanitary law all the knowledge of the subject then possessed by the priests and learned men of the Egyptians. He insisted on clean-

liness, the isolation of the sick and care in the selection of articles of diet; and in carrying into effect these rules, which was scrupulously done by the Jews in after ages, they oftentimes protected themselves from epidemics of disease which scourged their Christian neighbors.

It is, however, to Hippocrates that the credit is usually given of having been the first teacher of hygiene. He had established a sanitarium and college of medicine at the springs on the Island of Kos in the Aegæan Sea; and his name and reputation were known throughout the whole of the civilized world, that is throughout the Grecian peninsula and in the settlements on the shores of the Mediterranean. It is related that Pericles sent for him to come and save the city when the plague was devastating Athens and threatening the extinction of the people. He went, and found magnificent dwellings and luxurious interiors, but the city as a whole saturated with filth. He began his work of sanitation by draining and cleaning up, and endeavored to protect against seizure by keeping large bonfires, to which aromatics had been added, burning in the streets; thus recognizing, not an infection which he was destroying, but an unusual and harmful constitution of the atmosphere which he was endeavoring to alter. This epidemic constitution of the atmosphere, in explanation of the existence of epidemic disease, has survived almost to the present day, lingering longest in connection with influenza, but the progress of bacteriology may be said to have now laid it to rest. On his return to Kos he wrote his book on "Air, Water and Places," which is regarded as the first work written on the subject of hygiene.

Rome received her instruction in medicine from Greek physicians; but she appears to have elaborated her own system of sanitation, for the great sewer of the Tarquins, which to-day helps to carry off the waste water of the city, was built 140 years before Hippocrates was born. It opens into the Tiber by an arch twelve feet high, surrounded by three tiers of *vousoirs*. Three hundred years later the Appian Way was commenced, and the first water from a distance was brought into the city by the Censor Appius Claudius Cæcus. In another 300 years, or in the time of Augustus, the aqueducts bringing water from the Sabine hills were 270 miles long, 30 miles crossing the Campagna on lofty arches. The Campagna at that time was covered with villas and country seats; malaria was unknown, for drainage and cultivation kept it in good sanitary condition. Every care was taken of the health of the people and of the sanitation of the imperial city. Later, hygiene degenerated into luxury, which has left a record in the ruins of the public baths. The colonnade surrounding the *Thermæ* of Caracallus was a mile long, and enclosed trees, flowers, lawns, and a stadium for the exercise recommended to be taken after the bath; but if one were lazy the halls, theatre, museum, library, etc., within the building afforded other means of enjoyment. At the present day the remains of this structure are, after the Colosseum, the grandest ruins in Rome.

In progress of time the civilization of the Roman Empire was swept away by the inroads of the northern barbarians. Alaric of the Visigoths captured Rome early in the fifth century, and Genseric toward the middle of that century completed its destruction. The dark ages descended upon Europe, and nearly a

thousand years elapsed before the dawn of our modern civilization began to illumine the mental atmosphere of the Aryan race.

Two diseases which affected humanity from the earliest periods of recorded history had much influence in stimulating a practical interest in preventive medicine. To leprosy we owe our present hospital systems, and to the plague our system of quarantine and maritime sanitation.

Leprosy was common among the Israelites throughout their history. They brought the disease with them from Egypt, and from the Egyptians also Moses no doubt obtained his rules for diagnosis and for the segregation of the lepers without the camp, as given in Chapter xii of Leviticus. General Lew Wallace, in his novel, "Ben Hur," gives a realistic picture of the life of those affected with leprosy at the beginning of the Christian era. Leprosy was introduced into Greece and Rome in the first century by troops returning from Syria, and thence it spread slowly, almost imperceptibly, to the colonies in France, Spain and Britain. A thousand years later it was epidemic in Europe, and continued so for many hundred years; even royalty was not exempt from its infection. Every town of any size had its hospitals for the isolation of the lepers. There were 95 in England and no less than 2,000 in France, and the laws regulating them and their inmates were strictly enforced. These undoubtedly contributed much to the suppression of the disease. A few survivals of its existence continue in Europe, notably in Norway. Its prevalence continues in Asia and many other parts of the world, particularly in the West Indies; in the Hawaiian Islands 2 per cent. of the natives are said to be affected.

The nature of the plagues of ancient history is uncertain. Besides that which we now recognize as plague, they probably included all fulminant febrile infections. We do not know the nature of the plague of Athens in the time of Pericles, nor of that which devastated Rome thirty years earlier and which, according to Livy, destroyed most of the slaves, one-half of the citizens, many senators, priests, tribunes, and two successive consuls. Bubonic plague was described as a foreign disease by the earlier Roman writers. Europe did not become invaded until the reign of Justinian A. D. 542, when it entered Constantinople from Asia Minor. After this there were repeated reintroductions or epidemics developed from sporadic cases. A great wave started at Genoa in 1346, and continued with periodic exacerbations for twenty years, during which 25,000,000 people were destroyed. At this time contagion was noted as a factor in its spread, and Boccaccio tells us of the efforts made to preserve Florence by excluding the disease. Sanitary cordons, the equivalent of what in our day we call "shot-gun quarantines," were drawn around healthy places to preserve them, and around infected places to prevent the spread of the pestilence. Venice at this time was the commercial metropolis of the world. Her vessels brought home the products of the East, and occasionally among them cases of the oriental plague. In 1423 she built a lazaretto for infected sailors, but not until 1484 were laws enacted for the detention of vessels from infected ports prior to permitting the admission of the crew, passengers or cargo. The city of London suffered, as did all the other European cities. Sporadic cases were noted every year, and occasionally the disease spread with epidemic vio-

lence. In 1665 the city had been comparatively exempt for seventeen years; but in the summer of this year 70,000 persons died out of a population of less than half a million, two-thirds of whom had fled into the country. The great fire occurred next year; and the subsequent freedom from plague was attributed by many to this purification by fire and the subsequent rebuilding of the city on better sanitary plans; but about the same time the disease began to subside all over Europe. Continental cities ascribed their protection to strict quarantine, but England did not institute quarantine until 1720, when a deadly epidemic in Marseilles threatened the whole of Europe. The progress of civilization, of which sanitation is a part, has banished plague, and it is now found only in the country south of the Caspian Sea and in certain of the seaports in China. It ravaged Canton and Hong Kong in 1894.

The discovery of the protective value of vaccination was the first grand step made by preventive medicine after the modern revival of learning. On May 14, 1796, Dr. Edward Jenner of Berkley, England, vaccinated a boy from the sore on a milkmaid's finger, and on July 1, following inoculated him with smallpox. The protective influence proved by this experiment took the mortal sting from a disease which for ages had more than decimated the human race. It has been estimated that prior to this discovery one-sixth of those born fell victims to smallpox, and of those who survived many were deaf, blind and disfigured. The smallpox pitted face, so common in the early days of this century, is now a rarity among civilized nations.

The study of typhus fever in prisons, ships, camps, and the crowded slums of large cities, demonstrated the existence of a contagion or pathogenic influence which appeared to be called into being under conditions of over-crowding and insufficiency of fresh air, and led to an appreciation of the value of air space and ventilation as sanitary factors in dwellings. The advantages derived from the practical application of this knowledge were the suppression of typhus fever and hospital gangrene, and the lessened prevalence of consumption and of those cachectic conditions that originate in ochlesia or crowd-poisoning.

Its further study, leading to the distinction between typhoid and typhus fevers, had also important sanitary bearings, for it ultimately showed that the germ of the former disease was to be found in the excreta. For a time exhalations from these were regarded as containing the infective material. The sewers of a city containing typhoid fever patients were, in the language of Dr. William Budd, "a continuation of the diseased intestines." Sewer air had, therefore, to be kept from our houses, and to this effort to protect us from typhoid exhalations, we are indebted for many improvements in sewerage systems and house plumbing. Later, when the propagation of the disease by water was discovered, the attention of practical sanitarians became directed to the protection and purification of water supplies, an agitation which is still in progress.

I have said that the plague gave us our quarantines for protection against exotic diseases. It is, however, to cholera and yellow fever that we owe the improved quarantine methods of the present day. Cholera made its first progress over Europe in 1830; and in its periodic visitations since that time it has always come from India, and generally by way

of the Red Sea. The annual pilgrimage to Mecca brought cholera as well as pilgrims to the Holy City of the Mohammedans, and pilgrims from Europe carried the infection with them on their homeward journey. International conferences were called at various times to consider the best system of protection. The most important of these was that of Constantinople in 1866, which established a quarantine under international auspices in the Red Sea to intercept infected vessels and prevent Mecca from becoming a great distributing center. This did much to restrain the advance of the disease and to relieve the local quarantines in the the Mediterranean. Later conferences, as at Vienna in 1874 and at Rome in 1885, did much to lessen the cruelties of a prolonged quarantine by recognizing the English view—that importation of the germ was of less material consequence than local filth and insanitary conditions in the invaded seaport. Local sanitation then became the order of the day, with medical inspection of incoming vessels to determine the presence or absence of disease, giving free pratique if no case had occurred on the ship and if seven days had elapsed since leaving the port of departure; but if the ship was infected provision was made for the removal of her sick, the retention under observation of those who apparently were well, and the disinfection of the vessel and her cargo.

Yellow fever gave us a similar quarantine or sanitary service in the United States. The belief that yellow fever was indigenous in this country rendered our quarantines valueless for many years. Since the War of the Rebellion, however, the disease has been regarded as an exotic, and since the widespread epidemic of 1878–79 it has been excluded from the country by an inspection service to determine the condition of the vessel, the detention of infected persons, and the disinfection of infected ships.

The registration of vital statistics and the institution of boards of health were two most important agencies in the modern progress of practical hygiene. The record of births, marriages and deaths was made at first for legal purposes only. It was not until 1839, when Dr. William Farr prepared the first annual report of the Registrar General of England, that the value of vital statistics in directing the work of sanitation became demonstrated. The mortality returns were the most important in this respect. They showed the excessive number of deaths among children under five years of age; the high death rate in cities as compared with the rural districts, and in certain parts of a city as compared with certain other parts of it; the high death rate among persons engaged in certain trades, and the high rates occasioned at times by certain diseases. All these facts led to observation and study for their explanation, and these again suggested hygienic measures to remedy the insanitary conditions that were discovered. England has the most efficient system of registration. The local registrars report weekly to the headquarters in London, and from the office of the Registrar General are issued weekly, monthly, quarterly and annual reports. The Registrars General in Edinburgh and Dublin publish similar reports for Scotland and Ireland respectively. In the United States many cities and a few of the States have excellent systems, but taken as a whole this country is far behind in the registration of vital statistics. Not so, however, the U. S. Army; for the Army medical officer reports all cases of sickness as

well as deaths, and this it is which gives so much value to the statistical reports of the Surgeon General. An excess of sickness over the average of the Army at any one post can be detected immediately, and the character of the reported cases generally gives some indication of the nature of the necessary preventive measures.

Boards of health, or local sanitary authorities, were a result of the inquiry into the causes of excessive death rates as developed by the registration returns. Their duty was to lessen such rates by preventing or removing the insanitary conditions that gave rise to disease or promoted its spread. In this country boards were first appointed in our large and growing cities. Much good was accomplished by them within their jurisdiction; but it speedily became evident that for efficient work there must be such a coöperation among the local officials as could only be effected by the intervention of the State. After a time State boards of health began to be organized by various legislatures; and it is to be observed that much of this work of organization was carried out by medical men who had served during the War of the Rebellion. Their duties and experience as Army medical officers had impressed upon them the value of preventive measures and each, having influence in his own State, became an important agent in promoting the progress of public sanitation. Derby in Massachusetts, Rauch in Illinois, Hewett in Minnesota, Baker in Michigan, and many other pioneers of State medicine in this country were volunteer medical officers during the war.

Many of the annual reports of municipal boards contain valuable papers in the form of reports of committees on the local water supply, drainage, sewerage, etc., and on the measures adopted for the suppression of epidemic diseases. The reports of the State boards also are mines of sanitary information.

But you will readily understand that just as there are subjects of sanitary import that exceed the jurisdiction of a municipality and require the intervention of State authority, so there are subjects so extensive as to reach beyond the lines of a particular State, although of the greatest importance to the well being of the people of that State. One which is calling for federal legislation at the present time is the prevention of the pollution of rivers and other natural sources of water supply, the people of one State who drink the water having no authority over the sewage disposal of cities in an adjoining State by which it is contaminated. To preserve the people of the whole country from insanitary conditions a perfect coöperation is needful among State and local authorities. A good understanding prevails among medical and sanitary authorities, but these are too often powerless to accomplish the end in view. Municipal authorities and State legislation view the sanitary proposition from the financial standpoint, and they are not likely to authorize the expenditure of funds for a special and costly method of sewage disposal that the water supply of some other State or city may be protected.

The protection of the coast line against the importation of cholera, yellow fever, smallpox, etc., is also a subject on which there must be either a perfect coöperation among local authorities or a federal supervision, for an efficient quarantine at one seaport is of no value to a country if the disease effects a landing through the inefficiency of the service at another port. There are also many questions concerning protection from indigenous diseases, such as consumption and

typhoid fever, which are of interest to all the States, and which could be studied to better advantage under national auspices than by the individual and uncoordinated efforts of the several States.

For these reasons most of the medical and sanitary men of this country are anxious to see established a National Board of Health. In this respect the United States is behind the age. The English have a central health authority called the Local Government Board, which comes, when necessary, to the assistance of the local health authorities. Germany has its Imperial Board, which has become famous by the work of Dr Robert Koch in its laboratory. Our Mexican neighbors have a Superior Board of Health for coordinating the work of the State boards, and even Japan, the latest national adjunct to modern civilization, has a Central Board of Health.

In 1871 a number of sanitarians met for the purpose of organizing an American Public Health Association. One of the objects of this Association was to secure legislation on behalf of the public welfare, and particularly to obtain federal recognition of the importance of the subject by the establishment of a National Board of Health. But its efforts in this direction were neutralized by an argument based on the unconstitutionality of such a board. In the cession of certain of their powers by the States to the Federal Government for the general protection, the police powers of the States were not included. The right of the local authorities to be supreme in such matters prevented action by the general Government. A few years afterward, however, the disastrous epidemic of yellow fever which devastated the South in 1878, so overcame the State's rights doctrine in connection with health matters that the strongest supporters of a National Board of Health were the members of Congress from the Southern States. A bill establishing a board was passed in 1879, and this Board did excellent service in protecting the country from imported disease, and in promoting sanitary work in the various States. Under the impetus given to sanitation during the few years of its existence boards of health were organized in most of the States, and these latter fostered the organization of local boards and kept up close official relations with them, so that nothing of a threatening character could occur in any part of the State without an immediate reference to the State Board for advice or assistance.

The National Board was ultimately destroyed by the continued operation of the influences which opposed its organization. The Marine-Hospital Service now conducts the duties of maritime quarantine on the lines established by the National Board of Health, but this service does not fulfil the purposes of a federal board in questions of internal sanitation. Medical men and sanitarians are therefore as earnest at the present time as they were in 1871 in their efforts to secure national health legislation; and as the President in his message to Congress last year indicated its necessity, there seems some prospect that this country may soon have a central or federal sanitary bureau or even a Department of Health, as urged by the AMERICAN MEDICAL ASSOCIATION.

I have given you this general sketch of the progress of hygiene and sanitation that you may be better able to appreciate the relations of military to public hygiene; for the Army medical officer in time of peace has usually a civilian settlement attached to his station for which he must act as health officer,

and in time of war the sanitary interests of large sections of the country may devolve upon him.

At our next meeting I shall bring you into more immediate contact with the military branch of the general subject of hygiene and sanitation.

REMARKS ON CLINICAL CASES.

I. PHLEBITIS AND PERIOSTITIS FOLLOWING TYPHOID FEVER; II. ACUTE BRIGHT'S DISEASE; III. POST-HEMIPLEGIC TUMOR.

Lecture delivered at the Pennsylvania Hospital, Nov. 9, 1895. Reported stenographically for the JOURNAL.

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Gentlemen:—You will be interested, I think, in seeing the progress of some of the cases that were before you at our last clinic; a series of cases illustrating sequelæ, of unusual occurrence in our day, of typhoid fever. This young man was the case of femoral phlebitis; phlegmatia dolens it was formerly called, or milk-leg, which an accurate pathology has taught us to now regard as phlebitis. You will recall that I directed your attention to the course which this ran; how it began in the right leg; how that leg became tense, painful and swollen; how the swelling gradually subsided, except along the course of the femoral vein. Now, it had hardly subsided before we began to notice swelling and tenderness in the calf of the other leg. We next observed some swelling over the glands in the groin and tenderness over the left femoral vein; the most marked features, however, being the tenderness in the muscles of the calf. Recognizing this as a phlebitis in this limb, we began the treatment as before, by elevating the limb, making applications of witch-hazel distillate, and administering the tincture of the chlorid of iron, internally. I am happy to say that under this treatment, the inflammatory condition has subsided; the swelling and pain, and the tenderness in the calf, which at the beginning were such marked symptoms, have disappeared. There is now no longer any tenderness along the femoral vein and the swelling of the glands has also gone. In fact, the man is perfectly well except that he must be cautioned against standing much upon this leg for the present, or using it much in walking, for a certain amount of edema will result from using the limb too soon.

The interesting fact in this case was the early and valuable diagnostic sign that we obtained from the tenderness in the calf, which indeed was the first manifestation of the phlebotic process. The patient is now convalescent; but he may continue the tincture of iron three times a day, with a good diet.

Having disposed of that case, we can briefly dispose of the case of periostitis following typhoid fever.

Here, gentlemen, is the case, which I told you was regarded as one of periostitis of the tibia following typhoid fever. There was much swelling over the front of the tibia extending along this bone; but tenderness upon pressure and pain were the most marked features. There was slight elevation of the bodily temperature, which no longer is present. This morning there is no tenderness, and the swelling of the covering of the bone has subsided, although the patient still complains of some soreness of the skin where the blister was applied. He was, indeed, treated with blisters over the site of tenderness and he

was kept at rest in bed, with the foot slightly elevated. He is well, and nothing more need be done for him.

ACUTE BRIGHT'S DISEASE OF THE KIDNEYS.

The next case is one of acute nephritis, one of a kind we see frequently in practice.

The patient is a sailor, 21 years of age, who has been much exposed at sea. He was brought here with the statement that he had had some form of obscure fever at sea, of which the exact history can not be now ascertained. Following this fever, he had an eruption of some character upon his legs and face. We also know nothing about this eruption, although from his occupation we may have our surmises as to its specific character, yet we can know nothing about it. The eruption upon the legs may have been caused by some local application of the nature of which we are not informed; it may have been some preparation of coal-oil. He says that he did use some application and that it was followed by this eruption besides a good deal of inflammation. There was desquamation after he came into the hospital. This was the only history we could obtain of the case.

When he was admitted his temperature was 102° in the evening and a slight decline took place next morning. The fever temperature gradually subsided, and this morning it is 100.6°. When he came in, his face was very much swollen. As you perceive, it is still somewhat swollen; but nothing like it was on admission. His legs were swollen also; they are less swollen now. You see this curious eruption upon the legs. When my attention was first called to it, I was asked if it was smallpox in its declining stage; but it has none of the characteristics of smallpox. I believe that it was due to some irritant, like coal-oil; some application which was made while at sea. Of course, as already hinted, as he is a sailor we might assume that it is due to syphilis; but as it is limited to the legs, this is against that view. Moreover, he positively denies anything of the kind, or that infection exists. Upon thinking over the case, it occurred to me that it possibly might be due to some strange blood eruption, like the eruption of purpura; but the fact that it is found only on one part of the body, the legs, and that it is papular instead of being petechial, decided against this also. I then concluded that while the exciting cause was an irritating application, the subsequent course of the eruption was due to the course of the disease. What disease? Well, from the general appearance of the man, his puffy face and evident anemia, I concluded that it was a case of Bright's disease. The urinary examination confirmed this view. Here is the statement: Urine reddish, with a flocculent sediment, acid in reaction, specific gravity 1022; albumin present in large amount, no sugar. Some finely granular and epithelial casts and much debris, urates, etc. The daily quantity when he came in was twenty ounces, therefore scanty. Yesterday he passed forty-seven ounces.

With this large amount of albumin and scanty urine, with swollen face and fever, there was no doubt that we had here a case of acute nephritis, one of the forms of Bright's disease. If you ask, What did it follow? we can not here be certain; we simply take it as a case of acute Bright's disease, with inflammation in the tubular portion of the kidney and exudation and swelling interfering to a considerable extent with the function of the kidneys and causing scanty albuminous urine. This condition may follow

cold and exposure; it may follow acute rheumatism. And especially is it seen in persons who are rheumatic and are then exposed to cold and dampness. It frequently follows scarlet fever, and the thought may occur to you that this is a case of acute nephritis following scarlet fever. It is true he had fever on board ship, and an eruption, the character of which we do not know, nor can we ascertain the nature of the feverish attack. Gentlemen, we will have to leave this as a matter of doubt; but I rather incline to think that it was not scarlet fever. The man himself states that he had no fever; but we know he must have had some because he came in with a fever. But that is a matter of no great significance, the main point is the condition in which we find him at present. Let us inquire into the future course of the disease and whether it will recur. We will also take up the question of treatment.

Acute Bright's disease is an inflammation of the cortical portion of the kidneys; they become swollen up, congestion and exudation occurs, serum and blood corpuscles enter the tubules and appear in the urine. Epithelial, hyaline and granular casts and blood elements are detected with the microscope. Under favorable circumstances and with good management, these all disappear. Nine out of ten cases recover perfectly; the tenth case may not recover, that is to say, the condition may pass into a chronic nephritis and the large white kidney may result. Recovery is therefore the rule in acute nephritis under treatment; but this presupposes care and treatment and does not take into account a possible occurrence—there is always a danger of these inflamed kidneys suspending action and producing uremia and convulsions. Therefore, while the prognosis is, on the whole, favorable, it is so only under proper treatment. If this can be obtained the prospects are that the albumin will slowly disappear from the urine and the kidneys slowly resume their functions. But these patients, in the future, after fresh exposure, will be likely to show a small amount of albumin in the urine. So much for the prognosis. The diagnosis is an easy one: The swelling of the face and limbs; the presence of albumin in the urine; the small quantity of urine; the presence of tube-casts—all these make up a clear and distinct diagnosis of acute nephritis. In what stage of the disease was this man when he reached us? Was he still in the acute stage, or had it passed? It had passed; the disease had reached its height before he came in. Why do I say this? Because there was no blood in the urine. During the first week or longer there is blood in the urine and blood-casts, casts with blood cells on them, with very many leucocytes. You recall the fact that this man's urine had no blood and no mention is made of leucocytes. We must conclude then that the most acute stage had passed before he came into the hospital.

Now as regards the treatment: The most important points are to act upon the skin and the bowels and to keep the kidneys flushed, by diaphoretics, cathartics and diuretics. You must use derivative treatment, while putting the patient upon the blandest diet, chiefly fluid, with a view, as I have just said, to keeping the kidneys flushed. How is this to be effected? The best remedy in the treatment of acute nephritis with which I am acquainted is digitalis. Indeed, it is an interesting fact in medical history that digitalis had a reputation in connection with

disease of the kidney long before it had gained its reputation in disease of the heart. In this case it is given as a diuretic, and I shall frequently have occasion to point out its value in the treatment of similar cases. The preparation I prefer is the infusion, giving half an ounce four times a day. Under this treatment the urine has increased from 20 to 47 ounces in the case before you. In addition, so that nothing in the diet should irritate those inflamed kidneys, we placed the patient upon a milk diet; he has had an absolute milk diet and nothing else since his admission. We usually allow in addition a certain amount of fluids, such as weak tea, or any natural diuretic water. If you are not sure of the quality of the water, use distilled water, as the most important element in these waters is the water itself. In this way you keep the kidneys flushed out by using water. As long as the patient is passing 47 ounces daily, I am satisfied. In addition we purged this man with one or two drachms of Rochelle salts, given each morning. Then we also acted upon his skin, and there is nothing better for this than a vapor bath. This can be easily arranged by means of a few hot bricks; but where it can not be carried out, you can resort to some diuretic. Jaborandi or its alkaloid pilocarpin may be used; the latter in doses of one-sixteenth of a grain, given three or four times daily, would be very serviceable. We have not used it here, as we used the baths instead.

Under this treatment, there is no doubt of this man's ultimate recovery, provided he escapes uremic accidents, and I hope to be able to show him to you before he leaves the hospital without a trace of albumin in the urine. I must speak of one more feature in these cases which I omitted, that is the fever. The degree of the fever is not high, the temperature going as in this case, to 102° or 102.5°, but not much higher than this.

POST-HEMIPLEGIC TREMOR.

Here is a man of whom as yet I know very little, as he has been in the hospital only a very short time. His name is J. S., he is 58 years of age, colored, a clergyman by profession. The notes taken upon admission state that his family history shows no hereditary taint. He has used tobacco in moderation, but no alcohol for many years. He has been ill for nearly two years. He is subject to attacks of cardiac asthma, or dyspnea, with pain around the region of the heart. He has had a few attacks of epistaxis and also has had attacks of hemoptysis. He says that suddenly, while preaching one day, he found that he could not raise his left arm or move his left leg, nor could he close his left eyelid. Note this curious fact—all this happened while he was preaching. His speech was not affected nor did he lose consciousness; in fact he hardly noticed that anything had happened to him. He was admitted into the hospital about eighteen months after this occurred. During these eighteen months his general health was fair and he regained some power in the left hand and in the leg also, but was able to walk only a short distance. Just before admission he had another slight attack. He did not notice this himself, but his daughter says that he became weak and his mind was distinctly clouded. It is not known whether or not there was any additional loss of power.

Since his admission, we have learned that he had lost flesh during the past year; that his mental con-

dition had become enfeebled; that he has had attacks of giddiness, and that he is subject to slight headache; but this he has not complained of since he came into the hospital. Headache has not been a prominent feature. His temperature has been running about normal, with slight variations. His respirations are 20 to 27 to the minute. His pulse 86 to 90, somewhat irregular, every now and then intermitting a beat. The radial artery is resistant to the touch. When I listen to his heart, I find a distinct, harsh, mitral, systolic murmur, and an accentuated pulmonic second sound. The apex impulse is diffused and only of moderate force. There is some hypertrophy, but only of moderate extent. That is with regard to the heart. The urine is passed involuntarily and it is impossible to get at the exact amount, as he generally passes it in bed. It contains a trace of albumin, of specific gravity 1018 and neutral in reaction. The bowels are irregular. The tongue is coated, flabby, and deviates a little to the left when protruded. He has some control over the left arm, but note the tremor as he raises the hand. He says it has trembled a great deal. My impression is that there is a very slight tremor when the arm is at rest and a very distinct tremor when he attempts to move the hand. The legs do not tremble. This tremor is associated with loss of power to some extent in the left hand and arm. Sensation is diminished on the left side. You observe that these pin-points on the fingers, separated a considerable distance, are felt as one. Sensation is therefore diminished but not abolished on the left side.

Now, gentlemen, what is the matter with this man? He can walk, but has loss of power in the left leg and loss of power in the left arm and hand. There is stiffness in the muscles of the left arm, and some wasting. We have tested the electrical condition of the muscles and find that there is beginning reaction of degeneration, though not marked. There is diminished sensation and power; but not complete paralysis. There is also tremor in the left hand. What has happened here? What was the original disease and what has been its course, and what is occurring now? The original condition was one of cerebral embolism. It was a clear case. The loss of power came on suddenly in the arm and leg, occurring—and I lay great stress upon this—without loss of consciousness. He went on talking, with complete loss of power on the left side of his body, showing that you may have hemiplegia without loss of consciousness. When this occurs, in nine cases out of ten it is a case of cerebral hemorrhage. Here you have an additional reason for this diagnosis in the disease of the heart. A small plug has been washed from the mitral valves and carried into the smaller vessels of the brain and shut off the blood supply to the motor centers of the left arm and leg.

What has happened since the embolism occurred? What often happens in these cases of cerebral embolism—the mental condition has been impaired. Following loss of nutrition in the cortical centers and impairment of function, degenerative changes in this area have taken place. While, as so often happens, there has been some recovery of power, the power has not been entirely restored. But this loss of power is not so much what I wished to show you, as the tremor of the left hand, a spasmodic trembling often associated with disturbance of functions. Now, gentlemen, this is a condition much more common in

cases following embolism than in paralysis from rupture of vessels, and it indicates, in nine cases out of ten, a clot in the vessels rather than an effusion of blood.

You ask the cause of the tremor: Why should the man have a trembling hand, a tremor that has been termed post-hemiplegic chorea? It is extremely difficult to give any definite information upon this point. The tremor with the spasm that may complicate it is due to a deficient blood supply in the motor centers in the brain, either of the cortex or elsewhere. Disturbance of nutrition is followed by disturbance of function, and under certain circumstances by structural change and degeneration. While this explanation is not easily proved, yet we know that a certain amount of blood-supply is necessary to maintain a condition of healthy nutrition, without it, an altered nutrition with tremor and spasm occurs. Now, you may ask where this lesion was located. Considering the hemiplegic and hemi-anesthesia on the left side, it affected the right side of the brain and points to the internal capsule involving the posterior thoroid.

Let me briefly speak of the treatment of this case. The patient is to be kept as well-nourished as possible. Keep the bowels acting and watch the kidneys. In the early stage of the disease possibly iodid of potassium may do good; but where it has existed as long as it has here, we can not expect very much from it. We will give him the syrup of hypophosphites. He shall have gentle massage and good diet. We will caution against exertion and advise rest. Otherwise no special treatment is needed as there is no way of repairing these damaged valves which involve, by their ultimate effects, far more serious consequences than their original attack.

ORIGINAL ARTICLES.

NOTES ON RETENTION OF URINE FROM URETHRAL STRICTURE.

Read before the third district branch of the New York State Medical Association.

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The purpose of these notes is to recall attention to some of the ready and simple methods of relieving sufferers from the distress caused by retention of urine due to urethral stricture. This kind of urinary retention is seldom sudden; it is ordinarily preceded by difficult urination, whose increase—from month to month, from week to week, from day to day—is proportionate to the diminution of the urethral caliber at the diseased point, and also to the degree of muscular spasm of that part of the canal. For several weeks prior to complete retention, although urination be very frequent, the bladder is not emptied; this constitutes incomplete retention of urine which, from its stagnate state, soon gives rise to cystitis. At length the urine ceases to flow; there is then complete retention. This urine, accumulating for thirty-six or forty-eight hours, begins to slobber involuntarily, when the complete relapses into incomplete retention.

The laity often regard involuntary escape of urine as cause rather than effect, and endeavor to repress the "undue flow" by sundry processes which, fortunately, prove ineffectual. Meanwhile the vesical dis-

tension increases, and unless the patient invokes a physician's assistance without further delay, the urethra is likely to burst behind the stricture and give issue to the urine, which infiltrates and destroys the connective tissue of the perineum and scrotum. In rarer instances of inordinate vesical distension, a fall, a sudden movement of the body, or a violent struggle during anesthesia has been known to cause rupture of the bladder.

Long-standing incomplete retention of urine with spasm of the bladder is much more serious than the retention which becomes complete in the course of a few weeks, for, in the first-named condition, the upper urinary organs are often irreparably damaged and the prognosis is generally unfavorable. It is before the advent of these untoward effects that the greatest good is to be accomplished. Therefore, experienced physicians recommend the early treatment of stricture as preventive of retention of urine and its ill consequences; but their instructions are seldom followed, and the responsibility rests with all unruly patients who are too apt to seek advice at the last moment, when the bladder is distended to its utmost degree and the suffering is more than can be longer endured, even by the most stolid of men, after divers nostrums have been tried and found wanting in efficacy.

It is too common in such cases to resort to cutting operations, which are indicated only after failure of careful catheterism with filiform bougies, or after repeated supra-pubic capillary puncture of the bladder and aspiration of the urine. In ordinary cases it is possible to give prompt relief by making some preliminary dilatation of the stricture; beginning with a No. 1 soft, olive-pointed bougie, and continuing the dilating process by passing successively Nos. 2, 4, 6 and 8, after which it will be easy to use a No. 7 curved web-catheter that serves to allow the urine to flow slowly until about two-thirds of the amount contained in the bladder shall have escaped. The catheter is then plugged at its free extremity, is fastened in position, but is not retained more than thirty-six hours, during which time some urine is drawn off every three hours, and the bladder finally emptied a few moments before the instrument is withdrawn. After this the stricture is gradually dilated by using bougies of increasing size every third or fourth day until the normal caliber and suppleness of the urethra is restored. Without preliminary dilatation by means of small bougies, it is usually difficult and often impossible to introduce a necessarily small web-catheter by reason of its undue flexibility as soon as it is warmed in the ureters. The insertion of a metallic stylet in a small web-catheter is not prudent on account of the possibility to perforate the instrument and the urethra, even when the manipulations are carefully and gently conducted.

Any stricture amenable to the method of treatment above described may be regarded as an easy case. The physician is, however, liable to be called to minister to cases that are not manageable with regulation bougies. Like cases have been related with the paradoxical title: "The way to pass impassable strictures," or "How to pass a bougie when it can not be passed." These surgical bulls have come forth from time to time during the past three decades. The meaning sought to be conveyed seems to be, in the first case—how to pass strictures that are impassable by ordinary instruments; and in the

second case—the kind of bougie to use when the common sort fails. These ideas could have been more briefly expressed by—catheterism in difficult cases.

The difficult cases are those of very narrow, eccentric, tortuous, dense and resilient strictures, which are accompanied by inordinate spasm of the muscular layers and are seated in the perineal region of the urethra. A second narrowing in the penile region is generally a troublesome complication which often necessitates internal urethrotomy.

A debauch, in wine or venery, is commonly the excitant of complete retention of urine. In such a case the urethral mucous membrane is likely to be swollen and sensitive, and to bleed freely as soon as a bougie is passed. As a general rule, when catheterism is not deemed expedient, the bladder is punctured above the pubes with a hollow needle, through which the urine is aspirated and, if necessary, the operation is repeated until suitable instruments can be used to treat the stricture.

One of the simple and ready methods of entering a narrow stricture, whose lumen is eccentric, is by means of a filiform probe-pointed whalebone bougie, elbowed at its extremity. This instrument is used as an explorer of the narrowed canal and is quickly passed through the stricture in nine out of ten difficult cases, and serves as a conductor for a No. 1 or a No. 2 conical curved steel staff, grooved along its convexity, and having a canal or tunnel two or three millimeters in length, beginning at the blunt point of the instrument and ending in its groove. Through this canal is threaded the bougie, which guides the staff into the stricture, dilating it sufficiently to permit the introduction of a larger tunneled sound, then a third, fourth, fifth, and so on, until divulsion occurs. After this a tunneled catheter is substituted and enough urine is drawn off to relieve the distress caused by distension. The bladder is not completely emptied until the second day. The object of delaying to empty the bladder is to guard against vesical hemorrhage, which is so likely to occur after the sudden withdrawal of all the urine in cases of long-standing distension of the viscus, particularly in elderly men.

It sometimes happens that stricture is so dense that it can not be dilated by the tunneled sound beyond No. 2 or 3. In that case a tunneled catheter No. 2 or 3 is substituted, and through this instrument the urine may be aspirated if necessary. Then a small web-catheter is passed and fastened in position for forty-eight hours, during which time the urine is allowed to trickle out, partly through and partly beside the instrument. On the third day it is generally possible to carry on dilatation with less difficulty and, if needed, the process of continuous dilatation may be repeated until the stricture shall admit a bougie of the size of the normal caliber of the urethra. When, however, a stricture seated in the perineal region can not be entered with any kind of bougies, after repeated trials, it is proper to resort to its external division, with the double object of curing it and of relieving the distended bladder.

For some years past there has been a pernicious fashion of dilating the strictured urethra to an excessive extent and of using the dilators with undue frequency. In the many cases so treated the consequence has been a total loss of the urethral suppleness due to sub-acute urethritis, with extensive infiltration of round cells and their subsequent transfor-

mation into scar tissue, so that the canal, although greatly increased in caliber, is in a state of permanent contracture.

Men of dissolute habits, like the cases presently to be stated, seldom return for radical treatment until they are again suffering from retention of urine. Narrow resilient strictures are not permanently cured by any method of treatment whatsoever, unless the treatment is followed by the persistent use of dilating instruments, once every week or ten days, for at least three years. Some patients need the use of such instruments for many years, if not for life.

The following recent cases may serve to illustrate the efficiency of tunneled sounds and catheters in difficult cases of urethral strictures with complete retention of urine.

W. L. S., 28 years of age, was admitted to Bellevue Hospital on the 8th of April, 1895, suffering much pain from retention of urine, which had become complete thirty-six hours before. He had had three attacks of urethritis, the first, twelve years, the second three years, and third, eight months, before admission to the hospital. The first attack lasted three months, the second, four months, and the third merged into a gleet which existed at the time of his final retention of urine. During the eight months prior to admission, he had repeatedly had complete retention of urine after great abuse of ardent spirits, but was each time spontaneously relieved, except after the last debauch, which began early in April, 1895, when, on the morning of the 7th of that month, the retention persisted, but he did not apply for medical aid until the following morning, and the physician employed undue force in using the catheter, with the only result of drawing blood instead of urine. With his bladder distended to the level of the umbilicus, the patient was conveyed to the hospital on the afternoon of the 8th of April. Exploration of the urethra revealed a narrow stricture in the region of the bulb, and a false passage anterior to the stricture. The urethra having been filled with oil, an elbowed filiform whalebone bougie was passed through the stricture and, reaching the bladder, was used as a conductor for Nos. 4, 6, and 8 conical tunneled sounds with which the canal was rapidly dilated, when tunneled catheters Nos. 7 and 10 were introduced, and eighteen ounces of urine drawn. The patient was then sent to bed after he had taken ten grains of quinine. No anesthetic agent had been administered. Three-quarters of an hour afterward he passed spontaneously five ounces of urine without, however, emptying his bladder. In two days the stricture was dilated to No. 12 (English gauge); on the fourth day, to No. 13; and on the eight day to No. 14 which has since been introduced every fourth day. The patient has experienced no untoward effect and has been able to urinate at ordinary intervals, in a large stream, and to empty his bladder. It is scarcely necessary to say that antiseptic precautions were taken in the treatment of this, as well as in the many other cases of urethral strictures received in the hospital.

E. T., 50 years of age, was admitted to Bellvue Hospital, on April 22, 1895, in a profound state of alcoholic intoxication, suffering from complete retention of urine of forty-eight hours standing. His bladder was distended beyond the umbilicus although urine had been slobbering out for twelve hours. He was an habitual excessive drinker and his final de-

bauch had lasted three days. He had had three attacks of urethritis in the course of fifteen years, and had suffered retention of urine three times during the twelve months prior to his admission. Once the bladder was relieved of its burden of urine by suprapubic capillary puncture and aspiration. There were two dense, narrow strictures, one in the penile, one in the perineal region of the urethra. Very soon after admission he was successfully catheterized with a fibroform whalebone bougie and tunneled instruments, beginning with No. 2, and carrying the dilatation to No. 6, when twenty-eight ounces of clear urine flowed through the catheter; this being about two-thirds of his bladder contents. An olivary bougie No. 5 was then passed and retained in position twenty-four hours; the urine oozing beside the bougie after a few hours. The usual dose of two grains of quinin was administered. Dilatation of the strictures was continued every second day, and at the fourth and fifth sittings No. 8 was easily introduced. In the meantime the patient urinated in a good stream at regular intervals. Dilating instruments were used every fourth day until No. 13 could be easily passed. The patient was advised to continue this treatment indefinitely, and was discharged at his own request on the 27th of May.

The writer has employed this method of treatment, in upward of five hundred difficult cases of urethral stricture, with a degree of success that warrants an earnest recommendation of its more general use. In the great majority of these cases, no anesthetic agent was administered, because the operation is not very painful, because it is of short duration, because of the danger of vesical rupture incurred during the struggles of the semi-conscious patient in the second stage of anesthesia, and because of the ill effects of some anesthetics—particularly ether—upon the kidneys. The mortality has not exceeded three per centum and has been due mainly to advanced disease of the bladder, ureters, and kidneys.

SUSPENSION OF THE UTERUS.

THE OPERATIVE TREATMENT OF RETROFLEXION BASED
ON A CONSIDERATION OF 200 CASES.

BY HOWARD A. KELLY, M.D.
BALTIMORE, MD.

At the meeting of the AMERICAN MEDICAL ASSOCIATION in Baltimore in May, 1895, I made an address before the Obstetrical and Gynecological Section on the subject of the "Operative Treatment of Retroflexion," taking as a basis of my remarks the 170 cases upon which I had operated since coming to Baltimore six years ago. Since May I have added thirty more cases, bringing the total up to exactly 200. All but a few of these cases were operated upon in the Johns Hopkins Hospital; the others were patients in my private sanatorium.

The mortality in the 200 cases has been zero, and there has not been a case of serious illness following the operation. There has been one recurrence of the retroposition, making the failures one-half of one per cent. In about 5 per cent. of the cases stitch-hole abscesses and separation of the lower angle of the incision occurred; this accident very rarely happens now with my present technique in closing the abdominal incision.

The suspensory operation was abandoned in one case recently because the enlarged uterus was so

friable that the stitches cut out as soon as they were tied.

In all cases where the vaginal outlet was relaxed it was repaired at the same time the uterus was suspended; when there is both retroflexion and relaxation of the vaginal outlet, if I can do only one operation, I prefer to lift up the outlet under the pubic arch. It is well known that I have always been an earnest advocate of the direct method of treating retroflexion by a small abdominal incision, bringing the uterus into anteposition and holding it there by two stitches through the anterior abdominal wall and the posterior surface of the fundus. I am influenced by four principal reasons in continuing this method of treatment, which I originated nine years ago; these are:

a. A natural tendency to continue an investigation in the line already opened up (see *American Journal of Obstetrics*, January, 1887).

b. The advantages of a direct inspection of the ovaries and tubes, as shown by the cases of inflammatory adhesions found at the operation, where it was not known that any had existed. In one case I was fortunate enough to find a little papilloma, not as big as the end of my finger, starting out of the ovary. When the uterus is adherent no other method can be so good, as this is the most direct way of dealing with the adhesions.

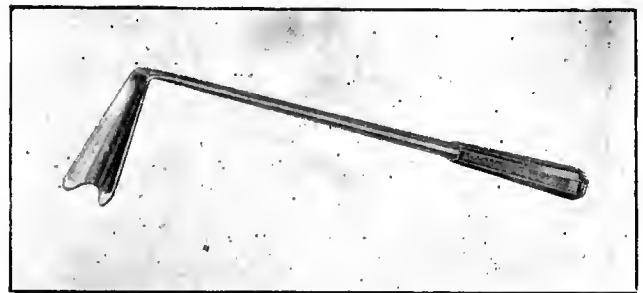


FIG. 1.—Elevator which serves to hold uterus up while first stitch is being passed.

c. The mechanical advantages of my suspensory operation acting directly on the posterior surface of the retroflexed fundus, are better than the same organ held forward by pulling on the round ligaments on both sides.

d. Probably the best reason of all is the remarkable statistics of my 200 cases without a single death, and with but one recurrence of the displacement in a patient in whom a tube and an ovary were removed at the same time.

With this introductory statement I present my address substantially as given at the Music Hall last May, with the analysis of the first 170 cases. The last thirty are more recent and may, therefore, be left out without disadvantage.

I hope the illustrations which accompany my paper will help make clear some points which are difficult to describe away from the actual demonstration on the patient.

I have adopted the same "Suspensio Uteri" as more correct than "Hysterorrhapy," which is a plastic suture of the uterus, or than "Ventrofixation" or "Hysteropexy," both of which, though widely used, give a false impression of the results obtained. If the operation is properly performed the fixation (*pexy*) of the uterus lasts but a short time, after

which the organ is found mobile with fundus well forward in an easy natural antelexion, and with a marked space between it and the abdominal wall to which it was attached.

The casts forming the basis of this report are all of my operations between Oct. 16, 1889, and May 1, 1895, and they include all the cases I have ever operated upon by the method I shall here describe as the best.

In my earliest efforts to hold up the retroflexed uterus in ante-position I utilized first the cornu uteri and then the anterior face of the broad ligaments, taking by preference the round ligaments close to the uterine attachment as recommended by Olshausen.

Most of these cases held well, but some eventually dropped back and the old symptoms returned. The reason for this (as I pointed out in my first paper in the *American Journal of Obstetrics*, Jan. 1887, p. 33), is clearly that the uterus is put in a position of mechanical disadvantage when the anterior face is drawn up against the abdominal wall above the symphysis.

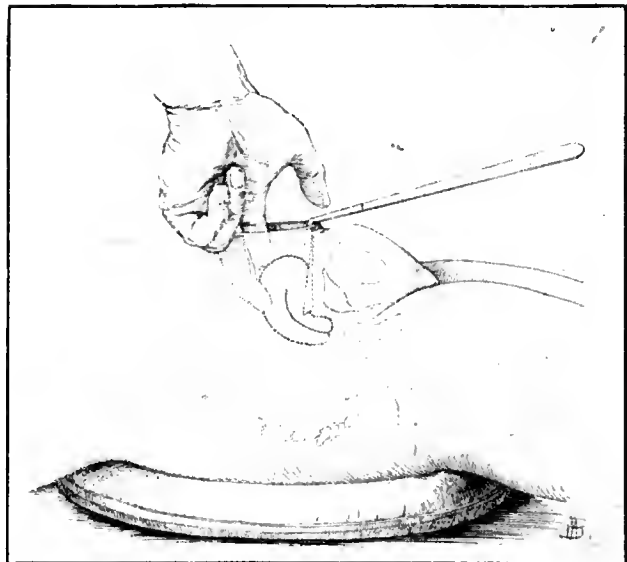


FIG. 2.—Elevator in and hand holding uterus in place while first stitch is passed through posterior surface of fundus.

The best way to do the operation is to bring the uterus into antelexion by passing the sutures through its posterior surface. In this position a slight force will hold it better than a much larger one where the fundus is thrown back by bringing the anterior face against the abdominal wall.

Indications for Suspension.—The indications for suspension of the uterus are the existence of a retroflexion which cannot be corrected or whose symptoms can not be relieved by non-operative treatment, such as packing, massage, and pessaries.

I would use it in all those cases of retroflexion which, as Dr. Beverly MacMonagle of San Francisco puts it, are more or less tied to the office of the physician by their ailment; patients who may go for years, better at times and then worse again for several weeks or more, and never feeling quite well.

I would also urge a suspension where the menstrual difficulties, backache and bearing down pains, headache, loss of appetite, difficult defecation, and various general disturbances are persistent.

The classes just cited are easily recognized because their pelvic symptoms are so prominent as to attract

attention at once; but there is another class of neurasthenics equally important, whose local symptoms may be more or less in abeyance, and the first impression is that the neurotic condition is primary and fundamental, and the local disturbance merely accidental. I know of no class of cases where a good professional instinct and good judgment come into better play in selecting the suitable case and rejecting the others.

In a woman who is persistently neurasthenic, or in one who after repeated building-up efforts persistently falls back into a morbid neurotic state, where there is a retroflexion or retro-position, with definite pelvic disturbances becoming more marked at the menstrual period, I would without hesitation urge suspension.

A young woman came under my care three years ago, through the courtesy of Dr. I. E. Atkinson of this city. She had been bed-ridden for four years, most of which time she had spent in a hydropathic

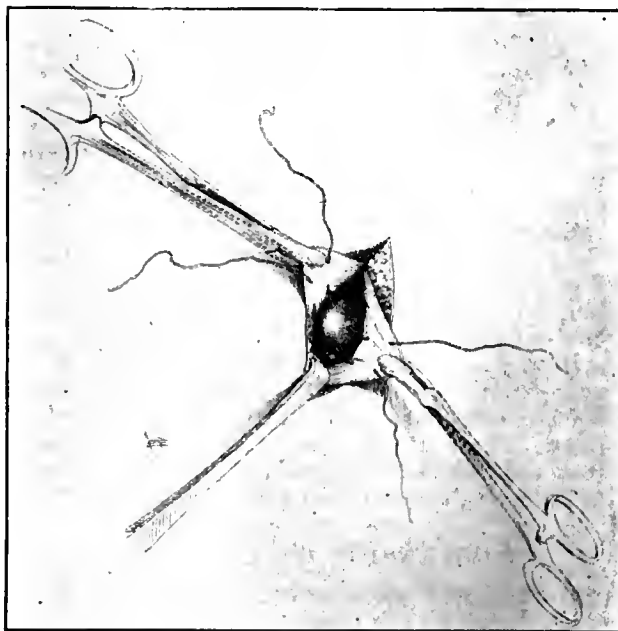


FIG. 3.—Two silk sutures in place in the posterior surface of uterus near fundus, not yet tied.

establishment securing imaginary improvements. She was a typical hysterical neurasthenic, as she lay drawn up in bed with a miserable pinched look, apparently oblivious, but really taking in all that was going on about her.

She had that peculiar expression which is so easily read and which forbids any appeal to reason and high moral grounds as out of the question. The only tangible trouble was a retroflexion, with tenderness and marked disturbances at each monthly period.

I first shortened both round ligaments intraperitoneally by Wylie's method, and she began to improve in a remarkable manner, but one day about three weeks after the operation I found her again miserable and depressed, complaining of all her old symptoms. Examination showed that the uterus had dropped back to its original position. The abdomen was reopened and the uterus suspended by my present method. She at once got better and is to-day one of the finest and healthiest women mentally and physically that I have the pleasure of counting

among my friends. I have never seen a greater transformation in any one. I would therefore operate for a retroflexion in the hysterical, neurasthenic patient with pronounced pelvic symptoms, and I would do it with the expectation of an occasional failure to give relief. One cure like that above is worth even half a dozen failures, provided they entail no disability upon the patients.

Operation—following is the method of operation:

1. After due preparation, emptying the bladder and anesthesia, the abdomen is slightly elevated and an incision 3 to 5 cm. long is made, beginning about 2 cm. above the symphysis, down into the abdominal cavity.

2. The peritoneum is then caught with artery forceps on each side and drawn out. This is to prevent pulling in the peritoneum by the suspensory sutures and leaving none to close the incision.

3. The retroflexed uterus is then hooked up and lifted into ante flexion by means of two fingers carried into the wound.

4. One side of the incision is then elevated with two fingers, and the peritoneum and subperitoneal fascia caught with a curved needle carrying the suspensory silk ligatures. The amount of tissue embraced is about one-third of an inch wide and one eighth of an inch in depth.

5. The same (ligature) is then conducted through the uterus on its posterior face below the fundus, and finally through the peritoneum and fascia of the opposite side, when it is tied, bringing the uterus up snugly against the anterior abdominal wall. If the pelvis is deep and the uterus lies out of reach, it may be brought up and held in position while passing the suture, by means of an elevator such as is figured here. This is introduced down into the pelvis in front of the uterus, which is pressed into it and held as against an artificial symphysis. As soon as the first stitch is passed the elevator is laid aside. After tying the first suspension suture, the second is easily put in, entering and emerging on the abdominal wall just above the first and piercing the posterior surface of the uterus just below the first; when it is tied it increases the ante flexion.

6. The sides and front of the uterus are examined to see that no intestine is caught, and the omentum is drawn down, and

7. The abdomen is closed. I do this by taking off the forceps and sewing up first the peritoneum with the finest silk, and then drawing together the fascia with one or two silver wire mattress sutures, finally closing the skin with a subcuticular suture of fine silk.

The patient may rise sooner, but I find it better to keep her quiet from two to three weeks. It is not necessary to wear an abdominal bandage, and I never put in a pessary afterward.

It was necessary in one case to reopen the abdomen for a hemorrhage following the operation; this arose from the slipping of the ligature at the cornu uteri, the stump of an amputated tube and ovary. There was no trouble from adhesions or incarceration of a knuckle of intestine in front of the uterus in any case.

Out of 130 of these cases carefully analyzed for me by Dr. George W. Edwards for the results, within a few weeks of the operation 100 were reported well, 26 improved, 4 not improved. The recovery was interrupted:

By a transient mania in 3 cases; by bronchitis in

3 cases; by pneumonia in 1 case; by stitch abscess in 3 cases: by hemorrhage from a repaired outlet in 1 case; by dysuria in 4 cases; by hysteria in 4 cases.

The proportion between married and single women was about 2 to 1.

I am not prepared at present to state the number of children born since operation. There have been at least six pregnancies, and in but one was there any marked discomfort and dragging due to the attachments of the womb. (*Amer. Jour. of Obs.* 1894, p. 370.)

I do not know of any case in which the retroflexion has recurred after pregnancy.

There has never been a hernia in any case.

In women who have borne children the retroflexion is often associated with descensus and relaxation of the vaginal outlet. It is useless to expect relief in these cases by simply suspending the uterus which, instead of being gently detained in easy ante flexion, simply drags on its attachments until they give way. In such cases the vaginal outlet must invariably be repaired too. Sixteen out of 133 cases needed the vaginal repair. In going over my statistics I am surprised to find so few needing this double operation and estimate the percentage at present as certainly much larger.

In 7 cases both tubes and ovaries were removed for disease; in 9 cases one tube and ovary removed; in 3 instances I ligated either uterine or ovarian vessels; in 2 a myomectomy was performed; in 1 a nephropey.

THE DISEASES, DEATH AND AUTOPSY OF NAPOLEON I.

BY EDMUND ANDREWS, A.M., M.D., LL.D.

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Napoleon has again invaded the nation, coming this time on a tidal wave of literature. The magazines for two years have been full of him. New books describing his campaigns have rapidly appeared, and now at last physicians are besieged for opinions about his diseases and the causes of his death.

The gigantic intellectual power of this man was such that even now, seventy-five years after his death, few writers can look calmly on his career and weigh him impartially for what he was worth. They dispute about his acts, motives and morals, and take sides for and against him as if he were alive and still riding at the head of his armies.

This folly has filled the air of history with a fog which obscures every part of his biography, medical or otherwise. However, after much hard work I have so far gotten at the truth that I think I can give a substantially correct account of his diseases and of their influence on his career.

The facts of his medical history mainly depend on five writers cotemporary with him, whose works are now old, rare and difficult to find, to whose accounts may be added numerous scattered facts preserved by non-medical persons.

The earliest of these five writers was William Warden, surgeon on board H. M. ship *Northumberland*, which conveyed Napoleon to St. Helena. During the voyage, and for a month after, Warden was in close and friendly intercourse with the Emperor, and preserved many facts and conversations of his patient, who talked freely to him with a view to the publication of his ideas, hoping thereby to modify some of

the prevailing English prejudices. Warden published his little book two years later, and it was read to Napoleon by his attendants at St. Helena.

The Government detailed a naval surgeon named Barry O'Meara to act as Napoleon's physician at the island. He was a well-educated man, as education went in those days. He lived on the most friendly terms with his patient; but as he would not betray the professional secrets of the ex-Emperor's acts and conversation, the Governor, Sir Hudson Lowe, was angry, so that he and the doctor got on very badly together, living in a state of illy suppressed animosity. O'Meara was an honest and truthful man, but biased strongly in favor of Bonaparte. He kept a faithful diary of facts and conversations for future publication, apparently with Napoleon's approval; and, as he suspected that the irate Governor would seize his sheets, he secretly sent off copies of them to England as fast as they accumulated. His diary covers a period of nearly six years.

Napoleon kept up a constant quarrel with the Governor, whom he called a rascal, or hangman, a hired assassin, and many other names not very endearing. After some five and a half years, the Governor sent O'Meara back to England, being suspicious that he secretly helped the Emperor to correspond with Europe. O'Meara published his diary in 1822, a year after Napoleon's death, suppressing certain parts which he felt bound by professional obligation to keep private.

On O'Meara's removal, the British Government requested Napoleon's uncle, Cardinal Fesch of Rome, to select a successor to O'Meara. The Cardinal chose a Roman physician named Antommarchi, who was sent to the island and cared for the royal prisoner until his death in 1821, some nine months after Antommarchi's arrival.

He subsequently published a report, reasonably correct as to physical facts, but full of venomous hostility to the Governor.

During the last two months of the patient's life Dr. Antommarchi requested Dr. Arnott, a naval surgeon at the island to consult with him, which he did and continued to do almost daily until the patient's death, some eight weeks later, in June, 1821. Dr. Arnott's report of the consultations and of the autopsy was published. He appears to have been a well educated and honorable medical man.

Before his death Napoleon directed that a post-mortem examination be made, and that a report of his case be made out for his son.

Eight years later, when that son reached his majority, Dr. J. Héreau of Paris, former surgeon to "Madame Mere," the Emperor's mother, and to the Empress, Marie Louise, carefully examined the reports of the four surgeons above mentioned who attended Napoleon at St. Helena, and searched every other accessible source of information about his prior diseases and their causes. This semi-official report was printed, and a copy presented to Napoleon's son when he arrived at his majority. Héreau was an intelligent medical man, and though full of animosity against the English, and bitterly prejudiced against the Emperor's attending physicians, he handled the scientific facts of the case with an evident intention to be truthful.

These five old books, with a few scattering facts from other cotemporary writers, contain about all that is left on record of Napoleon's medical history.

Naturally, the earlier allusions to his diseases are scanty. While he was on the throne everything pertaining to the imperial health was a profound State secret, and for the most part his physicians were faithful to their professional obligations and died without revealing anything. Héreau only wrote because the dead Emperor had commanded it, and his son and heir authorized it.

Though the known facts were thus scanty, hundreds of rumors all along prevailed about his diseases and death.

Napoleon himself constantly charged that he was being intentionally killed by the climate of St. Helena, and left on record this sentence: "I die prematurely, murdered by the English oligarchy and their hired assassins."

When the news of his death first reached Paris the wildest rumors sprung up and were believed. One was that the Governor of St. Helena, Sir Hudson Lowe, enticed the Emperor out for a walk and suddenly pushed him over a precipice into a chasm, when a sentinel shot him for being outside the dead-line. Another stated that he was suffocated under a mattress, a third that he was strangled in his room, and a fourth that he committed suicide.

Napoleon's suite returning from St. Helena soon contradicted these wild stories, yet Dr. Héreau, writing eight years afterward, said that it was still believed outside of Paris that he was poisoned. To this day French writers occasionally speak of him as murdered by the English. Dr. Héreau himself says there was no murder and no suicide; but he thinks the tropical climate of St. Helena was very deadly, and shortened his life.

The facts about the climate are these: The island is situated in the southern tropics, but the Emperor's residence was in a farm-house called Longwood, 2,000 feet above the sea, where the temperature was never above 75° F. nor below 60°. There were no marshes on those rocky hills, and no malaria. The sea winds were unpleasantly strong, and Napoleon complained of their dampness and coolness and of the frequent showers; but the post-mortem showed that he did not die of any disease of the respiratory organs. Decidedly it is a healthy climate for most persons. We may therefore dismiss the climatic question with the rumors of murder, etc., and discuss more tangible facts.

WOUNDS RECEIVED IN BATTLE.

Napoleon's body at the autopsy showed the scars of several wounds, especially on the thighs and legs. He told Surgeon Warden that he had eighteen horses shot in battle, and that he received several slight wounds which he seems to have concealed as far as possible. One or two of them he even kept back from the knowledge of his surgeon, treating them himself by wrapping wet cloths around them. The motive was probably this: He found great advantage in giving his army the impression that he was an extraordinary and invincible being, having a supernatural star of destiny that insured victory and protected his person from death. It was not judicious, therefore, to allow his troops to become too familiar with the idea that he might be shot and killed like any common man. None of his wounds were serious, or left any injury to his health.

HIS "MYSTERIOUS MALADY."

Field-Marshal Garnett Wolseley, present head of

the British Army, in his book entitled "The Decline and Fall of Napoleon," says that in his Russian campaign of 1812 the Emperor began to show the effect of some "mysterious malady" which injured his mental powers. He would plan a campaign with all his old-time military genius; but when the fight was actually on, and before the close of the day, his energy flagged, he became drowsy and negligent and let the fruits of his victories slip away from him. The Empress Josephine remarked that after great battles, even when victorious, he suffered great depression of spirits and expressed intense dissatisfaction with the results obtained. At the battles of Dresden, Ligny and Waterloo, Field Marshal Wolseley says this mental failure showed itself plainly, and his generals noticed it. On the day before Waterloo Gen. Vandamme said, "The Napoleon we once knew no longer exists. The victory of yesterday (Ligny) will yield no fruits." The Minister of War, Carnot, remarked in substance as follows: "I no longer know him. He used to be lean, shy and silent. Now he is fat and garrulous. He is sleepy, and his mind wanders. He, the man of rapid decision, who resented the proffer of advice, now talks instead of acting, and asks opinions."

Wolseley states that at the battle of Waterloo Napoleon suffered pain in riding, and that he had a table set in the open air in a suitable position for receiving dispatches and issuing orders, where he sat for hours, much of the time asleep, leaning his head on his arms. When it became necessary to get him away from the field, he was so drowsy that it was difficult to get him upon his horse.

Now all his physicians agree that he was unusually abstemious in drinking, and there is not a shadow of proof that he took opium, so that his drowsiness did not arise from these causes. At St. Helena he was a poor sleeper, rising at three or four o'clock in the morning and using all sorts of devices to while away the unwelcome waking hours. He had, therefore, no permanent lethargic disease.

The truth probably is this, taking the Waterloo campaign for an example: About a hundred and ten days previously he had landed from Elba. In twenty days of intense labor and sleepless energy he had marched to Paris, overthrown the King and taken again his imperial throne. There "he worked like a galley slave for eighty-four days," toiling fifteen hours a day to reorganize the Empire, raise an army, put down royalist uprisings, gather money (\$20,000,000) for his campaign and march his troops to Belgium. All this terrific labor he accomplished while suffering under a genito-urinary disease which may have partly weakened his force of will. He must have arrived in Belgium exhausted mentally and physically to the verge of collapse by overwork and loss of sleep.

Napoleon was not superhuman. His drowsiness and illness at Ligny and Waterloo were presumably due to the above causes. A medical man would hardly call his condition a "mysterious malady."

WAS HE AN EPILEPTIC?

In 1810, when Napoleon was in the height of his glory and England was full of the wildest rumors about him, one Louis Goldsmith published a book in which he gathered up every sort of story against him, regardless of its truth or falsity. Among other things he said that all honest men would be glad to learn

that Bonaparte was an epileptic. His proof was the statement of a French theatrical actress named Mdlle. Georges Weimar, who alleged that she had been called to spend the night with the Emperor at the palace of St. Cloud. In the course of the night he was attacked with convulsions, which so frightened her that she screamed aloud and roused the palace, causing the attendants and the royal family to rush in. She stated that the Emperor, on recovering from the fit, discovered that her screams had caused the exposure, and that he drove her out of the apartment, throwing her clothes after her.

Now it is not incredible that any one should have epilepsy, but the testimony of a prostitute is no proof of the alleged fact. The story sounds exactly like one of the lies which prostitutes delight to tell when they seek to increase their importance by relating their wonderful adventures with great men.

Goldsmith gives another tale equally destitute of authentication. It is to the effect that Napoleon, walking in a partly lighted corridor, met an attendant whom he did not recognize, and that he became frightened, screamed aloud, and fell down unconscious. These tales prove nothing.

The only other evidences which I can find are these: Surgeon Barry O'Meara, who attended him nearly six years at St. Helena, mentions that on two mornings the Emperor told him that he was apprehensive of apoplexy, for he had experienced a nervous attack during the night and thought he had lost consciousness a few moments. His servant thought he was faint on one of the occasions and threw cologne into his face to arouse him, causing his eyes to smart. This may have been a nightmare. Dr. Héreau says he was subject to twitchings of the left shoulder and of the corner of the mouth, and also at times to vertigo. These symptoms might possibly be with Jacksonian epilepsy, but it is not probable.

On the whole, if Napoleon were an epileptic from the date of Goldsmith's book in 1810, to his death in 1821, it must have been known to many physicians, surgeons, staff officers, secretaries, guards, valets, servants, and members of the imperial family; and however faithfully they kept the secret during his power and prosperity, some of their tongues would have been loosened after his fall and death. The rumors were universal on both continents, but there is probably no truth in them.

HIS CUTANEOUS ERUPTION.

The memoirs of the Empress Josephine state that Napoleon was "tormented" with an eruption of the skin, caught by using the rammer of a dead artilleryman at Toulon, who had scabies. Bonaparte, himself made the same statement to Surgeon Warden, on the voyage to St. Helena. He said that at the outset of his military career, when he commanded some batteries at the siege of Toulon, two of his gunners were killed, one of whom had the itch. Napoleon seized the fallen rammer and proceeded to serve the gun, whereby he took the disease, which was shortly cured by appropriate treatment. This trivial accident led to a pathologic error. The parasitic nature of scabies was not then discovered, and as the patient some months afterward was attacked with a chronic eruption, probably eczema, which "tormented" him at intervals for the rest of his lifetime, he and all his surgeons, including Héreau, supposed that the original disease was imperfectly cured, and had "receded"

or "struck in," and produced the general eczema, and also had attacked his internal organs, producing various troubles and among them the urinary obstruction. Héreau says the eczema mainly attacked the outer sides of his thighs, but that when it was "driven in" by exposure to stormy weather his internal disorders became very distressing, so that the Emperor acquired a great dread of cold and wet. This perhaps accounts for his leaving the field during the rain storms at the battles of Dresden and Ligny.

I assume that the eruption was eczema. Josephine's statement that it "tormented" him implies that there was severe itching, which fact shows that it was not syphilitic, since eruptions of the latter disease do not itch. He made free use of baths, probably to relieve the trouble, often taking his breakfast while sitting in his bath.

HIS URINARY TROUBLE.

During the Russian campaign in 1812, Napoleon began to have difficulty in expelling his urine. It was attributed to the effect of the cold in causing a "recession" of his eruption to the internal organs. It gradually got worse and continued throughout the rest of his life.

In the midst of the most important business he was often obliged to retire suddenly to relieve himself. In field service he acquired the habit of leaning his head against a tree or a wall, and in that position with difficulty and pain forcing out his urine. He seems to have suffered severely, for he once remarked to an attendant, "This is my weak part. It is this which will ultimately cause my death."

These are the actions of a man who has a mechanical obstruction of the urine accompanied with cystitis. The three usual causes are enlarged prostate, calculus, and stricture of the urethra. He was too young to have a senile prostate. Nine years after a few small calculi were found at his autopsy, but had they been there nine years they would have been very large. There can be but little doubt that the trouble was urethral stricture with cystitis. As his amours were very numerous, the stricture presumably had the usual origin in gonorrhea. The urethra was not examined at his autopsy, but the bladder was opened. It was found very much contracted, and contained a few small calculi. The kidneys seem barely to have been looked at, but not opened. The left one was narrower than the right, and lay turned over and adherent to the sides of the vertebra. Presumably it was a kidney contracted by inflammation. Nothing was known at that time about the relations of nephritis, albuminuria, and uremic poisoning. Four years before his death, while his general vigor was still fairly good, he began to have dropsical swelling of the feet and legs, and as his heart was not diseased he probably had chronic nephritis. The sequence of events seems to have been this:

1. An attack of gonorrhea.
2. A stricture of the urethra.
3. A cystitis
4. Nephritis, with a few small calculi.
5. Albuminuria, dropsy of the legs, and uremic poisoning in a moderate degree.

This may have impaired the action of the brain and the mind, and caused some of the defects of skill in battle noted by Field-Marshal Wolseley. There is no account that the stricture was ever surgically treated, yet it ought to have been, for the use of

"waxed bougies" for that purpose was already well known. Possibly the self-will and obstinacy of the patient prevented their application.

CANCER OF THE STOMACH.

For several years Napoleon had a gradually increasing trouble of the stomach which he believed to be cancer, inherited from his father, who died of that disease. Apparently it had no connection with the urinary trouble. He ate a reasonable quantity at meals but swallowed it quickly, often finishing in fifteen minutes. He usually took at each meal half a bottle of the weak French claret, called "vin ordinaire," which shows him to have been much more abstemious as to wine than was common among French and English gentlemen of his day. He said he was unable to drink freely on account of the rebellion of his stomach.

As his stomach disease progressed he began to vomit, and that symptom increased to the end. He had also severe pains about the liver and adjacent regions. His physician, Dr. Antommarchi, at length called in Dr. Arnott, an English naval surgeon, in consultation, and they attended him together until his death from the stomach trouble, about eight weeks later.

Napoleon left directions that a post-mortem examination should be made by Dr. Antommarchi and that none of the English surgeons should touch him, or if any help was necessary Dr. Arnott alone should assist.

The Governor humored the dead man's whim by allowing this absurd dictation to be carried out, but he ordered five army and navy surgeons to be present and make a report of the autopsy. Three other English surgeons were also present.

Dr. Antommarchi did the dissections and the others looked on. The examination was miserably defective, but the art of making autopsies was then in its infancy. Perhaps this was done as well as might be expected at that day, especially as there was no expert pathologist on the island.

The report of the English surgeons differs in some minor points from that of Antommarchi, but in the main they agree.

The body was measured and found to be five feet two inches and four lines in length, English measure, Napoleon being a very short man. His head was twenty inches and ten lines in circumference, presumably the occipito-frontal circumference, for the reports do not state where the line was applied. Héreau in some way derived the impression that the tape was applied just above the ears, and not at the usual place, around the occipito-frontal circuit. The latter would have given a little larger measure. Whichever it was, the head was a rather small one, in spite of the fact that the pictures of the artists generally exaggerated it, and made it look large. Perhaps the very small stature made the head seem relatively large.

The brain was not examined.

The body was corpulent, notwithstanding the weeks of severe vomiting. The fat was an inch and a half thick along the abdominal incision, and the omentum was loaded with adipose tissue.

The stomach was the main seat of disease; the roof of the organ, that is the lesser curvature, was occupied by a cancerous growth, which extended from near the cardiac orifice to within an inch of the

pylorus, and was lobulated along its anterior and posterior borders.

Antommarchi's report calls it "cancerous ulceration." The English report describes it as "a mass of cancerous disease or scirrhus portion advancing to cancer." The phrases are obscure, but agree in the main idea of cancer. The two reports disagree in the extent of it, but I have followed Antommarchi, whose observation was evidently the more precise. The left extremity of the stomach and nearly all its lower curvature were healthy. The cancer at its right extremity had crept around the entire inside of the stomach in a ring form, and had created there a stricture, which must have been the cause of the persistent vomiting. The pyloric end of the stomach for one inch was free from the malignant growth, but its upper surface was perforated by a circular ulcer through all the coats. Apparently some leakage of the contents of the stomach had at some time taken place, but a local peritonitis had stopped the effusion by causing a firm adhesion of the roof of the stomach to the liver, and of the whole upper surface of the liver to the diaphragm. Incisions into the hepatic tissue showed a perfectly natural color. The spleen was enlarged. The lymphatic glands near the borders of the stomach were enlarged. The heart was natural, the pleura showed small spots of adhesion and contained a little fluid. The lungs showed only trifling diseased signs.

Microscopic diagnosis had no existence in those days, but the gross facts, though badly observed and badly reported, show that cancer of the stomach caused the death, while the rather extensive local peritonitis caused by the circular ulcer assisted to extinguish the life.

The tropical climate and the ocean winds, so much blamed by Héreau for shortening Napoleon's life, left no characteristic traces in the respiratory organs nor in the other viscera. They did not hasten by a single hour the great ex-emperor's death.

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THE LOCATION OF THE APPENDICULAR ABSCESS.

BY M. L. HARRIS, M.D.

PROFESSOR OF SURGERY, CHICAGO POLICLINIC.

That the appendix is extremely variable in its location, and that abscesses formed about it may occupy areas widely remote from the usually described appendicular region, are facts which the surgeon who has operated often in cases of appendicitis has frequently encountered. Attempts have already been made, particularly by Gerster (*New York Medical Journal*, July, 1890) and v. Sonnenberg (*Deutsch Zeitsch. für Chir.*, Bd. xxxviii, Heft. 2 u. 3) to classify these abscesses according to location, accessibility, etc. Gerster describes five types of these abscesses, classified according to the point where they come in immediate contact with the abdominal wall, and are accessible to the knife without traversing the free peritoneal cavity:

1. *Ilio-inguinal Type*—The abscess lying antero-externally beneath the parietal layer.
2. *Anterior Type*—Lying more internally, in direct contact with the anterior abdominal wall.
3. *Posterior Type*—Lying in contact with the posterior peritoneal wall.
4. *Rectal Type*—Accessible through the rectum.

5. *Mesoceliac Type*—Lying in the midst of loops of small intestine not in contact with the abdominal wall at any point.

v. Sonnenberg (*Deutsch Zeitsch. für Chir.*, Bd. xxxviii, Heft. 2 u. 3) describes four types:

1. *Anterio-external*—The loops of small intestine which almost always lie between the lower end of the cecum and the anterior abdominal wall become agglutinated early. As the amount of pus increases these are pressed aside and the pus reaches the parietal peritoneum which forms the anterior wall of the abscess, the cecum with loops of small intestine form the posterior and upper and inner wall, while the iliac fossa limits it externally. The appendix in

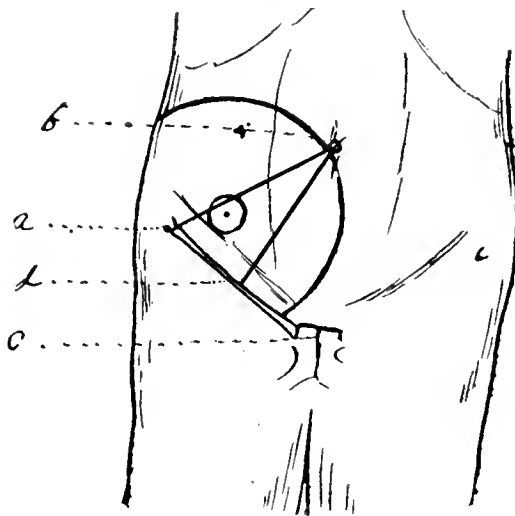


Fig. 1.—a, ant. sup. spine of ilium; b, umbilicus; c, symphysis; d, Poupart's ligament.

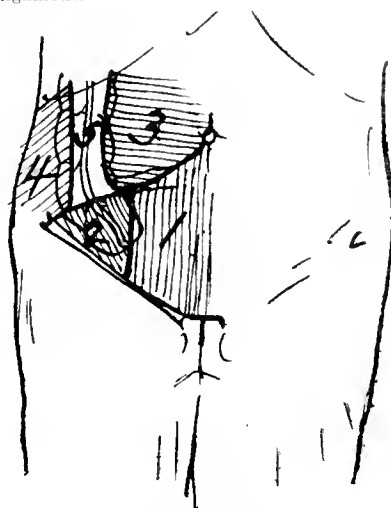


Figure 2.

these abscesses is usually found in front in the iliac fossa, or along the outer and lower surfaces of the cecum.

2. *Posterior*—The abscess is limited in front by the cecum, and behind by the posterior abdominal wall.

3. *Internal*—Abscess bounded externally by the cecum and colon, posteriorly by the mesocolon, and internally and below by adherent loops of small intestine.

4. *Pelvic*—The abscess occupies the small pelvis, usually the right side or in the recto-vesical pouch in the male, or Douglas' cul-de-sac in the female.

Without entering into particulars, it is sufficient to

say these classifications are imperfect; some types which are quite common and possessing markedly distinctive features being omitted entirely and others imperfectly outlined. Before considering in detail the various abscesses as they may appear about the diseased appendix, let us dwell for a moment on the location of the healthy organ. A circle of an inch and a half in diameter—the size of a silver dollar—drawn about the center of the posterior surface of the cecum will touch the base or point of origin of the appendix in about 96 per cent. of all cases. It will thus be seen how constant is the location of the base of the appendix. The average length of the adult appendix is 9 cms., or three and one-half inches. A circle, then, of four-inch radius, drawn about the same center as our smaller circle will give us a very large area in the abdominal cavity, anywhere within which we may find the apex of the normal appendix located. (Fig. 1.)

The appendix may radiate in any direction from its base or point of origin, although it is found to extend in certain directions much more frequently than in others.

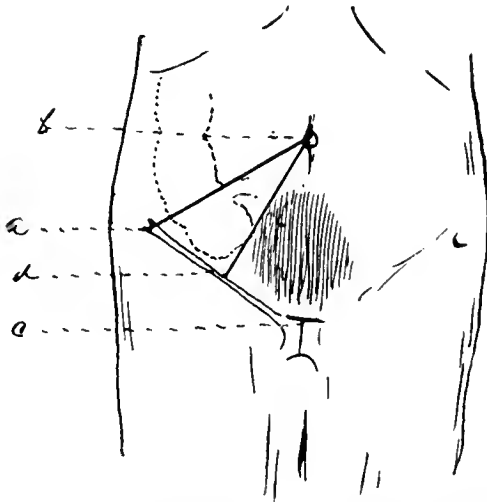


Fig. 3.—Shaded part represents location of exudate or abscess as determined by physical signs. All drawings are from actual cases.

If we examine the anatomic relations within this large circle, we will find that the space may be subdivided into five separate areas, each having distinct and well-defined boundaries. The appendix may be found in any one of these five areas, and when an abscess forms about the inflamed organ, it is the particular area in which the appendix is located which gives to the abscess or exudate its characteristic location and outline, which limits its extension in one direction and favors it in another, and which should guide us in the selection of the best point for incision and direct to some extent the technique of the operation.

These areas, arranged according to the relative frequency with which the normal appendix is found to occupy them, may be thus outlined:

1. *Area—infra-mesenteric*—Is the space bounded above by the mesentery of the lower end of the ileum and externally by the inner and lower border of the cecum. It is practically the southeast quadrant of the above described circle, and located within it we find the appendix in about 60 per cent. of the cases. The appendix may be superficially situated, approaching anteriorly or lie deeply on the posterior wall; it

may extend directly inward, hugging the under surface of the mesentery at the ileum, or inward and downward, reaching often into the true pelvis. The mesentery above prevents the extension of abscesses in an upward direction, but gives to them a tendency to extend downward and to the left.

We may further subdivide abscesses in this area into three types: (a) Those occupying the true pelvis; (b) in the midst of loops of small intestine (meso-cealic type of Gerster); (c) superficially situated near base of appendix. (Internal type of Sonnenberg.)

The pelvic abscesses are limited in the male anteriorly by the bladder, posteriorly by the rectum and pelvic wall and above by the sigmoid and loops of small intestine. In the female they fill Douglas' cul-de-sac or occupy the ovarian region on one or both sides, where they are often with great difficulty differentiated from pelvic abscesses of tubal or ovarian origin. The danger of infecting the general cavity on opening these abscesses from above is very great, and the advisability of draining through the vagina in the female, as in other septic pelvic troubles, comes into serious consideration.

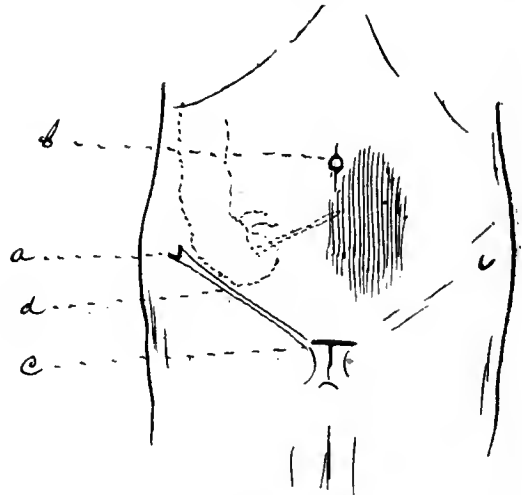


Figure 4.

The inter-intestinal abscesses (Figs. 3 and 4) are usually situated near the mid-line and are consequently best opened at this point. Adhesions may have occurred to the anterior parietal layer so that the abscess may be opened without entering the general cavity, or there may be no adhesions whatever so that the free peritoneal cavity must be traversed in order to reach the abscess. In the former case great care must be exercised in order not to open the bowel, and the greatest gentleness is necessary so as not to break down the protecting adhesions. When no adhesions exist, the dangers of the case are greatly increased. However well we may pack around with gauze, it is often impossible to prevent pus escaping into the general cavity, with a resulting fatal acute septic peritonitis. It is in those cases that the advisability of doing a *deux temps* operation is to be considered. If the patient's condition will permit of the delay, pack with iodoform gauze for twenty-four or forty-eight hours until adhesions form, then open gently without disturbing them. Should the appendix be found floating free in the abscess cavity it may be removed, but if it be firmly embedded in the exudate forming part of the abscess wall it should under no circumstances be torn out and removed, if by so

doing we endanger breaking into the general cavity, thus leading to general sepsis.

In the third subdivision the exudate usually comes to the surface, forming adhesions to the anterior abdominal wall, just internal to the cecum. (Fig. 5.) The abscess is limited externally by the cecum and internally by the loop of ileum which almost always covers over the end of the cecum and the omentum. They are usually best opened by a vertical incision over the inner border of the cecum. Care should be taken not to separate the loop of intestine internally, particularly at its lower angle, as pus then escapes at once into the pelvis. The appendix can nearly always be removed as it usually lies posteriorly or

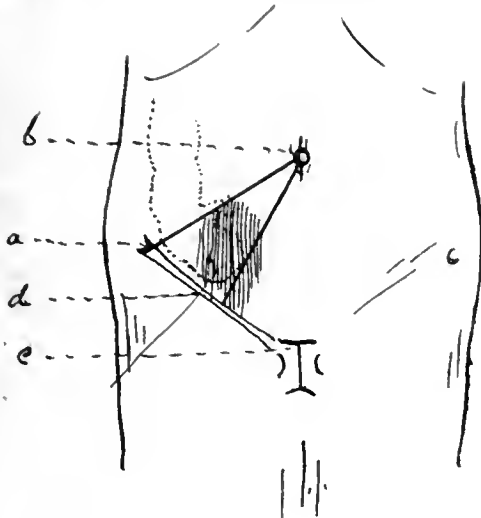


Figure 5.

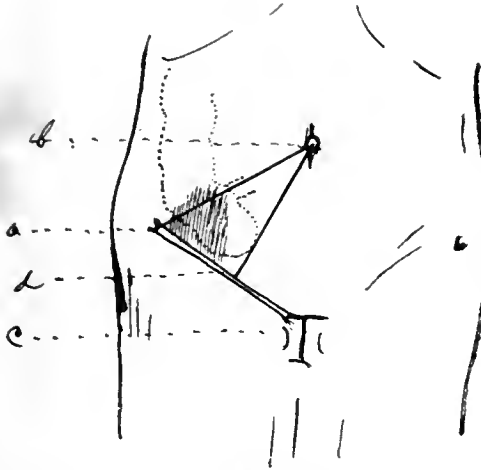


Figure 6.

anteriorly, and it can be done without disturbing the internal wall of exudate which protects the general cavity.

2. *Area—retro-cecal*—Appendix lies in the little pouch posterior to the cecum, more or less curved or folded upon itself or extending downward and outward. It is found here in about 23 per cent. of the cases.

Abscesses have the cecum in front, the same loops of small intestine internally, and the iliac fossa posteriorly and externally. They come to the surface along the outer half of Poupart's ligament. (Fig. 6.) They are best opened by an oblique incision parallel to the outer half of Poupart's ligament, coming down upon the outer border of the cecum, which should be

raised up and turned inward. The appendix can nearly always be removed, unless it should be too firmly imbedded in the exudate forming the inner wall.

3. *Area—supra-mesenteric*—The appendix lies above the mesentery of the ilium and internal to the inner layer of the meso-colon. (Fig. 7.) Abscesses are prevented from descending into the pelvis by the mesentery; they are limited externally by the meso-colon and colon, and internally by agglutinated loops of small intestine. They have a tendency to spread upward toward the liver, and have ruptured into the duodenum and the gall-bladder. Adhesions to the anterior parietal peritoneum are the rule.

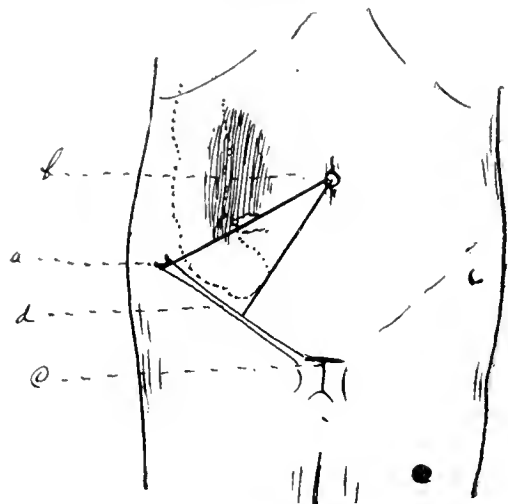


Figure 7.

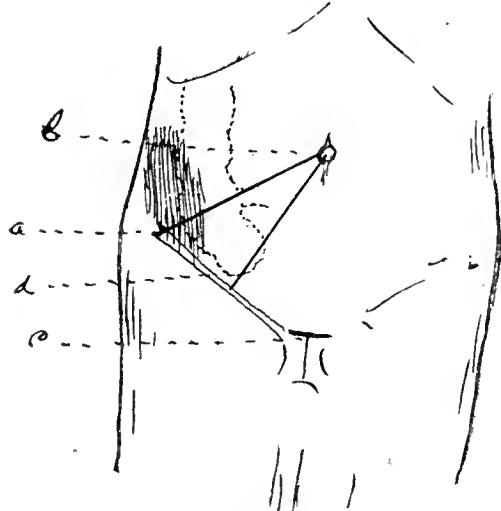


Figure 8.

These abscesses are best reached by an incision along the external border of the right rectus muscle, great care being taken not to break down the adhesions between the loops of small intestine to the inner side.

4. *Area—external*—Is the space between the outer border of the colon with its outer layer of meso-colon, and the external abdominal wall. The appendix may extend upward and outward into this space, its tip sometimes reaching nearly to the under surface of the liver.

Abscesses here are quite characteristically defined (Fig. 8), being limited internally by the meso-colon

stramonium, etc., likewise induce pupillary contraction. And it is well to note here that paralytic myosis is a suggestive symptom of implication of the cervical sympathetic, paralytic in character, and is commonly noted in spinal lesion, especially *tabes dorsalis*. And it is in this connection that the so-called Argyll-Robertson phenomenon finds its most fitting application, *i. e.*, the pupil fails to react to light, while it reacts synchronously with accommodation and convergence. We must always remember that enlargement and contraction of the pupil do not perceptibly impair vision unless accompanied by accommodative paralysis. To Horner belongs the credit of having first outlined the symptomatic phenomena characteristic of sympathetic paralysis, and he notes the following:

1. Pupillary contraction due to paralysis of dilator fibers, which is determinable by shading the eye.

2. Narrowing of the palpebral fissure as a result of drooping of the upper lid, which in turn is due to a paralysis of the smooth muscular fibers in this situation, called the *musculus palpebralis superior* of Müller, innervated by the sympathetic.

3. The eyeball is perceptibly sunken and intra-ocular tension is lowered, while the fourth and most important sign is the notable fact of a variable fullness of the vessels on the two sides.

Thus, in recent cases of paralysis, the face is flushed and warmer on the paralyzed side, while the contrary obtains in the later stages; the paralyzed side being cooler, blanched, and devoid of sweat, which is readily determined by inspecting the sweat-band of the patient in question.

The underlying or predisposing causes of sympathetic paralysis are groupable as follows:

1. Traumatism, such as accidental injury and operation wounds implicating the nerve in the neck; while central lesions are at the bottom of a percentage of cases. Spinal cord lesions, *e. g.*, *tabes* and injury of the upper cervical portion of the cord, are likewise responsible in certain cases. Since pupillary contraction is dependent upon the sympathetic, which receives its pupillary fibers from the ciliospinal center of the cervical spinal cord, it follows that irritation of this center or of the cervical sympathetic induces pupillary dilatation, and its paralysis or division pupillary contraction; while the same is true of the oculo-motor nerve, *i. e.*, stimulation of the oculo-motor nerve causes pupillary contraction, its section or paralysis pupillary dilatation, and inasmuch as pupillary reaction is either reflex or associated, and if it be reflex the necessary impulse emanates from centripetal nerve channels extending to the iritic nerves, and if associated arises from the pupillary fibers of the oculo-motor nerve which are agitated simultaneously with other oculo-motor nerve fibers, it follows that, excluding toxic influence of whatever cause, any abnormal pupillary change arises from pathologic conditions involving either the oculo-motor nucleus or centripetal nerve centers, intimately associated with the iritic fibers.

And since the nuclei of nerve fibers which act simultaneously, namely, the sphincter pupillæ, accommodative and convergence centers are closely related in the brain, being situated in the anterior extremity of the oculo-motor nucleus, it follows that any morbid process involving these centers will exhibit itself by abnormality of the pupillary reaction, combined possibly with disturbed activity (on part) of the ex-

trinsic ocular muscles which preside over convergence, and in turn we can approximate the site of the pathologic process with comparative certainty by remembering the course of the fibers, emanating as they do from the oculo-motor nucleus, observing a downward course from the *crus cerebri* to the base of the brain, at which point they unite to form a single trunk opening at the anterior border of the pons varolii, extending thence through the cavernous sinus and superior orbital notch to the orbit. Total abolition of the functions of the sphincter pupillæ, convergence and accommodation always signifying total destruction of both motor oculi nuclei or their ramifications. The abducens and trochlear nerves which likewise are characterized by separate partial nuclei, after reaching the base of the brain, pass forward similarly to the oculo-motor nerve, extending through the cavernous sinus and superior orbital fissure into the orbit.

Paralysis of a single ocular muscle with but one exception—*pfsis*, which sometimes occurs in cortical disease—always indicates that the site of disease is below the intracerebral tracts, that is, the cerebral cortex, association centers and their connecting fibers. It is notable that in uremic amaurosis the pupillary reaction is intact, which points to the fact that the disturbance is located in the brain, *i. e.*, above the eye and optic nerve. Atrophy of the optic nerve accompanying *tabes* frequently announces itself by pupillary change which asserts itself by the Argyll-Robertson phenomenon, in which the pupil still reacts to convergence and accommodation, but not to light, and is usually contracted, which, in conjunction with the test of Westphal, *i. e.*, the absence of the tendopatellar reflex and its bilateral character, constitute diagnostic signs in the early stage of many cases of *tabes*.

804 Champlain Building.

THE IMPORTANCE OF EARLY DIAGNOSIS IN SOME FORMS OF NERVOUS DISEASE.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY IRVING C. ROSSE, A.M., M.D., F.R.G.S.

WASHINGTON, D. C.

Only a few days since I was forcibly struck by the remark of one of my patients, now in the advanced stage of locomotor ataxia with progressive cortical changes, who tells me that on meeting his former physician he had refused his proffered hand, for the reason that he was one of several who for years had treated him for what they incorrectly took for rheumatism. However questionable the act may be as regards politeness, there can be no doubt of its import to the patient when looked at from a diagnostic view-point. Had the patient been treated by a skilled neurologist it is reasonable to infer that his condition would not be so lamentable as it is to-day.

I do not mention this incident in the way of fault-finding or unkind criticism of any one, but it seems hardly credible, in view of the numerous warnings from neurologists, that so many general practitioners who do not hesitate to recommend their patients to oculists, gynecologists or other specialists, should take a jump in the dark when a neurologic question is involved.

Some years ago, one of my efforts was a paper pre-

sented to the American Neurological Association at Long Branch, in which I called attention to the frequency with which chronic, inflammatory and degenerative affections of the spinal cord are incorrectly diagnosed and treated as rheumatism, even by practitioners otherwise well informed. The observations therein mentioned, showing notable failure of diagnosis, consisted of cases examined for medico-legal reasons and each case was accompanied by more or less voluminous written testimony of physicians who have recorded such diagnoses as chronic rheumatism, rheumatism and heart disease, rheumatism and disease of the eyes, malarial poisoning, disease of the liver and spleen, sunstroke and resulting loss of sight, general prostration and debility, sciatica, and other vague pathologic generalities. The certificates of disability were written by medical men from widely distant parts of the United States, and by surgeons of the Army and Navy. Many of the patients in question have since died, and one having committed a criminal offense was, in my opinion, unjustly sentenced to penitentiary.

Being a frequent occurrence in my own experience, my mind is filled with recollections of tabetic material where the attending physician has taken refuge in such a generality as malaria, or more commonly, the effects of grippe. It is only necessary to relate a few examples by way of specification.

A short time since I was called in consultation to see a young man who for several years had been actively treated for malaria. Upon the advice of physicians he had taken much exercise, but growing worse, finally broke down on attempting to ride a bicycle. I found the poor fellow in an advanced stage of locomotor ataxia, with gastric crises and trophic change of the stomach. He lived but a short time.

The second case was that of a United States Senator, whose wife was highly incensed at my diagnosis, although it was afterward confirmed by two of the best neurologists in New York. During the last days of the Senator's illness he came under the care of a general practitioner who, to my surprise, tells me that he did not notice or examine for tabetic symptoms, and that the distinguished consultant he called in from Baltimore attributed most of the symptoms to the liver.

In the third case, of a woman under the care of a general practitioner who had come to the end of his therapeutic tether, I found the patient with an alcoholic history, and in the last stage of sclerotic tabes. On informing her husband of the hopeless character of the case, one of the numerous irregular practitioners who infest the National Capital was accordingly called in and proceeded to apply electricity, with which he claims to have cured twenty cases of locomotor ataxia. A few days later, in looking over a newspaper I noticed the death of the patient.

So far, indeed, has the notion of malaria been carried, that a few years ago a public man in Washington died of what was supposed to be malaria, contracted at the mouth of the Ganges river on a tour around the world, but which in reality turned out, at the necropsy, to be cancer of the stomach.

Occasionally, however, we find a man who has the scientific courage to say, "I don't know," and forthwith sends his patient to a neurologist, as was lately done in the case of a highly respectable woman suffering from paralysis of the extensor muscles of the left

leg. She attributed this condition to a sprain, but the extension of the paralysis to the opposite leg, and my familiarity with the patient's habits, led me to suspect alcoholic neuritis. Under appropriate treatment she made a good recovery.

In another case, of a young girl who had arrived at the age of puberty, but had never menstruated, I was called to witness what was supposed to be an obscure case of nervous disease of ovarian origin. A slight strabismus with abdominal tenderness, and information from the attending nurse that the patient picked her nose and scratched her anus, exploded all notion of a "fancy" diagnosis and led to but one inference, namely, that of worms. Suggesting this to my professional confrère, he reluctantly wrote a prescription for an anthelmintic. The morning following the administration of the medicine the intestinal parasite came away, the nervous symptoms rapidly disappeared and the patient made a good recovery.

In connection with this subject I may mention the case of a small boy who was brought to me from one of the adjoining counties. He had been under homeopathic treatment and had, on an average, ten epileptic seizures every day. The symptoms indicated worms. After appropriate treatment he was two weeks without a manifestation of epilepsy, which entirely disappeared, and I have no knowledge of its recurrence.

Quite different was the case of a comely young woman who consulted me several years ago for a variety of obscure nervous symptoms. Something in her face suggesting an unhappy love affair, I asked if she was suffering from anything of the kind, to which she answered in a hesitating and evasive way that led me to suspect her truthfulness. After some weeks of treatment she made but slow progress and I finally lost sight of her until a year afterward, when she came to my office and after much hesitancy and embarrassment told me that she had a confession to make, which was simply this: An elderly woman, a so-called Christian scientist, had been using her for purposes of tribaism, and this woman had obtained such an influence over her as to break up many social and domestic relations, besides ruining her health. As the woman had quitted Washington, my patient did not feel the restraining influence that formerly kept her from telling me this bit of personal history. I saw nothing more of my patient for several months, when happening to be waiting for a train in a railway station in Paris, I saw her with her former old associate in crime, from whom she probably could not stay away. I mention this case for the reason that one of the oldest practitioners in Washington remarked at the reading of a paper on sexual perversion, that he did not think the cases so common as I had reported, or he would have seen them. This is one of many cases that have since come under observation or have been reported to me by other physicians.

Much remains to be said on early diagnosis of that vast subject of epilepsy. There is no disputing the fact that a small proportion of cases of this protean affection may yield to early and careful treatment. I say protean in speaking of this terrible neurosis, for nothing could be more incongruous than the symptoms that go to make up a diagnosis in such apparently different attacks as that of epileptic vertigo, an attack of *grand mal*, or a manifestation of epileptiform mania.

However much may be said upon the feasibility of early diagnosis of epilepsy by a person having the

necessary technical requirements, its importance is a most serious matter in questions of forensic medicine, since the mistakes of a medical expert are more grave in their consequences than those of the ordinary practitioner.

In the last year or two, in the District of Columbia, we have had sad examples of questionable legal proceedings in cases of aphasia, paranoia, and epilepsy, in which irresponsible individuals, exhibiting a morbid degradation of a suffering organism and morality in ruins, have become the victims of judicial predilection and the sentiment of the hour.

The recent case of *Taylor*, an epileptic wife murderer, who also shot himself over the heart with suicidal intent, may be cited as a case in point. In this case, hereditary predisposition and domestic chagrin were predominant features. The father was a consumptive and the mother a paralytic, the significance of which is evident, if we accept recent statistics which show that in about 50 per cent. of epileptics there is a family history of some nervous or pulmonary trouble. Besides epilepsy the accused had a history of sunstroke; he had a scalp wound in the upper part of the frontal bone, and a depression from a horse-kick about the vertex of the skull; the pupils showed a want of responsiveness to light and accommodation, and ophthalmoscopic examination showed a choked disk. The pulse was 130, sitting; he was neurasthenic and tremulous; had exaggeration of the reflexes, and insomnia. Eroticism was another salient feature in the history, as the accused says that he missed copulation but thirty nights in five years. Nymphomania seems also to have prevailed on the other side of the house.

Viewing these facts and the proved infidelity of the wife, is it astonishing to any one, with even a small knowledge of psychiatry that the stress induced thereby should lead to impulsive and delirious acts of fury, such as suicidal and homicidal attempts, or even wife murder? At least ten instances of the latter crime committed by epileptics may be cited. In fact, it may be said that no epileptic can be a kind and loving husband, because of egotism, suspicion, irascibility, and a tendency to violent and instantaneous impulses; and it is no temerity of language to say that some of the greatest crimes that have shocked human nature have been committed by epileptics. It is not pretended that every epileptic is a candidate for insanity. Nor is it denied that history furnishes instances of great epileptics, as Cæsar, Mahomet, Peter the Great, and Napoleon. The alleged epilepsy of the last-named is, however, open to doubt. If not digressing, I may say that having lately spent some time in France my attention has been called to evidence that inclines to the belief that the assertion is utterly without foundation.

But, to come back to the case under consideration, in which I testified for the defense, the question of the prisoner's suicidal wound being brought in by the counsel, I was asked as to my experience in the collection of facts as to gunshot wounds, to which I answered that my experience was probably larger than that of any other man in the United States. As this statement may seem strange in coming from a neurologist, I must specify the facts upon which it is based. In addition to seeing numerous gunshot wounds in various military hospitals around Baltimore and Washington, during the Civil War, and in Europe after the Franco-Prussian campaign, I also

handled, studied and described, thousands of specimens in the Army Medical Museum, where I was employed for several years as one of the collaborators of the surgical history of the war, and after that I examined for the Pension Office many thousand gunshot wounds of all kinds in applicants for invalid pension. In stating to the court the result of my examination of the prisoner, I said: "I came to the conclusion that he was a man of unsound mind and not sufficient master of his own actions to enable him to choose between right and wrong in the offense for which he stands indicted." The term "unsound mind," which appears to have caused the court considerable embarrassment, is herewith used advisedly, since it is used by the best medico-legal writers and also appears in the newest legal authority, the "English and American Encyclopædia of Law." Dr. William A. Hammond and others testified substantially to the same thing as myself. Yet an outsider hired by the government, whose chief qualification seems to be that he is an insane asylum superintendent in Pennsylvania, took the stand, and in testifying to the sanity of the accused, totally ignored the post-epileptic mental state and, among other amazing assertions, declared that there is no such thing as the clinical reality known as nocturnal epilepsy.

Testimony of a similar nature was given in the case of *Beam*, who murdered his stepdaughter. After about fifteen minutes' examination by the forementioned asylum superintendent, he was pronounced sane and handed over to the gallows, notwithstanding the fact that numerous lay witnesses swore to his insanity. As this unfortunate man was too poor to employ medical experts in the way of rebuttal, I was asked, as a matter of charity, to examine into his sanity with a view to securing a new trial. I learned from trustworthy sources that the father has been a senile dement for thirteen years in a public institution, and that the mother is a woman of irascible disposition, whose conduct has been erratic and suggestive of unsound mind. The history of the accused showed the turbulent career of a paranoiac, who was influenced by such delusions of religiosity as reading sermons to cattle and to the dead in unfrequented graveyards, and in the still crazier notion of building a stairway to the moon, and of reforming all the prostitutes of Baltimore, one of whom he married by way of practical application.

I found the prisoner of indifferent physical development with congenital deformity of the thorax, and syphilitic. In addition to physiological signs of degeneration, the mental stigmata were marked. There was not the slightest attempt at concealment or simulation, although the prisoner talked freely and somewhat incoherent. He had a number of immovable delusions, one as regards a cat, another as to untold wealth in a gold mine he had discovered in Maryland, a third in regard to hypnotism, and a fourth as to poison, and there was a tendency to obsession.

The main objection to granting a new trial on this case appears to hinge on the phrase "unsound mind," which though used advisedly in my affidavit seems to have a source of embarrassment to the court. The term, "unsoundness of mind," employed by the latest and best authorities both in forensic medicine and law, is in fact of legal adoption and one that is preferred by lawyers to the term insanity, which they have come to look upon with suspicion.

In the contested will case of Wallis vs. Suhring, 134 Ind. 447, in which unsoundness of mind and undue influence were alleged, the court instructed the jury adversely as to the term unsound mind; yet they found for the contestants, and on appeal the Supreme Court affirmed the judgment. Seemingly imbued with the "wild-beast theory of insanity" and the residuum of by-gone legal superstition, which not so long ago considered it right to hang the innocent old witches of Salem, the court, in attempting to be its own insanity expert, utterly ignored the more advanced teaching of science. Assuming these teachings to be true it is, therefore, not the perfection of reason to deny the meeting link between science and law, nor is it wise to reject their application to the purposes of justice.

Something of the same spirit seems to have tinctured the mind of the bench in the case of the paranoiac, *Schneider*, some medico-legal details of which case I have recorded elsewhere.¹ It is, however, only fair to the judges to say that they were largely influenced in this case by the unfortunate opinion of the medical experts employed by the government, who, in the light of subsequent events were shown to have been utterly mistaken.

The foregoing cases furnish striking instances of the non-recognition and disregard of medical expert evidence by the average citizen, and, at the same time, stand in bold relief as judicial inconsistencies when contrasted with the *Sickles* case or that of the Treasury Department murderess, *Mary Harris*, who, a short time since, married her senior counsel. In the District of Columbia, without a law to regulate the practice of medicine, charlatans and all sorts of mediocrities prevail to such an extent that the community at large show no discrimination between an educated medical man and a quack. Consequently, in public estimation, the opinion of the so-called doctor is just as good as that of the able and experienced. In Germany, where the pig-headed and brass-handed rule of blood and iron comes down heavily, they manage such matters differently. Owing to the civic spirit which pervades public and scientific men of that country, so much heed is given to medical intervention in matters of the kind under discussion, that of late we read of lust-murderers being declared insane, when we all know that such persons in the United States would not only meet with no mercy in court, but would, in all probability, become summary victims of a disorderly mob of lynchers.

Many persons, however, say in reply that any consideration shown the defective individuals of whom we speak is harmful to society, and that, as a class, they are best disposed of after the manner of mad-dogs, which we do not hesitate to kill on the ground of public safety. While such proceedings may obtain in American pioneer communities, a quarter of a century behind Europeans in realizing certain municipal and criminal problems, it is doubtful whether any argument can justify similar steps for the protection of society in these days of growing civilization and Christian enlightenment. The horror inspired by crime calls for just indignation; but the pity felt for atavistic degradation and neurotic constitution of the insane, instead of being false sentimentality is in accord with the more enlight-

ened civic ideas now rapidly spreading in our country.

Aside from the personal responsibility affected by medical facts like the foregoing, the interpretation of many sensory, motor and trophic symptoms may bear upon questions of civil incapacity. Moreover, other instances of questionable diagnoses come under the observation of the neurologist in which his work encroaches upon that of the surgeon. Spasm or paralysis of the muscles are often erroneously named as causes of natural or structural defects, or mechanical injuries to the joints causing loss of motion, as witnessed in torticollis or in "angel-wing paralysis." Again, how many physicians overlook the apparently trivial and insidious prodromata of general paresis, the brain-fag, neurasthenia and polyuria of the overworked business man; and it may be asked, do ophthalmologists, as a rule, give due weight to the diagnostic importance of the condition of the eye-grounds in the matter of some chronic cerebro-spinal affections?

Although I have in this paper spoken of but a few nervous diseases, the idea I wish to convey relatively thereto applies forcibly to many other conditions. What shall we say of the late diagnosis of appendicitis, cirrhosis of the liver, desquamative nephritis, and other medical and surgical affections where life may have been prolonged or saved by an early diagnosis? In fact, neurologic science can not be divorced from questions of diagnosis, so intimate are its relations with all other branches of practical medicine.

My experience, in common with that of most neurologists, is that the diseases here mentioned are not recognized as early as they can and should be when due care is given to their semiosis. In the matter of forensic medicine the questions in which diseases of this class are concerned are simply those of clinical diagnosis; and if we wish to help justice to make the best disposal of the irresponsible criminal, according to the more humanistic ideals of the present day, or if we expect to arrest or cure such dismal and discouraging cases as those afforded by the decay of the nerve elements, we shall never regret the attention and painstaking that enable us to make an early diagnosis.

NOTES ON THE NATURE AND TREATMENT OF CHOREA BASED ON SEVENTY-FIVE CASES IN PRIVATE PRACTICE.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. D. ROCKWELL, A.M., M.D.

NEW YORK.

If an apology is necessary for presenting for your consideration a subject so hackneyed as chorea, the nature of which so many able and careful observers have attempted to solve and about which discussion and theory have been worn threadbare, it is: 1, that any disease, the source of so much anxiety and distress as chorea, can not be discussed too frequently; 2, that my experience has been somewhat large and has been gleaned entirely in private and not in hospital practice, upon which nearly all considerations in regard to this subject are based; and 3, if I can not offer anything new in regard to medicinal or hygienic methods of treatment, I am in a position to speak with some authority and confidence upon the

¹ See *Virginia Medical Monthly*, Feb., 1895, also *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Feb. 2, 1895.

methods and results of electrical treatment, a subject even yet in its relation to this disease too little understood by the profession in general and almost altogether ignored by both teachers and writers on nervous diseases. I have long desired to give the impressions of many years' experience in observing the course of chorea and treating its symptoms, and the invitation that I present before the Neurologic Section something pertaining both to neurology and electro-therapeutics, affords me the opportunity that I have often wished for.

Chorea has by common consent been put in that class of diseases that presents no constant detectable change in any of the structures of the body, and is therefore termed functional in character. It is, however, more than doubtful whether a functional disturbance, however slight and evanescent, can exist without corresponding disturbances in the nutrition of the nerve elements. Microscopic changes have, it is true, been occasionally found, but not with sufficient frequency to enable us to rely on morbid anatomy to account for the disease, and the nutritive changes that in all probability do take place are too subtle for detection and may perhaps ever remain conjectural. Age and sex, in their relation to chorea, tell us far more of its nature than all methods of post-mortem examination.

The fact that chorea is almost entirely confined to early childhood and youth and occurs with far greater frequency in girls than in boys—in the emotional period of life and mostly in the emotional sex—renders it probable that the disease is in the vast majority of instances purely functional, dependent upon disturbances or shock to the motor centers of the brain. To illustrate: I once had under my professional care a young girl suffering from what appeared to be a slight neuritis of the radial nerve. On one occasion she was suddenly asked a question in regard to certain facts which she desired to conceal. In her efforts to disguise any appearances of surprise her facial muscles immediately passed beyond her mental control, and for a few moments the localized movements exactly simulated the familiar examples of facial chorea. It was an excellent example of temporary chorea, having its source in a temporary disturbance in the cerebral convolutions.

Neurasthenia is a functional disease, and it may be either acute and temporary or chronic and permanent. Just as the fatigue and irritability of mind and body that accompany profound and concentrated mental and physical effort are dissipated by rest and sleep, so the familiar examples of lost muscular control following sudden emotional influences, disappear on the subsidence of the cause. In both cases we have to do with facts of cellular nutrition; in the one case with temporary exhaustion, in the other with temporary irritation.

Intensify and prolong the processes of cell exhaustion and cell irritability and we get in the one case true neurasthenia and in the other true chorea. Another reason for rejecting structural change as the causative factor of chorea, lies in the fact that so far as we have knowledge, there exists no structural changes of the nervous and muscular system that will in itself produce chorea. Embolism to which it has been ascribed produces, so far as we know, symptoms of a far different character. It is associated with head-pain, vertigo and nausea—at least at its outset—hemiplegia of varying degrees of

severity, and when right-sided, with aphasia together with other disturbances of speech. Then it must be remembered, how serious are its sequelæ, how apt it is to recur and to what extent nutrition is impaired. The occasional presence of embolic particles found in fatal cases of chorea hardly offers sufficient basis for such a theory. But that chorea must be regarded as a disease of the central nervous system, either primary or secondary to peripheral irritation can hardly be questioned. As all movement, as well as all thought has its origin in the brain, it is inconceivable that disordered muscular movement such as characterizes chorea can depend upon peripheral influences alone. In deference to our inability to point out objective pathologic changes, we sometimes speak of the psychic origin of chorea, yet in the last analysis we fall back on disturbance of the motor cortex.

In a large proportion of choreic cases, especially among the poor, anemia exists, and in another large proportion of cases fright is the exciting cause. Sometime ago a child was brought to me suffering from "nervousness" and extreme anemia. I prescribed what seemed to be necessary and for a time saw no more of her. While engaged on this article the mother again returned with the child, suffering now from an acute and violent attack of chorea, the exciting cause of which was fright. These two elements of causation, fright, acting upon a nervous system weakened and irritable through its vitiated blood supply, seem to me to give great strength to the theory of malnutrition of the cortical ganglion cells as the seat and the efficient cause of chorea. The analogy existing between certain nervous diseases that are attended by no definite and positive vasomotor changes are interesting and suggestive. Influences, the same in kind that result in diabetes when acting on the nervous system of a man, result in hysteria when acting on the emotional nature of a woman, or in chorea when on the tender and susceptible nature of a child.

Conflicting as are the opinions relating to the pathology and the treatment of chorea, there are certain facts in regard to the disease upon which all experience agrees. Like Basedow's disease whose pathology is as doubtful as that of chorea, it occurs far more frequently in the female than in the male. In my own experience, its exciting cause in the majority of cases can be traced directly to fright or other emotional causes, and in this again it bears some resemblance to Basedow's disease. With increasing years the disease rapidly decreases in frequency and becomes far more intractable, and even dangerous to life.

Notwithstanding my belief based upon these seventy-five closely observed cases, that the majority are in their essential nature central—although neither organic nor structural in the ordinary acceptation of these terms—yet a few have seemed to me to depend upon reflex influences, both as exciting and continuing causes. Peripheral sensory irritants, such as a redundant prepuce with collection of smegma, intestinal worms and ocular defects have all within my own experience been the undoubted cause of chorea. In the case of a redundant prepuce, an operation performed by Dr. Charles McBurney, at my request, resulted in the prompt recovery of a case where the symptoms had been persistent for several months. In a second case, where I finally suspected worms to be the cause of persistent choreic symptoms in a boy

aged 8, a dose of santonin resulted in the expulsion of no less than ten of the common round worm, and all of considerable size. This patient also promptly recovered. In a third, a case of ocular defect, an operation by Dr. Geo. Stevens resulted in too prompt an alleviation of the symptoms to allow of any doubt as to its direct efficacy. But reflex influences are altogether exceptional, according to my experience, in the production of chorea.

Where the causes above enumerated exist once, in connection with choreic symptoms, they occur a thousand times without any such connection. It is the pseudo-choreas, the various habit-spasms that seem to be most benefited by correcting the anomalies of the ocular muscles and errors of refraction, and not the ordinary true chorea of childhood.

Notwithstanding all the investigations of and the statistics offered by those who have written upon this subject, I have been unable to satisfy myself that between rheumatism or endocarditis and chorea, there exists any constantly direct relation as cause and effect. The frequency with which a soft systolic murmur is found associated with chorea must be admitted, and also the results of post-mortems showing endocarditis and the presence of vegetations on the cardiac valves, but these relations have been analyzed with sufficient thoroughness to leave little doubt but that they are mostly accidental, even if in certain statistical tables they are found with suggestive frequency. In epilepsy, in anemia, in the muscular relaxation associated with certain neurasthenic cases, we not infrequently detect a cardiac murmur, the same apparently as the ordinary choreic murmur. While these murmurs may be and probably are due in many, if not most cases, to mitral regurgitation, yet they speedily disappear with no permanent structural harm. The temporary defective action of the mitral valve is believed to be due to altered nutrition or innervation. Certainly, the functional derangement of the action of the valvular apparatus is sufficiently evidenced by the readiness with which the murmur disappears as the disease improves.

If rheumatism is the efficient cause of chorea through the action of its sequel, endocarditis, then it is hardly necessary to say that the endocarditis should precede the chorea. On the contrary, it precedes it only in a small proportion of cases when they are associated, and in a large number of cases no evidence of endocarditis can be found. As a reflex cause, endocarditis may occasionally be responsible for chorea, as are defects of the eye, or intestinal worms, or redundant prepuce; but, like these irritants, it may and does exist a thousand times without any relation to it whatever. Most of the cases that have come under my observation have been carefully examined for evidences of heart disease, and in more than one-half of them there could be found no murmur of any kind and in only a very small proportion was there any history of aches or pains that could possibly be attributed to rheumatism.

One of the strongest arguments against the rheumatic origin of chorea is the fact that, as related to boys, girls suffer from chorea in the ratio of three to one, while rheumatism affects boys far more frequently than girls. Of the fifteen among my own cases of chorea that gave a history of rheumatism, ten were boys and only five girls. These observations are very much in accord with those of Meyer¹, who,

out of 121 cases, found that only 9 per cent. had rheumatism; 13 per cent. heart symptoms and 2 per cent. the two combined; and with those of Leroux², who, out of eighty cases of chorea found only five clear cases of rheumatism and fourteen with heart complications. Of these last, five were mitral lesions and nine simple anemic and extra cardiac souffles.

Much stress is often laid upon the degree of disturbance of the mental function in chorea. My observation of the disease as it occurs in children who are well cared for, both as to mind and body, is that there is seldom any mental defect. Sometimes a young child will seem dull without really being so, and the parents and friends of the unfortunate little patient will act along this false hypothesis to the child's detriment. In chorea, the muscular movements are not in harmony with the will. The child, knowing herself unable to give correct expression to thought and desire, manifests, in the presence of strangers especially, a distrust and timidity not in accord with an acute mental state, while the operation and condition of the mind as registered in the facial expression is observed and misinterpreted because of the constant facial deformity. The imperfect muscular coördination occasionally extends to the vocal apparatus, rendering the speech somewhat indistinct and jerky. In other cases the patient talks very well when once started. At first, the lips may be seen to move, but it is several seconds before there is any articulate sound. One of the brightest children I ever knew had this symptom and, for a time, was credited with being below the normal level mentally. There is a class of choreic cases very commonly met with, where the incoördination of movement is ordinarily slight, but when conscious of observation the muscular disturbance becomes exaggerated. There is another class where a contrary condition exists. The movements are greatest when the patient is at play and unconscious of observation, but by an effort of will the child can control these movements.

It is among patients of the first class that mental defects are most often thought to exist; these cases are, however, far less apt to be dull than those of the second class, and recover with greater rapidity. I do not find that ordinary chorea is distinctly or directly hereditary, but among the better classes, at least, it will be found that in an unusually large number of cases the child inherits a neurotic tendency. This neuropathic heredity is said to be in the proportion of about one-sixth, but in my own experience it is much greater. The theory advanced by Garrod that the rheumatic poison occasions a temporary overgrowth of connective tissue in the nerve centers, resulting in chorea, has little to recommend it, but the infectious theory about which so much has been said has points of strength both from an anatomic and a bacteriologic standpoint, since there is found in the nervous system a special bacillus pathogenic for microbes. Bacteriologic and experimental researches have been made by Pianese³ in fifteen acute cases of chorea. In three of these cases a bacillus was isolated from the blood, and inoculation caused the appearance of the disease in dogs. In the opinion of this author, the theory of the infectious origin of chorea is far more satisfactory and complete than all other theories. Triboulet⁴ has reported three cases

¹ Berliner Klinische Wochenschrift, July 4, 1890.

² Revue Mensuelle des Maladies de l'enfance, Paris, June, 1890.

³ Riforma Medica, Naples, July 20, 1894.

⁴ Revue Mensuelle des Maladies de l'enfance, Paris, Dec. 1891.

of secondary infection by the staphylococcus in chorea, and gives it as his opinion that, in four-fifths of the cases, infection could be traced as the causative factor of the nervous trouble.⁵

But however suggestive the various theories and investigations as to the nature of chorea, nothing is more certain than that no constant pathologic change is associated with it, and we must fall back upon the theory of its neurotic functional origin. Its almost benign nature and tendency to recover is the strongest evidence that it can depend upon no serious or persistent pathologic change.

As regards the therapeutics of chorea there is much to be said, both from the standpoint of those who believe in the necessity and efficacy of therapeutic measures, and from that of others who look upon it as practically a self-limited disease which recovers as readily without as with treatment. Self-limited it is not, in the sense that we speak of the self-limitation of scarlet fever or measles.

We can not abort or very much, if at all, cut short the course of these diseases, but that measures can be adopted for the relief of associated symptoms or the arrest of complications is admitted. We can, however, not only very markedly alleviate the severity of choreic disturbances in aggravated cases, but can do what can not be done in the so-called self-limited diseases—shorten the duration of the disease. In regard to certain hygienic and sanitary methods of dealing with chorea there is very little diversity of opinion. It is agreed that rest is a most important factor in most cases, and in those more serious the rest should be complete and continuous. In several of these severer cases, where arms and legs and facial muscles are in constant motion, I have noted marked alleviation of the symptoms follow prolonged rest in bed.

In the less severe cases, moderate exercise in the open air is allowable and beneficial, but in no case should a child with chorea be allowed to engage in rough and tumble sports. Sleep, and much of it, is essential, and when it is greatly disturbed we are justified in aiding it by hypnotic measures. The food should be nourishing but simple. If the appetite be poor, it is allowable and even desirable to tempt it by daintily prepared food of judicious selection, but to attempt to stimulate appetite by artificial means is even more unjustifiable in the case of a child than in that of an adult. Far more harm than good is done by forcing food, when nature cries out against it.

The reflex effects of ether spray to the spine, or better still perhaps, of the chlorid of ethyl has been highly recommended and my own personal experience with it has, on the whole, been favorable. While in some cases it may appear to do no good it can certainly do no harm, and occasionally I have seen unmistakable benefit follow its use.

To enumerate all the internal remedies that have from time to time been advocated almost as specifics in the treatment of this disease, would only serve to indicate the limited data of experience upon which opinions are based. Few of them have stood the test of time and trial, and the general opinion is that medicinal treatment is extremely unsatisfactory. By this, I do not mean to say that in individual cases we may not be reasonably sure of the efficacy of certain remedies in alleviating symptoms and shortening the duration of the disease. There are, indeed, well

authenticated cases of long duration that have persistently resisted various accredited methods of treatment, and finally recovered promptly upon the adoption of some other old or some new and untried remedy.

A notable illustration of this is related in Reynold's "System of Medicine," where a distressing choreic affection of the muscles of the neck had existed for nine years, defying all measures for its relief. Hypodermic injections of arsenic were attempted with almost immediate relief and final recovery. But I would say that there is no consensus of opinion as to which of the many drugs used is the most effective. Arsenic has undoubtedly the preference, but proves too often absolutely inert. There can be no question, for example, of the authenticity of the case just alluded to, and, encouraged by the success in that instance, I thought to duplicate in an obstinate case somewhat similar in character, by the same method of treatment, but without the slightest result.

Now, although I have from time to time tested nearly all the well-recognized remedies in the treatment of chorea, yet there is one remedy that I have used with more or less persistency in almost every case, and that is electricity. I am not so credulous as to suppose it to be curative or even markedly beneficial in every case. Occasionally, on the contrary, it has seemed to be contra-indicated, although long experience inclines me to the belief that this seeming susceptibility to the current is due more to a failure to correctly differentiate in the selection of the kind of electricity used than to any adverse idiosyncrasy present.

In the light of my own personal experience in the treatment of chorea, the opinion expressed more than a quarter of a century ago by a distinguished physician is of much interest. "Electricity," he says, "is another agent which requires a passing mention in this place, though all that can be said respecting it is, that as yet there appears to be little or no reason for placing any confidence in it as a means of treatment. Whether this will always be the case, whether there are not modes of using electricity which will have the effect of quieting choreic and analogous movements, remains to be seen. I suspect that there are such modes, and that they will be beneficial, but I have not yet the facts to justify the expression of a belief on the subject."⁶

Electricity benefits chorea on the same principle that it benefits neurasthenia or hysteria and many other functional nervous diseases, because of that indirect improvement in nervous force which is a part and a result of the general improvement of nutrition. While electricity is neither life nor nerve force, it aids in sustaining both life and nerve force, as do light and heat; not by direct transformation, but indirectly through its influence over nutrition. This influence over nutrition, together with musculo-sedative effects, are brought about in greater or less degree by various methods of electrization, by general faradization, especially with the high tension coil, central galvanization, static electrification and even by peripheral galvanization. To obtain temporary musculo-sedative effects, there is no method that equals the depolarizing method of central and peripheral galvanization, by which is meant the elimination of either one or the other pole. In this way the neutral point is thrown outside the body, and the part

⁵ These de la Faculte de Paris.

⁶ C. B. Radcliff, M.D., F.R.C.P.: On Chorea, 1868.

or parts brought under the influence of either the negative or positive pole alone as desired. Static electricity (positive) is also sometimes useful in chorea in calming nervous excitement and as an aid to nutrition.

But the two methods that I have found, on the whole, to be the most effective in the treatment of chorea are central galvanization and general faradization. These two methods properly differentiated and used either alone or in alternation, according to the indications in each individual case, are capable of doing much, not only in alleviating the violence of the choreic movements, but in shortening the duration of the disease.

A somewhat useful point in the way of differential indication for the use of the two currents and the two methods of application, which has been forced upon me by repeated observation, is the following: For children of full habits and in that excellent condition of general health which we not infrequently see among the victims of chorea, the galvanic current is to be preferred. For those, on the contrary, who are weak and anemic, with impaired nutrition, the faradic current is far more grateful, and is followed by better results, both immediate and permanent.

EPILEPSY CURED BY TENOTOMY OF THE OCULAR MUSCLES.

Read in the Section on Neurology, and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY WALTER B JOHNSON, M.D.

PATERSON, N. J.

J. H. H., 23 years old, consulted the writer on Sept. 5, 1889, stating that he suffered from a very peculiar form of disease of the nervous system for which he had been examined and treated during the past two years by a large number of prominent physicians. He was in good physical condition, attended to his business as a salesman regularly, and had no discomfort, except slight headache, until the attacks for which he wished treatment came on, two years ago; since that time, at intervals varying from two weeks to two months, he had had attacks, the onset of which was a violent headache coming on suddenly and without any premonition and followed by loss of all conscious mental action. The patient had no recollection, when recovering from the attack, of anything except the initial headache. The time during which he remained in the state of conscious mental inactivity varied from two to five days; during this time he would, if the attack seized him on the street, have been able to care for himself, as in such cases he invariably had sufficient money remaining to indicate the expenditure of enough only to have paid expenses during the time which was a blank to him. On returning to conscious mental activity he generally, upon awaking in the morning, found himself in some hotel in the city which he had not been accustomed to frequent. If the attack seized him at home the improvement in the headache, which occurred generally in two or three hours, was followed by a profound sleep which lasted until the following day, or in extreme cases, two days, the headache frequently returning on the morning of the second day. When the stupor passed away he was able to resume his work as usual.

The physicians consulted by him differed in opinion regarding the nature of the attack, Dr. A. L. Loomis and the major portion diagnosing the disease epilepsy, while others considered it neurotic and only epileptiform in character.

Upon the recommendation of his physician, he concluded to consult further with a view to excluding any abnormal ocular condition as an etiologic factor in the production of his disorder. He applied for treatment in September, 1889. The case was of such marked interest that a consultation was considered advisable, and the several consultants reported the details of their examinations as follows:

Dr. Herman Knapp, New York: Slight dynamic inversion not verified with prisms for near.

Dr. David Webster, New York: R., 25 D. C. ax. 90°; eso-

phoria 2° in acc. L., 25 D. sph.; exophoria 20°; abduction 5°. Under atropin, R., 50 D. C. ax. 90° c, 0.50 D. c. ax. 180°. L., 0.25 D. sph.

Dr. Geo. T. Stevens, New York, before and after atropin: R., 0.75 D. C. ax. 180°; esophoria, 5°. L., 0.75 D. C. ax. 180°; abduction 2°, later 0°.

Homonymous diplopia. The result of the examination of the writer was: R. V., 20-30 — 20-15 I. D. c ax. 180. L. V., 20-15 — 20-15 w. 0.75 D. sph.

With this correction, the lines upon the test chart for astigmatism were all of an equal density and thickness, the vision normal. Esophoria 5°; abduction 5°.

Homonymous diplopia at distance. The diplopia was not present at the near point, either with or without the correcting glasses, which were ordered and the patient directed to wear them continuously. R., 1 D. C. ax. 180. L., 0.75 sph.

For some time after the glasses were prescribed and worn the patient was decidedly improved, his general condition was much better and he had none of the attacks previously described. Finally, the primary effect of the glasses passed away and the epileptic seizures returned with as much frequency and force as previously existed. The partial tenotomy of the internal recti muscles advised by Dr. Geo. T. Stevens was then performed. The eyes were tested immediately after the tenotomy and showed a slight degree of exophoria. The patient was directed to wear his glasses continuously and report. He remained in the city for two months, during which time there was no return of the attacks herein described; although he at times suffered from headache, he had none resembling those which occurred at the onset of an epileptic seizure, nor any stupor or loss of conscious mental activity following.

April 23, 1895. In a letter written from his present home in Chicago, he states that he never has had any attacks of epilepsy since the last record, and is a different person from the one I knew in this city.

A RETROSPECTIVE VIEW OF THE TREATMENT OF HEMORRHOIDS.

BY N. H. HENDERSON, M.D.

SURGEON LAKESIDE HOSPITAL, CHICAGO.

It is only within the past few years that diseases of the rectum have received the attention to which they are entitled. Until about twenty years ago the only possible source of relief from hemorrhoids was the clamp and cautery or the ligature. To attempt any surgical operation was considered very dangerous, and, in fact, we have evidence of many cases where fatal hemorrhage was the result of surgical procedure. Surgeons approached the field with timidity, and during our college course instruction pertaining to diseases of the rectum were the exception, and not rule, and were mainly confined to prescriptions for some palliative ointment, with no assurance, nor even expectation of cure. It is an acknowledged fact that the first step forward in the treatment of hemorrhoids was the hypodermic injection of carbolic acid, or any styptic that we saw fit to employ. The regular practitioner was slow to accept this innovation, owing to its origin in the hands of the itinerant, but the success of the measure at length compelled the recognition of the profession. For at least eighteen years my associate, Dr. E. H. Dorland, has treated hemorrhoids by the method of injection and continues the practice in suitable cases up to the present date. The next step toward reformation was the Whitehead operation. Then Dr. E. H. Pratt reversed the "Whitehead" and gave it prominence under the name of the "American." To recapitulate, we have the clamp and cautery, the ligature, the Whitehead and the American, to which I wish to add the operation described by me in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of Feb. 23, 1895. A brief notice of the above operations may at least en-

able the inexperienced operator to decide which he wishes to employ. The clamp and cautery are entirely unsatisfactory, because you can not make a complete section of the diseased area, consequently it is but a few months, or years at best, until your patient returns to you suffering with hemorrhoids and the operation must be repeated. Some patients will submit to the ligature, but if for no other reason than that the ligature is unscientific, unsurgical, uncleanly and one of the greatest sources of infection possible in this class of work, we are not, nor have we ever been, justified in using; but the results for permanency (if the patient survives) are better than those of the clamp and cautery. The hypodermic injection is a vastly more satisfactory procedure; I have employed it hundreds of times, and in a certain class of cases I seldom fail to obtain the most gratifying results. A recent investigation of cases treated in this way by Dr. Dorland and myself, covering a period of eighteen years, demonstrates that of 1,800 cases treated by injection of a styptic, only about 15 per cent. have suffered any return of the trouble. As for the Whitehead and American operations, to mutilate unnecessarily any part of the human anatomy is something to be regretted, if not by the physician, at least by the patient. In dissecting off the pile-bearing inch together with the integument at the verge of the anus, laying bare the sphincter ani, dragging down the loosened bowel and stitching it to the integument, we bury all the delicate nerve fibers that impart sensation to the sphincter beneath the bowel, which, being out of its normal location, can not and will not replace the original tissues. Those having been submitted to these operations, have, I say without exception, a clumsy rectum, nearly devoid of sensation. In cases where union between bowel and skin is complete there is a band of cicatricial tissue, which feels to the touch like a wire ring, and which completely encircles the anus and sadly interferes with the functions of the sphincter. Again, we meet with cases where, having encroached too freely upon the integument, the operator has dragged the bowel down and out to repair the loss, to the end that the patient goes through life with his clothing rubbing against a portion of his anatomy which nature never designed to be so exposed. But I must repeat that the greatest and most serious objection to these operations is burying the terminal nerve fibers of the sphincter beneath a part of the bowel which is almost devoid of sensation. I am speaking from personal experience, having employed all of the methods mentioned, and I am not moved to these remarks by a personal motive alone, but hope that I have been able to recommend something better. What I should recommend as an ideal treatment for hemorrhoids is hypodermic injection, where the patient can not go to a hospital; but where hospital care is not out of the question, I would advise the operation described in the above-mentioned journal. I have made this operation no less than eighty-seven times, and in no case have I been disappointed in the result, either from stricture or loss of sensation, nor have I failed to obtain a complete restoration of the normal mucous membrane. In three of the cases I failed to get the posterior incision (which was original with Dr. Dorland) quite deep enough, the result of which was rather more contraction than I anticipated, but not sufficient to materially interfere with the normal function of the sphincter.

NEW INSTRUMENTS.

INSTRUMENT CASE, STERILIZER, SPONGE BASINS AND TRAYS COMBINED.

BY E. C. DUDLEY, M.D.

PROFESSOR OF GYNECOLOGY, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL; GYNECOLOGIST TO ST. LUKE'S HOSPITAL, CHICAGO.

The apparatus herein described is designed to lighten the burden and add to the safety of surgical work in private houses, especially in the country. From an experience of about two years in its use, the author offers it with confidence in place of the septic instrument bags, the unwieldy sterilizer and the cumbersome trays and sponge basins which make up the usual *impedimenta* of surgical practice outside of hospitals. The apparatus fulfills the requirements, first, of an aseptic instrument case; second, of a steam sterilizer; third, of instrument trays and sponge basins. It consists of two rectangular sterilizers made of copper, nickel plated, in which may be packed all instruments and other appliances requisite for an abdominal section, or for any other ordinary surgical operation. Its component parts may further be used separately as pans, sponge basins and trays. The whole outfit, inclosed in a washable canvas cover,



FIGURE 1.

is 16 inches long, 9 inches wide, 12 inches high, and when packed ready for an operation weighs about 25 pounds. (See Fig. 1.) This canvas-covered instrument case contains a complete set of instruments, towels, sponges, ligatures, sutures, dressings, aprons, nail-brushes, soap, ether, chloroform, alcohol, anti-septic drugs, rubber sheet, douche bag, etc. The equipment is adapted for work anywhere. It especially solves the problem of septic surgery outside of hospitals, whether at the house of the prince or of the pauper.

Fig. 2 represents the two rectangular copper boxes as they appear under steam when used as sterilizers. Observe that each sterilizer is supplied with four legs, which may be folded against the sides of the box when the box is not in use as a sterilizer. Each box contains two gauze-wire trays, as shown through the broken side of the sterilizer in the right hand cut of Fig. 2. The lower tray is one inch above the bottom of the sterilizer and contains instruments. The upper tray, resting upon the lower, contains towels, dressings, ligatures, etc. The space of one inch between the bottom of the lower tray and the bottom of the sterilizer that is below line A B, Fig. 2, is filled with sterilized water. The small trays D and G are

filled with burning alcohol. These trays are set upon saucers to prevent burning the table-top. The burning alcohol converts the water into steam, which sterilizes the contents of the wire-gauze trays. One of the two detachable handles resting on the table between the two trays may be used to put out the flame by lifting the small alcohol tray in contact with the bottom of the sterilizer. These detachable handles are also designed for use in separating the different parts of the sterilizers after the sterilization is complete.

towels, gauze sponges, dressings, etc., which have been sterilized in them. The two small, square, shallow cups which contained the alcohol now become trays for needles, ligatures and other small appliances. (See Fig. 3, H and G.) Observe that this sterilizer is quite as well adapted for sterilization by boiling water as by steam. After the apparatus has been under steam for thirty minutes, especially if this process has been repeated three times on consecutive days, not only its contents, but also its various parts which are to be used as sponge basins and trays are

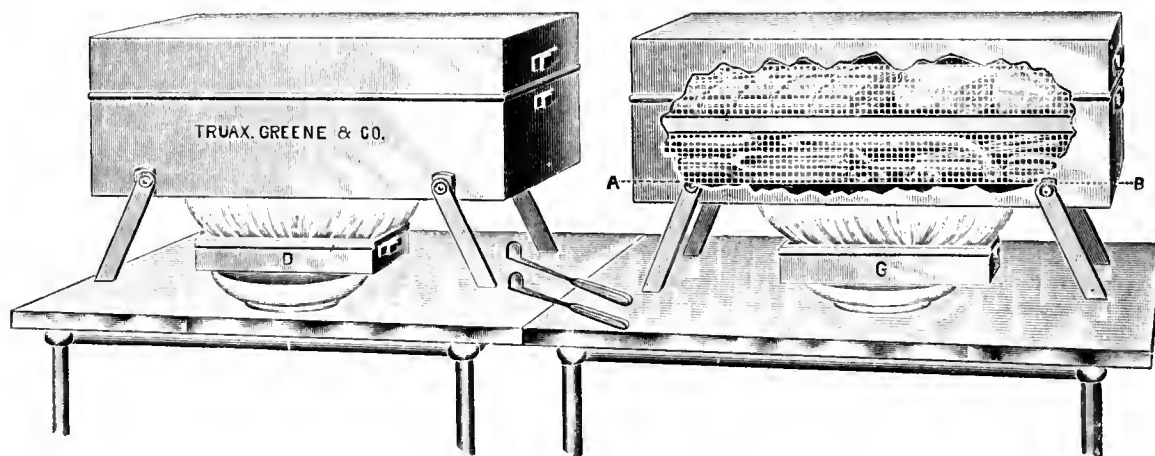


FIGURE 2.



FIGURE 3.

Finally, the several parts of this apparatus may be broken up into sponge basins, pans and trays. The two large copper boxes become sponge basins. The two top covers become trays, holding sterilized water, inside of which the two gauze-wire trays containing the instruments are placed. (See Fig. 3, F and E.)

These gauze trays may be lifted out and placed in the covers without handling the sterilized instruments before the operation. The other two gauze trays to the left of the sponge basin (Fig. 3) hold the

thoroughly sterilized. Each member of the apparatus is supplied with one or more slots or rings, into which fit the detachable metallic handles already mentioned. These handles are useful to separate the sterilizer into its several parts while hot, and to avoid unnecessary handling. After an operation, even upon a septic case, all the parts of the apparatus may be washed and then sterilized by boiling in a large washboiler. The boiling water should contain 2 per cent. of carbonate of soda.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

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SATURDAY, DECEMBER 21, 1895.

THE RE-ASSEMBLING OF SCHOOLS.

The health authorities of our Northern cities where diphtheria is prevalent could do a great deal of good by causing an examination to be made of the throats of children in the public schools at the opening session after the holidays.

Children found with commencing sore throats should be returned to their homes to be placed under the care and surveillance of a physician, and thus one of the great causes of the propagation of diphtheria removed.

It is well known that during the holiday season many of the ordinary restraints are removed, and household isolation of the sick is but imperfectly maintained. The examination suggested would not only detect suspects, but cases of actually advanced disease when found might have the exudate examined twenty-four hours earlier than would be the case where the usual custom prevails of waiting until the general and local symptoms were fully developed.

If we are ever to stamp out diphtheria, it must be by preventive measures of the sort indicated, not by reliance on curative therapeutics. The alleged brilliant results of serum-therapy should not blind the eyes of the people or the profession to the greater triumphs of applied hygiene.

DR. HAROLD C. ERNST says:¹

"The disease was at its highest at the beginning of the systematic use of the bacteriologic diagnosis and inspection of schools in December, 1894. From that time, month by month, there was a steady fall, sharper than occurred in previous years, until the

slight rise that apparently always appears in May, just before the schools are closed for the summer.

"Of the inspection of schools it may be said, that it has happened more than once that a child has been sent home for a slight sore throat, and that cultures have shown the presence of virulent bacilli from one to three days before the clinical diagnosis of diphtheria was in any way justifiable."

We do not concur, however, with DR. ERNST's further view that this state of facts renders "cultural diagnosis" more advisable as a matter of routine. On the contrary, the direct attack on the bacillus, as recommended by LENNOX BROWNE, would seem in every way safer and much more effective.

However, whether one worships the new-born serum-therapy; views it with skepticism, or even with distrust, there can be but one opinion as to the propriety of prevention of the disease by means of frequently repeated medical inspection of the schools, early diagnosis and prompt treatment.

Let the School Boards and the health officers harmoniously proceed in this work, and not only will the closing of schools be prevented, but the disease itself be circumscribed in its devastations, if not in time absolutely stamped out.

THE EVOLUTION OF OUR KNOWLEDGE OF
TYPHOID FEVER.

Before the discovery of the pathogenic microbe, typhoid fever, called also dothinerteritis (Trousseau), continued fever, etc., was characterized: Anatomically, by specific lesions in the small intestine, especially in PEYER's patches, with concomitant changes in the mesenteric glands and the spleen; clinically, by continued fever of a definite type, by intestinal and nervous symptoms, by splenic tumefaction and a discrete eruption of lenticular rose-colored spots.¹

It seems very probable that this disease was known to the older authors, but it is very difficult when studying the epidemics of the time to clearly distinguish it amidst the chaos of pyrexias belonging to typhoid, to typhus and to malaria. This confusion lasted for a long time and the writings of FRACASTOR, BAILLOU, SPIGELIUS, SYDENHAM and WILLIS give but vague and unsatisfactory allusions.

In 1739 HUXHAM, in describing a disease which he called "slow nervous fever" gave the first clinical differentiation of the disease. Very soon the epidemics of Lausanne (1754-5) and of Göttingen (1760-1) furnished the opportunity for new observations, and the descriptions of BORSIERI (1785) and of STOLL became more and more precise. About this time the pyretologists, with their innumerable divisions, observed the question temporarily. For instance, the symptomatic classification adopted by

¹ Medical Communications of the Massachusetts Medical Society, Vol. XVI, No. III, 1895, p. 720.

¹ Legry, L' Union Medicale, 1895, No. 37.

PINEL (1798) in his "Nosographie des Fievres Essentielles," obliges one to hunt through four or five chapters to find a complete account of the disease.

However, pathologic anatomy threw fresh light on the subject, and PROST (1802) and PETIT and SERRES described the intestinal lesions in different stages of the disease in detail. These authors were soon followed by CRUVEILHIER, ANDRAL and BRETONNEAU. Thus material was accumulating both from clinical observations and anatomic findings to establish the autonomy of typhoid fever and mark its place in nosology.

In 1829 LOUIS² gave a full account of the symptoms and morbid anatomy of the disease under consideration, and gave it the name of "fièvre typhoïde," which was adopted shortly after by CHOMEL and is now classic. The natural history of this disease being fixed by narrow boundaries, the malady was defined by its symptomatology and by its anatomic lesions. The physicians of the time were free to occupy themselves with questions of pathogeny and etiology with great profit to its therapeutics and prophylaxis. Let us see the changes of opinion before the question of etiology was fixed on its present firm basis.

The first important theory concerning etiology was that of contagion. Affirmed by LEURET (1828), BRETONNEAU (1829), GENDRON (1834), it nevertheless had numerous opponents, and CHOMEL, ANDRAL and LOUIS, after long discussions on the subject, rejected it completely. In 1849, though, the memoirs of PIEDVACHE furnished proof positive of the contagious nature of the disease.

The discrepancies between the various authors may be explained by the different conditions experienced by the observers. For instance, this phase of the question is nearly impossible to discover in large cities, while in small places it is very much in evidence. Thus FORGET says: "I have denied the possibility of contagion until a stay in the country has shown me beyond question that typhoid fever may affect persons living near the patients."

The possibility of contagion alone did not seem to solve the question entirely, for many practitioners, while admitting contagion, noticed facts which led them to believe we might also have an autochthonous spontaneous origin of the fever. The pythogenic theory of MURCHISON (1858) is the most positive expression of this view. According to this author the infectious material may come from any putrefying animal matter whatever. "The disease may arise independently of any former case by fermentation of fecal matters, and perhaps in fermentation of other organic matters."

BUDD, on the contrary, a champion of the specific nature of this disease, maintained (1856-73) that

every case of typhoid fever is the product of some former case. A forerunner of later-day bacteriologists, he claimed that the morbid principle was eliminated with the diarrheal discharges, which disseminated the contagion to a distance and impregnated the soil. Its diffusion is such, he said, that one patient may infect an entire town if the dejecta get into the wells. He also showed that transmissions may occur through the air.

PETTENKOFER's famous theory on the oscillations of the ground water (1854-5), which was so much in vogue in Germany at one time, does not seem to make much use of the facts concerning pollution of water in fecal emanations. I do not know the cause of the disease, says this author, but believe I can connect it with the variations in the level of the ground water in wells. These variations allow the subterranean waters to moisten the soil, and on retiring leave it damp. It is when it is slightly moistened that it becomes dangerous. Too much dryness of the soil or too much moisture prevent the development of the disease. The new adaptation of this theory to micro-biological views does not seem to be any more convincing, and the doctrine of maturation of germs regaining their virulence in moist soil has not prevailed against that of transmission by potable water.

Hence we have two great currents of opinion in the scientific world. Some, with MURCHISON, admit the production of typhoid fever *de novo*. "It is the despised spontaneity of the living organism," said PROFESSOR CHAUFFARD, at the Paris Academy of Medicine in 1877, "which dominates all the etiology and all the pathogeny of typhoid fever." STRICH was one of the first to give an interpretation of the spontaneous theory by supposing that every individual carries materials for putrid intoxication in his intestine, which are constantly neutralized in the normal condition, but which under certain circumstances cause typhoid infection. This was the opinion of PROFESSOR PETER also, who believed that the disease was manufactured by the patient himself, that auto-typthisation was nothing but the results of retained waste matters in an exhausted organism.

The opposite school, led by BUDD, believed, as we have seen in the specific nature of the disease, that every case arises from some previous case. The discovery of the EBERTH-GAFFKY bacillus greatly facilitated the solution of the problem.

EBERTH in 1880 was enabled, by using new coloring methods, to determine some of the morphological characters of the bacillus. However, some doubts still remained as to its specific nature, notwithstanding the confirmatory observations of KOCH, MEYER, FRIEDLANDER and LETZERICK. The discovery was completed by GAFFKY in 1884, who, by using new solid media, was able to isolate the microbe and

² "Rech. sur la mal. connue sous les noms de gastro-enterite, fièvre putride," etc.

study the form of the colonies, etc., on gelatine, potato and other materials.

So, from the vague theories and fanciful discussions of the humoralists and the pyretologists of olden times, we arrive at our modern conception of typhoid fever, which CHANTEMESE defines as a general disease which is produced by the reaction of an organism invaded by the bacillus typhi-abdominalis.

THE CAUSES OF OLD AGE.

A few years ago a pseudo-scientific paragraph was traveling through the public press stating that an Italian physician had succeeded in detecting and cultivating the bacillus of old age—the cause of senile decay. As a skit at the microbic theories of disease then just achieving the popularity they have since held, it had its day and was soon forgotten; and one would not wish to revive it except as a reminiscence. It has its suggestions, however, of a theory to account for some of the symptoms of old age that may be not altogether unrelated to the truth, though they are at best merely suggestions and nothing more.

There is hardly any fact that is constantly before our observation, and yet is more incomprehensible than the reality of decay and death. When SIR THOMAS BROWNE described his life as “a miracle of thirty years” he expressed a truth, but not a greater one than was to be that of his death. Why the animal organism under perfectly normal conditions should be steadily on the up-grade to a certain point, and from there as steadily on the decline till its final extinction is a question that no one can answer with certainty—we can only speculate. We can assume, it is true, that the vital heredity of the bioplasm, after a certain reproductive period, is transferred to another generation; that the germ plasm only is immortal, while the organism in general, without this invigorating principle or with it undeveloped or exhausted, naturally and gradually tends to its ultimate decline and death.

According to this theory we would expect gradual decay to begin after the cessation of the active reproductive period, and this falls in very readily with certain physiological facts and also with some therapeutic notions that have had a limited vogue, such, for example, as the comparatively recent one advanced by BROWN-SEQUARD of the benefits from the testicular extract. There are, however, serious objections to the acceptance of the continuity of the germ plasm, and at best it can only be admitted as a rather captivating hypothesis, that may be true but is not a demonstrated scientific fact.

There is another possibility that may be invoked to account for senile decay that is, it is true, partly included in the foregoing, but which may perhaps have sufficient importance to stand alone as a factor. Our existence is a perpetual compromise between the

contending influences that tend to growth or decay. Bichat defined life as “the sum of the influences that resist death,” and many have since thought it would be hard to improve upon this rather circular definition. All our lives we are enveloped in unfavorable conditions; we carry the germs of disease always with us, only waiting for a favorable opportunity, and our system is itself constantly manufacturing and disposing of poisons that are, in themselves, capable of destroying life should by any accident its functions seriously fail in certain important particulars. These functions are constantly becoming disordered, sometimes by external, sometimes by internal agencies, and each time a draft is made upon our stock of vitality. During the period of active growth which in man and some of the higher mammals now covers many years, but which in its origin may have had a close relationship with the cyclic rotation of the seasons, the vital forces, so to speak, are predominant, and the disease germs and toxins can only exceptionally work diaster. When growth is complete the organism is at its best, but is not progressing, and the inevitable tendency is retrogression sooner or later under the steady and continuous attack of hostile agencies. The “microbes” of old age are all the disease germs that attack vitality, either consciously in actual disease or through the slow and by us almost unfelt sapping of the system in a thousand different ways which they must be constantly effecting at every point of least resistance. It may be, as has been conjectured by some, that every form of neoplasm, every morbid state has here and there its germs latent in the organism only waiting, as Dr. CLOUSTON has expressed it, for some ebbing of the regulative and resistant cortical energy of the nervous center to leave them free to start on their distinctive career. This recognizes the supreme influence of the brain over vital processes, the control of all functions by the highest nervous center, the cortex of the brain, that formed one of the leading motives in DR. CLOUSTON’S valedictory address as President of the Edinburgh Medico-Chirurgical Society, from which the above quoted opinion was taken. Of course the brain suffers with almost every pathologic process and according as its functions are impaired with advancing age the more rapidly do the symptoms of senility appear. But like others of the higher organs its resisting power is the greater, and in the normal course of events the cerebral cortex should be the last to completely succumb to the gradual onset of all the hostile agencies that produce old age. That this is often the case is shown by the numerous septuagenarians and octogenarians who have taken leading parts in the world’s progress, and much of the world’s best work is done by men past the time when it is generally supposed that brain weight begins to decrease and mentality to be impaired. The truth prob-

ably is that the most of us grow old too fast, that by our own fault or that of our progenitors we yield too soon to the microbes and toxins that hasten on old age.

A HOLIDAY HINT TO THE RUSH MONUMENT COMMITTEE.

It is the fashion, particularly since the disastrous ending of the China-Japan conflict, to hold the Mongolian up to ridicule, and yet, notwithstanding our low estimate of Chinese methods, there is one feature in their economy that our higher civilization would do well to emulate. It is a point of honor with the Chinaman of whatever profession or trade to begin the new year with his obligations all met and his balance-sheet squared, so that he is able to look his neighbor in the face clouded by no shadow of debt.

Now that the great Christian holiday season which ushers our New Year is approaching, it would be well for us to imitate the Oriental barbarian and see that all our obligations are met. One of these, binding upon every medical man in the United States, is the speedy redemption of the long-standing pledge to erect a monument to the great representative patriot physician of the Revolution. It must not be forgotten that at the recent meeting of the AMERICAN MEDICAL ASSOCIATION at Baltimore, every delegate and member there present was by unanimous resolution constituted a member of the Rush Monument Committee, and that it was made his duty to obtain contributions from physicians residing in and about his district for this fund. How many of these committeemen have as yet discharged that obligatory duty then imposed upon them and accepted by them? Had these *eight* hundred men collected only ten dollars each, it would have added *eight* thousand dollars to the fund, which would have been sufficient, with the amount in hand, to have erected a monument as appropriate as that to MARION SIMS in Bryant Park at New York. A very small subscription from the individual members of the profession in their several localities would make it possible for each of these committeemen to return twice that sum, and thus complete the erection of a monument in every way creditable to the profession, since it is no longer the question of a monument but of the kind of monument that will be erected.

Shall it be only a \$3,000 bust to stand as the measure of the appreciation of the regular medical profession of its immortal exemplar in the same city, and that the Capital of the Nation, with the splendid and costly work of art which the little band of homeopaths in the United States is prepared to erect during the coming year to the memory of their high-priest HAHNEMANN? Shall it not be at least as imposing and appropriate a testimonial as that which the still smaller body of members of the American Surgical Association is soon to inaugurate also at

Washington in commemoration of their distinguished late President, PROF. SAMUEL D. GROSS, of Philadelphia; or as the members of the profession of Law to its great representative, CHIEF JUSTICE MARSHALL; or as the numerous statues to generals and others whose services to this new-born country and to humanity were not a tittle of those of this doctor, who saved men's lives and taught them how to lengthen them, and who offered up his own when he might have rested from his half century of professional work.

If, however, it be the fact that the mass of the profession is indifferent or unwilling to subscribe even a half-dollar each to create a fund of \$50,000, which some of the equestrian statues of military heroes at Washington have cost, then it is all the more the duty of the few, who have sufficient pride in their profession not to wish it disgraced by invidious comparison, to build a greater monument than all yet standing to this medical hero, who was greater than all those they represented. DR. HENRY D. HOLTON, of Brattleboro, Vt., offered to be one of 100 physicians to subscribe \$100 each to this fund, and DR. WYETH, of New York City, one of six to subscribe \$500 each. Surely there are five other men in the medical profession in the United States who are able to make DR. WYETH's offer good, or ninety-nine besides DR. HOLTON who can write a check for \$100 for such a purpose at this Christmas season. There ought to be in DR. RUSH's native city of Philadelphia alone, where live the men who know his life and labors best—and who have most impressively eulogized him—WEIR MITCHELL, PEPPER, MILLS, MUSSER and a score of others, prosperous medical men—enough to supplement both DR. HOLTON's and DR. WYETH's liberal offers. Certainly there are twenty great cities in this country which can raise among their leading medical practitioners an aggregate of only \$500 each, and if nothing can be expected from a general subscription, we advise the committee to appeal directly to these men for the funds they require to complete the project.

It would be a proper recognition of the services of the RUSH MONUMENT COMMITTEE if its work were brought to an end by the concerted generosity of these few. It would be an emphatic, practical expression of their admiration for the man who set the standard of medical worthiness at so high a level. It would be a Christmas gift to the whole country to add another testimonial of approval of a life passed in its service to those already adorning its National Capital.

The AMERICAN MEDICAL ASSOCIATION has so often, during the past eleven years, applauded the utterances of the RUSH MONUMENT COMMITTEE through its Chairman, and has resolved over and over again to complete the work, that it can no longer evade the obligation it has thus assumed; and at the last meeting in such specific terms that we earnestly hope it will

like the Oriental merchant, begin the New Year with its account closed to its credit by the fulfillment of its pledged faith.

CHRISTMAS, 1895.

This issue of our JOURNAL contains some noteworthy contributions. The members may indeed congratulate themselves on the value of the original articles herein presented, and that the authors have made the ASSOCIATION a Christmas present of enduring value.

The articles of PROFESSORS GOULEY, ANDREWS and KELLY and others have more than a passing interest, and will be referred to again and again with pleasure and profit by all those who bind their JOURNALS.

The renewed interest taken in the ASSOCIATION, and the enthusiasm manifested in the great work of enrollment of all the regular physicians of the United States in its membership argue great things in the future. Let us not forget the necessity for renewed effort while enjoying the present, and while we listen to the merry Christmas chimes which ring their peal of gladness throughout the land let us determine that in the year 1896 the membership in the ASSOCIATION must be brought to ten thousand.

Ten thousand educated regular physicians, united in thought and sentiment although separated by American distances, will become a power for good, the ultimate benefit of which no man can now foresee, but can only dimly comprehend.

In union there is not only strength and power, but wisdom.

CORRESPONDENCE.

Foundation of the Lane Course of Medical Lectures in Cooper Medical College.

SAN FRANCISCO, CAL., Dec. 8, 1895.

To the Editor:—The undersigned announces that in accordance with a purpose which he has long entertained he has founded a course of lectures to be annually given in Cooper Medical College, and the same to constitute a part of the instruction given in this institution. The matter of these lectures shall be some subject within the domain of medical art and science; and they shall be ten or more in number, according to the option of the lecturer. The lecturer selected to deliver this course shall be a man of superior eminence in the profession of medicine, and his selection shall be irrespective of nationality. The lectures are to be given in the English language and are to remain the property of their author. These lectures, when it is practicable to the lecturer, shall be delivered as the initial ones of the semester that begins in June. This course shall be known as the Lane Course of Medical Lectures, and the sum of \$2,000 shall be paid for each course. Financial provision for the perpetual maintenance of this course has been made by the founder. The lecturer shall be chosen by the founder during the latter's life-time; and should his wife survive him, the selection is to be made by her during her life-time; afterward the lecturer shall be chosen by the members of the Corporation of Cooper Medical College.

The friends of Cooper College will be gratified to learn

that Dr. William Macewen of the University of Glasgow has consented to inaugurate this course in 1896. Dr. Macewen states he will be present to deliver these lectures about September 1, 1896.

This course of lectures, it is believed by the founder, beside adding to the efficiency of the instruction received by the students of Cooper Medical College, will incessantly animate them to industry in their studies through the opportunities which will annually be given them of coming in contact with some of the living leaders in medicine.

LEVI COOPER LANE,

Pres. Cooper Medical College.

Hypnotism and Double Personality.

NEW YORK, Dec. 16, 1895.

To the Editor:—I am in doubt whether such a tirade as your correspondent on "Hypnotism" in the last number of the JOURNAL has indulged in deserves notice; for I very much doubt whether of the 5,000 or 6,000 intelligent physicians who read the JOURNAL many will be found who sympathize with the spirit which it manifests. Passing by its scurrility, let me say to the readers of the JOURNAL that in these days it is scarcely necessary to discuss the "views" of men who on account of their dense ignorance of the subject have no right to have an opinion, but it is necessary to become acquainted with *facts* and to discuss them in a scientific spirit.

Judging by the number of letters of inquiry I have received since the appearance of the articles on hypnotism in the JOURNAL of Nov. 30, I am sure there are many physicians who are anxious to get at facts, and to know something definite regarding the subject. This information can not be given in a letter; but for those who desire a plain, simple statement of the facts and history of hypnotism let me suggest reading "Hypnotism—Its History and Present Development," by Frederick Björnström, M.D., published by the Humboldt Publishing Co., 19 Astor Place, New York; or, if they desire the latest philosophic views and therapeutic uses, get "Suggestive Therapeutics," by Prof. F. Bernheim, published by G. P. Putnam's Sons, New York, bearing in mind, however, that his extreme views on the subject of Suggestion are by no means unchallenged by authorities quite equal to himself.

Neither can the subject of double personality be discussed in a letter; but I would like to emphasize the statement that the *alleged facts* bearing on the subject presented in the paper which seems to have stirred up the gall of my critic are *real facts*—account for them as we may.

It is pleasant to know that my critic, and that of my confrères, since reading that particular number of the JOURNAL has had "reason to modify some of his 'views.'" It is to be hoped that he has so modified them. The only drawback to that cheerful hope is the difficulty of understanding how a man who has simply sat down in the densest kind of a fog can have *views* of any sort to modify.

R. OSGOOD MASON.

Further Facts Concerning Life Insurance.

MUNCIE, IND., Dec. 13, 1895.

To the Editor:—Quite a number of the life insurance companies have banded together and formed an alliance to stop "rebates." In other words they have formed an association to compel themselves to conform to legitimate business principles. Some of these companies are known as "racers," i.e., they pay their agents large sums for securing new business, and these agents, in turn, divide the money with those who can be induced to take out new insurance.

To guard themselves against this wrong these companies,

now seized with a virtuous impulse. propose to pay a legal referee the sum of \$2,000 per year as a salary. In addition to this sum he is to be compensated for incidental expenses, and a still further allowance, not exceeding \$3,000, for a secretary and clerical assistance!

When we take into consideration the fact that a new officer is to be appointed, and guaranteed \$5,000 and incidental expenses besides, does it not look as though this might be one of the microbes that is causing the marked atrophy of medical examiners' fees? Let our microscopists examine this new germ so lately discovered in the insurance kingdom.

I am glad to know that some honorable companies spurn such an imputation upon their honor, and refuse to enter into the unholy alliance.

PHYSICIAN.

A Death from Vomiting.

WASHINGTON, D. C.

To the Editor:—I notice in your "Philadelphia Notes" of Dec. 14 reference to case of death following a violent attack of sneezing. The case was reported by Dr. Morton at the December meeting of the Academy of Surgery. Permit me to briefly relate a case of death from vomiting during an attack of influenza (la grippe). The patient, a man of nearly seventy years, had "dyspepsia" with symptoms of "liver disease," with occasional hematemesis. During many years he had taken large quantities of bicarbonate of soda for the relief of so-called dyspepsia. During a violent attack of vomiting he felt something "give way," as he expressed it, and at once the vomiting ceased. The writer could not see the patient for several hours after the vomiting ceased; his condition in the meantime was rapidly growing serious. Great pain in the epigastrium extending rapidly over the abdomen. Death resulted in eighteen hours from peritonitis. At the autopsy an old cicatrix was easily discovered on the lesser curvature of the stomach about two inches from the pylorus. The rupture had occurred at this point, with resultant sepsis and peritonitis.

I. S. STONE, M.D.

1449 Rhode Island Avenue.

Concerning the Journal.

FROM ONE OF THE OLD TRUSTEES.

LITTLE ROCK, ARK., NOV. 25, 1895

To the Editor:—After reading the proceedings of the Board of Trustees, and your report as editor in the JOURNAL of Nov. 23. I feel as if I must send you words of congratulation upon the progress and success you have achieved as manager of the JOURNAL in making it the equal, if not the superior of any other weekly medical journal published in the country. It rests now with the members of the ASSOCIATION, and profession generally, to sustain it and maintain it, so that it may become the glory and pride of every reputable physician in the land.

With my best wishes for you personally, and for the continued prosperity of the JOURNAL, I remain
Very truly yours,

P. O. HOOPER.

SAN FRANCISCO, Dec. 8, 1895.

To the Editor:—The JOURNAL is to be praised for the excellence of its material during the past year.

Yours truly,

L. C. LANE.

CHICAGO, Dec. 11, 1895.

I find the JOURNAL to be one of the best among the journals I am now reading.

R. C. WILSON, M.D.

CINCINNATI, OHIO, Dec. 7, 1895.

I congratulate you on the growth of the JOURNAL under your wise management. It is easily the leader to-day.

CHAS. A. L. REED, M.D.

PUBLIC HEALTH.

Contagious Disease Hospital for Newark, N. J.—The health authorities of that city have been at great trouble to find a location in Irvington for the greatly needed hospital and disinfecting plant for infectious disease prevention and treatment. The Board of Trustees for the latter town has concluded to cancel all permissions heretofore granted for the construction of the plant within the limits of that town; and that Board is said to have resisted very promising overtures on the part of the Newark authorities as to the mutual employment of the plant when in working order. A part of the trouble seems to have arisen from the fact that the proposed beneficent and up-to-date institution has been styled a "pest-house." Immediately after that cry had been raised the community of Irvington began to protest as one man.

A Sanitary Landmark.—The meritorious work of the late Dr. Thomas Fanning Wood, for many years the presiding genius of the North Carolina Board of Health, is one of the bright spots in the sanitary history of our Southern States. Although Dr. Wood passed away in 1892, there are those who keep his memory green. In a decidedly out-of-the-way place, namely, in the columns for book reviews of the *Independent*, the following good point is made. The allusion to Dr. Wood as the sanitary "John the Baptist" of his State will be appreciated by all good North Carolinians. His was the voice of one "crying in the wilderness" for many years. The review in the *Independent* has reference to a pamphlet by the successor of Dr. Wood in the secretaryship of the State Board, Dr. Richard H. Lewis, of Raleigh, entitled, "Drinking Water in its Relations to Malarial Diseases." The reviewer says:

"This pamphlet, which the Board prints for general distribution, means to one familiar with the history of sanitation in that State far more than its thirty pages indicate. It is the index of a great revolution in opinion, and of a general seeking of wisdom's ways that ten years ago would have been deemed impossible. There rises up before the mental vision the figure of Dr. Wood, the John the Baptist of that State, who paid for the printing of a biennial State Report ten years ago, that he could not afford to "post" back and forth for proof-reading, which was scarcely larger than this single chapter out of the Report for this year. He died a true martyr to a noble cause. Who says the South is not waking up?"

The Migration of the Croton Bug (*Ectobia Germanica*).—In the last number of *Insect Life*, Mr. L. O. Howard reports upon the peculiarities of migration of certain water-bugs in our Southern cities, whereby new houses are suddenly overrun. The following observation was made at Washington, D. C.: One dark and drizzly day, late in 1893, a friend came to me and stated that he had just seen a remarkable sight on D Street, near the Department grounds. A vast army of cockroaches, according to his story, was crossing the street. A few hours later I visited the spot and found that the bulk of the army had disappeared, but that many stragglers still remained. According to the statement made to me, the army issued from the rear of an old restaurant fronting upon Pennsylvania Avenue, and marched across the muddy street, undeterred by pools of water, ash heaps, and other barriers, directly south to the front of the building opposite.

This building was a machine shop, and at the direction of the foreman several of the men took brooms and swept back the advancing horde. They swept until their arms were tired, but were unable to stem the advancing tide. The foreman then directed that a line of hot ashes from the furnace be laid along the brick sidewalk. This proved an effective barricade. The foremost cockroaches burned their antennae and their front legs and the army divided to either side and scurried down into the area ways of adjoining buildings in which they disappeared. The march is said to have contin-

ued for two or three hours and many thousands of the insects crossed in this way. A moment's glance, after arriving at the spot, showed me that the insect was the croton bug and that nearly all of the individuals were females carrying egg cases.

I called at the restaurant and found to my surprise that no house cleaning had been going on, and that no especial effort had been made by the application of insecticides to rid the establishment of the roaches.

It seems then to have been a true migration, a development of the true migratory instinct in the croton bug. The restaurant had become over-populated, perhaps not for its actual denizens, but certainly for the thousands of about-to-be-born young. The maternal instinct originated the migratory instinct and the army by one common impulse started on its journey for more commodious quarters. The darkness of the day is significant, and there is no reason to suppose that similar migrations do not frequently occur but undoubtedly under ordinary circumstances at night. This is the way that new houses become infested.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General Marine-Hospital Service:

NOTE.—(Correction is hereby made of a clerical error published in our issue of Dec. 14, 1895. The item "Ceara: Oct. 24 to 31, 2 cases, 2 deaths," should be under the heading "Yellow fever—foreign," not as placed under heading "Cholera—foreign.")

SMALLPOX—UNITED STATES.

Arkansas: Mississippi Co., Oct. 12 to Dec. 12, 75 cases, 13 deaths.

Arizona: Nogales, Dec. 9, 3 cases.

Louisiana: New Orleans, Dec. 1 to 7, 7 cases, 3 deaths.

Michigan: Detroit, Nov. 23 to Dec. 7, 4 cases, 1 death.

Ohio: East Liverpool, Dec. 14, 1 case; Bridgeport and vicinity, Dec. 14, 18 cases; Martin's Ferry, Dec. 14, 22 cases.

Pennsylvania: Philadelphia, Oct. 1 to Dec. 12, 2 cases.

SMALLPOX—FOREIGN.

Antwerp, Nov. 20 to 27, 1 death.

Barcelona, Oct. 1 to 31, 12 deaths.

Buda Pesth, Nov. 18 to 28, 2 cases.

Constantinople, Aug. 1 to 31, 14 deaths.

Dublin, Nov. 27 to 30, 2 cases.

Glasgow, Nov. 23, to 30, 3 cases.

London, Eng., Nov. 27 to 30, 1 death.

Manchester, Nov. 16 to 23, 1 case.

Naples, Nov. 9 to 16, 7 cases, 7 deaths.

Odessa, Nov. 16 to 23, 2 cases, 1 death.

Prague, Nov. 16 to 23, 12 cases.

Rotterdam, Nov. 23 to 30, 2 cases.

Warsaw, Nov. 9 to 16, 1 death.

St. Petersburg, Nov. 16 to 23, 6 cases, 1 death.

CHOLERA—FOREIGN.

India: Bombay, Nov. 5 to 12, 14 deaths; Calcutta, Oct. 26 to Nov. 2, 29 deaths.

Austria: Hungary, Nov. 5 to 18, 47 cases 39 deaths; (from Aug. 23, date of outbreak to Nov. 18, 350 cases, 234 deaths.

Russia: Volhynia, Sept. 29 to Oct. 12, 2,901 cases, 1,190 deaths; Kiev, Sept. 29 to Oct. 12, 59 cases, 37 deaths; Rustegebiet (Siberia), Oct. 2 to 15, 4 cases, 1 death.

YELLOW FEVER—FOREIGN.

Cuba: Cienfuegos, Dec. 1 to 8, 2 deaths.

Puerto Rico: San Juan, Nov. 22 to 29, 115 cases, 19 deaths.

SELECTIONS.

Vesical Hernia.—The patient, age 56 years, had a protrusion in the right inguinal region as large as a plum, soft, tympanitic, completely reducible. An operation was desired and disclosed a lipoma on the inside of a hernial sac, and attached to the lipoma a diverticulum of the bladder, only recognized by the flow of urine following incision. The bladder had penetrated the aponeurosis, making a direct hernia, while the hernial sac noted by the side of lipoma was indirect. The vesical incision was closed and Kocher's radical operation carried out. Recovery without complication.—*Münchener Medicinische Wochenschrift*, 1893, No. 32.

Variations in Immunizing Power of Serum from the Horse.—Ceni has reported to the Medico Surgical Society of Pavia his experiments to determine the fluctuations in the antiphtheritic immunizing power of the blood-serum of horses in consequence of muscular exertion. So long as the muscular activity is not injurious to the system there is no reduction, rather a slight increase; but over-taxing work, which is accompanied with reduction of body weight, greatly influences the immunizing power. For example, a horse which yielded serum of 80 units strength after twenty-five days of hard labor causing loss of 90 kilograms in weight, furnished serum of only 20 units strength.—*Wiener Klinische Rundschau*, Sept. 1, 1895.

The Changes in the Thyroid Gland in Exophthalmic Goitre.—Lubarsch (*Centralbl. für Allg. Path. u. Path. Anat.*, Bd. vi, No. 18) examined a number of thyroid glands in exophthalmic goitre and found certain quite constant changes, among which the following are the more important: 1, In these thyroids he found only rarely real gland follicles; mostly there were present dilated spaces clothed with epithelium in which more or less marked papillary formations were observed; 2, these spaces contained but little or no colloid material; but, 3, a fluid of mucoid appearance. In regard to the pathogenesis of exophthalmic goitre, Lubarsch expresses the opinion that the changes in the thyroid gland are not secondary and not due to primary changes in the sympathetic or the medulla oblongata, as has been advanced by some writers. Hypersecretion of colloid material can not be regarded as the cause, because the enlarged thyroid in this disease does not secrete much if any colloid substance. In all probability it concerns an unknown etiologic factor which brings forth the changes observed in the nervous system as well as those in the thyroid gland.

The Post-Mortem Findings in 180 Suicides.—Heller (*Centralbl. für Allg. Path. u. Path. Anat.*, Bd. vi, No. 18) describes the post-mortem findings in 180 instances of suicide observed in Kiel. The ages varied from 9 to 82 years. It was found that 20.6 per cent. committed suicide by shooting. Statistics show that in Prussia 13.3 per cent. of the suicides shot themselves and the larger percentage of this mode of suicide in Kiel is explained as due to the presence of so many soldiers. Concerning the anatomic changes which would allow some deductions as regards responsibility, the following may be stated: In 10.4 per cent. there were no changes in the brain which would allow the inference that there had been any disturbance of the brain functions; in 6 per cent. there was some changes; in 9.9 per cent. marked changes, as, for instance, chronic leptomenigitis, pointing in direction of psychic alterations. In 48.4 per cent. there were very marked cerebral changes which would militate against the theory of responsibility for the act of suicide, and among these were numerous alcoholics. Six per cent. were insane. In 19.3 per cent. there was present either acute febrile disease, menstruation or pregnancy in women.

Contribution to the Pathologic Anatomy of Puerperal Eclampsia.—Luesden (*Virchow's Arch.*, Bd. cxlii, Heft. 1) examined exhaustively two fatal cases of puerperal eclampsia and summarizes his observations and conclusions in regard to the pathologic anatomy as follows: 1. The two cases afforded no evidence whatever of an infectious or bacterial origin of the eclampsia. 2. The cause of eclampsia seems to be some toxic substance circulating in the blood. 3. The organic changes that merit the first consideration in eclampsia are the renal affections. (In both of Luesden's cases there was a well marked nephritis.) 4. Multinucleated cells, first found in the lungs by Schmorl, were presented in both these cases, and such cells correspond fully with the so-called giant cells of the placenta. 5. The presence of these cells is simply an accidental occurrence. 6. It has not been possible to demonstrate that these cells have any power to cause the formation of fibrin. 7. The development of other substances in the placenta capable of causing fibrin formation could not be proven in either of the two cases. 8. Embolism of liver cells

was not found in either of these two cases. 9. Limited necrosis of the hepatic parenchyma was present in both cases, but this could not be regarded as the cause of the eclampsia. 10. The hyaline thrombi in the capillaries of the lungs and the liver were presumable secondary changes, and these thromboses are no. peculiar to eclampsia. 11. The hyaline thrombi in the lungs are looked upon as of close relation to the development of the acute pulmonary edema.

New Anatomic Nomenclature.—The new anatomic nomenclature referred to in these columns recently, seems to have met with strong opposition in one quarter. Prof. Dr. R. Kossmaun, of Berlin, while he welcomes the attempt to harmonize designations in anatomy, yet feels himself called upon to point out in the *Deutsche Medicinische Wochenschrift* many imperfections, some of which, at least, might have been easily avoided. His points of issue are, the question of accentuation, the etymologic correctness as Latin terms, and the hybrid composition of some of the designations. The Commission decided at Munich to indicate by an accent the proper pronunciation. We can all realize how easily a slip is made by a careless lecturer, and repeated and carried out by students, but we can hardly conceive the need of correction so great in this country, as is indicated by a quotation in Professor Kossmaun's article, to wit: "*Nos Pöloni non curamus quantitatem syllabarum.*" The excuses of the Commission for this change in plan are poor, and it remains a defect. Under the second head is noted the false Latinization of the Greek *eidos*, for instance, *ziphoidens* instead of *ziphoides*, *os ethmoidale* instead of *os ethmoides*. In *ethmoidalis* we see a Latin termination applied to a Greek stem. *Mesovarium lymphoglandula* and *epitrochleoanconeus* are instances of hybrid words, the last named starting with a Greek stem, followed by a Latin, and terminating in a second Greek. The critic would also banish *fibrocartilage*, *mentolabialis*, *oculomotorius*, in favor of *fibricartilage*, *mentilabialis* and *oculimotorius*, in correspondence to classic instead of late Latin models. He notes also the use of *gastroepiploicus*, instead of *gastrepiploicus*, *parotideomassetericus* for *parotidomassetericus*. By other instances, also, we see that our anatomic terms are often not formed on classic models, and that much thought must be given to the subject before we arrive at a correct anatomic nomenclature.

Influenza and Encephalitis.—Nauwerck (*Deutsche Med. Wochenschr.*, 1895, No. 25) had the opportunity to examine, bacteriologically, two fatal cases of influenza-encephalitis. The first case was that of a girl who became ill with brain symptoms one week after an attack of influenza, and died after seven days. There were found several foci of softening and venous thrombosis in the cerebrum, but the bacteriologic examination was negative. In the second case, a young woman presented violent symptoms of brain inflammation preceded by coryza and pains in the joints, death ensuing on the third day. On opening the cranial cavity the convolutions were found flattened, and on incising the bulging corpus callosum 50 ccm. of turbid watery fluid flowed out. In the right cerebellar hemisphere was a walnut-sized apoplectic area with grayish-red softened walls. Inoculations on blood-serum agar with the ventricular fluid resulted in a growth on but one tribe. In this tribe there developed in the incubation a delicate, transparent, granular culture which consisted of very small bacilli without capsules and diplobacilli with rounded ends. Compared with Pfeiffer's photographs they appeared somewhat larger than, but shaped much like, the influenza bacilli. Reinoculation failed to produce further growth. Cover-glass preparations from the ventricular fluid showed these bacilli to be the only microorganisms present. These bacilli were also found in sections from the hemorrhagic focus in the cerebellum, although in but small numbers. Nauwerck concludes that they were influenza bacilli, and that the cerebral disease was due to these microorganisms only. In the first case, in which the bacteriologic examination was negative, it is assumed that the bacilli had already died at the time of the post-mortem. The bacilli are thought to have reached the brain by way of the blood.

The Buried Tendon Suture.—At the recent meeting of the Southern Surgical and Gynecological Association, held in Washington, Dr. Marcy, of Boston, read an interesting and instructive paper upon the history of the buried animal suture and the best methods of its preservation and use. Since he was the first to suggest the employment of buried sutures and demonstrate their value, his contributions upon this subject are of more than ordinary importance. His first contribution upon the buried catgut suture was published in 1870. In 1880 he substituted tendon for catgut, as in every way superior, and in various articles he has called the attention of the profession to the importance of its general adoption.

Dr. Marcy stated that the defect of catgut is inherent in its structure, and that it can not be rendered satisfactory by any method of preparation. "The connective tissue sheath from the intestine of the sheep, from which catgut is manufactured, has its ultimate fibers disposed in an oblique direction, crossing one another diagonally. This serves the physiologic purpose of permitting foreshortening and distension as well as strength." The violin string, catgut of commerce, is not unlike a very thin piece of tissue silk which has been cut diagonally and then twisted. This would make a very imperfect fish line, and Dr. Marcy thinks the comparison not overdrawn. When dry the gut is strong, but when wet is flat, elastic and slippery, a state which necessarily pertains after implantation in the tissues. Chromicised tanning only partially remedies this defect, and sterilization by any process can not correct the damage which the intercellular cement substance has sustained from the bacterial infection and maceration process to which, in preparation, the catgut is necessarily subjected.

Properly prepared tendon not only escapes these injuries, but has an entirely different ultimate construction. The connective tissue cells are disposed parallel to each other, and are the strongest structures of the animal economy; of equal weight, carefully selected tendon will sustain a tension equal to that of silver wire. Tendons taken from the freshly killed animals are quickly sundried and kept dry until their first preparation. Soaked in a 1 to 1,000 mercuric solution until supple, the tendons are carefully cleaned, assorted and dried between sterilized towels. They are then chromicised until of a dark golden yellow, and preserved in sterilized linseed oil to which one-tenth part of the crystals of carbolic acid has been added. Sutures thus prepared improve by age. When desired for use, they are soaked in 1 to 1,000 solution of bichlorid of mercury until supple. Preserved in absolute alcohol, boiled in it under pressure, boiled in kummel (oil of caraway seed), indeed, prepared by any other of the many ways suggested for the sterilization of catgut, serve only to injure the inherent structure of tendon and are not to be commended. The tendons from the tail of the smaller varieties of the kangaroo furnish by far the most valuable suture material yet found. The anatomic construction of the *psosa* muscles of the rat, squirrel and opossum is not unlike that of the kangaroo; each fasciculus having its independent tendon extending the entire length of the tail. The tendons of these smaller animals are too short and fine, those from the large kangaroo too large. The latter, when subdivided, fray and are less valuable. Dr. Marcy reported that from various sources, kangaroo tendons have recently been put upon the market which are very defective. One lot of three hundred pounds, collected for him, was almost entirely from the large kangaroo, and so undesirable that he refused its acceptance. This, at a price, has found its way into the American market and is being distributed to the profession. Selected tendon should be furnished at \$10 per hundred, although usually sold at a much higher price. Dr. Marcy has secured reliable parties who prepare the tendon subject to his supervision, and it may be obtained at this price by addressing him.

Dr. Marcy closed his paper with an account of his many histologic experiments upon animals and of his large surgical experience. He expressed the belief that all aseptic wounds, including even the larger amputations, should be closed in layers by the buried tendon suture without drainage. The edges of the skin are coaptated by means of a parallel continuous buried suture (subcuticular), and the wound is sealed with iodoform collodion, strengthened by a few fibers of cotton. The advantages of the buried tendon suture are briefly as follows: *Aseptic*, buried in *aseptic* wounds they remain

aseptic; the repair is primary without inflammation, pain or suppuration; the iodoform collodion seal renders subsequent infection impossible; no sutures are to be removed, and no other dressing is required; the tendon is absorbed so slowly that it may be traced months after implantation; ultimately it is replaced by a band of vitalized connective tissue which serves as a permanent reinforcement to the united structures.

Tuberculosis in the Yellow Race.—Dr. Ernest Martin, of the French Legation in China, has just published an important work on this subject, from which is taken the following:

The population, composed of what ethnography designates under the name of *Yellow Race*, forms in itself a third of the whole population of the globe. The two important questions to study in this connection are: 1. Does tuberculosis exist in this race? 2. At what period did it appear there?

Chinese medical works describe a disease called *tao ping*, which means a disease which seats itself in the lungs, and, spreading throughout the system, consumes like fire. The writings of European doctors who have practiced among this people furnish more explicit reports. Rennie, in the course of an extended practice at the hospital of Tam-Soui, the most important and populous city of the island of Formosa, treated 22,000 different disorders, among which the different forms of tuberculosis appear for only 1.25 per cent. M. Geurin, surgeon in the French army, who has passed three years among the Formosans, reports that they are endowed with a strong constitution, which makes athletes of them, and that there is very little consumption among them. According to the statistics of M. Dudgeon, physician of the dispensary of Peking, which is maintained by the Evangelical Society of London, out of a total of 3,157 diseases treated in 1865, tuberculosis was mentioned only 36 times. M. E. Britschneider, who for twenty years has held the position of doctor to the Russian Legation at Peking, declares tuberculosis much less frequent in that city than in St. Petersburg. The personal experiences of M. Ernest Martin, covering several years and gained principally at the Orphanage of Gen-Tse-Tang, at Peking, have furnished him with similar proofs. He writes: "Consumption is very infrequent there, even among the most wretched class of people, notwithstanding the fact that the public hygiene of the capital leaves much to be desired. . . . Having therefore proved the infrequency of tuberculosis in the Yellow Race as compared with the nations of Europe, let us find out the causes. Let us study into the state of society, the public institutions and hygiene, and see if they can throw any light on the subject.

. The density of the population of China surpasses nearly all other countries in the world. The cities are closely packed, but their population is not equal to the large cities of the civilized world. Tien-sin counts about 950,000, Fou-Schow 630,000, and Canton 1,600,000, the largest population unless we consider Han-Keon and Han-Yang as a single center, the population of which would be about 3,000,000. In none of these cities do we find such crowded quarters as certain localities in Paris, where they count 3,000 persons to a hectare.

"As there are no great industries in China, we do not find the accompanying evils of large factories and crowded tenements. Barracks are done away with entirely. There is no standing army in China. There are thousands of Tartars, soldiers of the Imperial standards, but they live with their families. Although a nation counting at least 400,000,000 souls, it might be said that she has no army in the European sense of this word. According to the latest statistics concerning consumption in the French army, it would appear that 40 per cent. of the cases were contracted in the army. Here, then, is one source of contagion not found among the Chinese.

"Extended imprisonment is another source to consider. It is true the Chinese prisons are foul dens, with no attempt for hygiene; but while their laws are strict, they do not misuse this form of punishment. Penalty of death, exile, the bamboo, and the cangue are most often inflicted. The first of these does not permit of a long imprisonment; exile does not bring on consumption; the blows of the bamboo are quickly dealt; and as for the cangue, the condemned generally carries it without being imprisoned—he has his liberty and goes about wherever he chooses. Nevertheless, public hygiene is almost wholly neglected in China. The inundations due to the falling away of the land and to neglect of public works are the source of continuous and deadly epidemics.

The capital itself is no exception. It is an object of disgust to strangers. The sewers, which date from the fifteenth century, have been out of repair for some time, and have become the receptacle of all the debris and the source of the typhoid epidemic which reaps large harvests yearly. The wealthy, living in their great yamens, are less exposed to it, as are also the foreign residents, thanks to their good hygiene, and more than all to their exodus into the neighboring hills during the torrid heat of summer. Such is the state of affairs in Peking, and the other cities of the empire are no better in sanitary matters. It is not, therefore, in the city masses which, although not as closely packed as those of Europe, are also less numerous, but where, on the other hand, hygiene is scarcely regarded at all that we must seek for the explanation of the infrequency of tuberculosis."

In considering the question of personal hygiene, and especially of alimentary hygiene, Dr. Martin finds no positive evidence to help in explaining the situation of things. Alcoholism, which in Europe constitutes a powerful factor in tuberculosis, scarcely exists among the Chinese. They are sober, and sober they remain at all points of the globe where their emigration reaches. They smoke opium, it is true, but, though millions of them are addicted to this habit, it is very seldom that they go so far as to undermine the constitution and suffer in consequence the same fate as drunkards—that is, to become consumptives.

The chapter devoted to the biological and ethnic peculiarities of the race, which throws some light on the subject, is full of interest and the result of careful research. In connection with the domestic life of the Chinese, Dr. Martin mentions the fact no animal milk is ever used in feeding infants. Maternal nursing is the rule, hired nurses the exception, and artificial feeding quite unknown. The life of the woman is necessarily quiet. Her time is passed almost entirely in her own apartments, which she quits only to make visits of ceremony or to go to the temples and family tombs. The mutilation of the feet, inflicted upon the Chinese woman, is not without its injurious effects, and does indeed seriously impair the health of a large number of children. This custom is, however, strictly carried out only among the higher classes. As the nature of the Chinaman is passive to a remarkable degree, he rarely experiences those great shocks from which it is so difficult for others to recover. We give in full the concluding remarks of this important work:

"In a word, then, the yellow race is, although not wholly free from tuberculosis, comparatively so as compared with the other races of the world. We credit this infrequency of the disease, and the comparative immunity, to certain social and ethnic conditions. And are these conditions liable to change? Will not the emigration of this people to so many different points of the globe, particularly to the New World, bring about such a result? For, although many of them remain permanently in strangelands without any hope of returning, the majority eventually go back to their native land, carrying with them to a great extent, the morals and customs of the countries of their temporary exile. On the other hand, there are many foreign residents in China, and the natives are quick in imitating whatever evil example the former may set. The opium habit which is increasing daily is an illustration of this fact. However strong, up to the present day, may have been the resistance of this people against all innovations which Europe has attempted to introduce, the day will undoubtedly come when the advance will be sounded and then a decided change in the social state of the country will place her in such condition that she must fatally undergo the evil results of civilization, one of the most certain evidences of which is tuberculosis.—*Journal d'Hygiene, Paris.*

SOCIETY NEWS.

Chicago Ophthalmological and Otological Society.—Regular meeting, held Nov. 12, 1895, at 155 Dearborn Street, F. C. Hotz, M.D., in the Chair.

There were twenty-two members and visitors in attendance.

Minutes of the last meeting were read and approved.

THE SECRETARY read the applications of Drs. E. T. Dickermann, of Chicago, and C. M. Robertson, of Davenport, Iowa.

The applications were referred to the Committee on Membership.

DR. HALE showed a young man of 19, whose vision had always been bad. O. S., v. c.—20 = 3-200, v. being eccentric.

O. D., v. c. — 20 = 5-20. There were well-marked choroidal changes in both eyes, central in O. S.

DR. HALE wished to know if the members were in favor of removing the lenses in such a case?

DR. TILLEY thought that, in general, such an operation would be justifiable.

DR. COLEMAN had a case where he needled the lens, which was slightly cataractous. Before the operation a minus 20 was needed to give the best vision. Three operations were done. After the first one there was some pain, but not after the second and third. There was only slight improvement in consequence of the operation, but the vitreous was full of opacities which interfered.

DR. COLEMAN thought it unwise to ever extract the lens in such cases; needling being the only operation.

DR. WILDER spoke of the dangers of starting up a quiescent inflammation by any such operative procedure. On the whole, however, he thought the risks were justifiable.

DR. HOLMES thought the fundus changes contraindicated operation as a rule.

DR. HALE then spoke of the clinic at Kiel, and referred to the uniform kindness and courtesy of Prof. Voelckers. The University of Kiel is a small one, but the buildings are modern and the eye clinic, especially, is very complete. The general operating room he considers one of the best in Europe. Prof. Voelckers is a very energetic and charming man. He was a favorite pupil of Donders and a fellow student of Knapp, of New York.

While the great ship canal was being built, the clinic was much increased by the workmen, who suffered greatly from conjunctival diseases, especially trachoma.

Methods of treatment of various diseases of the eye were described at length. Refraction is very poorly done according to American ideas; almost no cylinders are used. Voelckers is a beautiful operator. He does advancement for squint, iridectomies in cataract operations, and prefers enucleations to eviscerations.

DR. WILDER then read a paper entitled "Pulsating Exophthalmus." (This paper will be published.)

DR. GRADLE had seen a case of vascular tumor of the side and floor of the nose which was slowly removed in twenty operations, this large number of operations being required on account of severe hemorrhages, and only a little being done at a time. Three weeks after the tumor had been entirely removed there was diplopia due to interference by pressure of the same side with proptosis, but no pulsation. This disappeared, however, in three months.

DR. COLEMAN showed a new milliamperemeter by Schulmeister.

The Society then adjourned by limitation.

Annual Meeting of the Marion County Medical Society.—At the annual meeting of the Marion County (Fla.) Medical Society the following officers were elected for the ensuing year: President, W. V. Newsom; First Vice-President, D. A. Smith; Second Vice-President, T. J. Myers; Secretary, R. P. Izlar; Treasurer, W. R. O. Veal. On motion the following resolutions were adopted:

WHEREAS, The various life insurance companies throughout the United States have reduced the fee for medical examinations from \$5 to \$3,

Resolved, That the members of the Marion County Medical Society refuse to make such examinations for less than \$5.

Resolved, That this preamble and resolutions be spread upon the minutes of the society and published in the medical press of the United States.

Also the following which was carried:

WHEREAS, This society believes that a Department of Public Health under control of a secretary, who should be a member of the cabinet of the President of the United States, is necessary to the welfare of this country; therefore, be it

Resolved, That the society indorses the bill now pending to establish such Public Health Department, and requests our members of Congress to support said bill and aid in its passage.

Resolved, That the secretary be requested to transmit a copy of the foregoing preamble and resolutions to our senators and representatives in Congress.

Resolved, That this preamble and resolutions be spread upon the minutes of the society.

DR. W. V. Newsom, as president, delivered his annual address to the society on the "History of Medicine," and responses to calls were made by Messrs. Reardon, Bullock, Bittinger, Anderson, Brumby and Izlar. Rev. Dr. Law invoked the blessing and protection of the Deity.

NECROLOGY.

F. P. PORCHER, M.D., the eminent physician and professor, died at Charleston, S. C., on Nov. 19, at the age of 70. He was a South Carolinian by birth, of Huguenot extraction. He took his A.B. and M.D. degrees from his home colleges, the latter in the year 1847. He served as surgeon in the Confederate Hospitals of Petersburg and Norfolk, was President of the State Medical Society and visiting physician to the Charleston City Hospital. He was professor of materia medica and therapeutics in the Medical College in the State of South Carolina, and was the author of works on pharmaceutical botany. His "Resources of the Southern Fields and Forests" reached two editions, those of 1863 and 1869, the former being a book of over six hundred pages. His contributions to medical literature were varied and instructive.

F. L. BOND, M.D., of Menominee, Mich., Dec. 3.—C. E. Edwin, M. D., of Kansas City, Mo., Dec. 7.—L. B. Perry, M.D., of Winamac, Ind., Dec. 11, aged 43.—Elias Jessup, M.D., of Whittier, Cal., Dec. 3, aged 62.—William B. Porter, M.D., of Chicago, Dec. 12.—H. C. Garner, M.D., of Kansas City, Mo., Dec. 10.—Levi Keehn, M.D., of Syracuse, N. Y., killed by a railroad train, Dec. 10.—M. B. Folwell, M.D., of Buffalo, N. Y., Dec. 10, aged 54.—A. J. Hobart, M.D., of Clinton, Iowa, Dec. 6, aged 70.—Thomas Cox, M.D., of Marietta, Ohio, Dec. 10.

MISCELLANY.

International Congress of Thalassotherapy.—The French Association for the Advancement of Science will hold its next session in Tunis in April, 1896, and on that account the International Congress of Thalassotherapy will be held at the same time and place.

Semi-Centenary of the Discovery of Anesthesia.—According to *Nouveau Remèdes*, the Medical Press Association of France is engaged on the proposition of its Secretary General to celebrate in some way next year the semi-centenary of the discovery of anesthesia (Sept. 30, 1846). A committee consisting of Messrs. Cornil, Lucas-Championnière and Beau-douin has been designated to prepare the program.

Chicago College of Physicians and Surgeons.—A press dispatch dated Champaign, Ill., Dec. 10, imparts the following: Five representatives of the Chicago College of Physicians and Surgeons arrived in town this evening to confer with the Board of Trustees of the University of Illinois regarding the annexation of the medical school to the university. This project has been under discussion the last two years by stockholders of the College of Physicians and Surgeons.

Without Fear.—Dr. Belman, a well-known Suffolk doctor, had a great contempt for homeopathy. An old lady who pinned her faith to Hahnemann, one day took five globules by mistake for three, and, her own doctor being absent, Dr. Belman was sent for post-haste. He came, looked grave, shook his head and said if people would meddle with dangerous drugs they must take the consequences. "But, madam," he added, "I will die with you," and lifting the bottle of globules to his mouth, he swallowed its entire contents.—*Salt Lake Tribune*.

The Red Cross in Cuba.—The medical men of the United States have made their influence felt in respect of the Red Cross on nearly every battle-field of the world. Cuba is the field at the present time. Red Cross work in that country is being conducted by an American missionary there, Dr. A. J. Diaz. The New York *Independent* has learned that he has organized and located seven Red Cross hospitals in the section where the fighting is most frequent and where the Spanish Government has about twenty thousand soldiers. At each station there are a native physician, two women nurses and about ten male helpers. The Spanish Government officials have given formal recognition of their satisfaction in this humane work.

The Medical Staff of the Fire Department of New York City.—The Fire Commissioners have lately voted to make a radical change in the staff of surgeons serving that Board. The following named physicians have been removed: Drs. Frank L. Ives, Robert A. Joyce, John J. Quigley and James A. McLaughlin. The new appointees are Drs. Fred A. Lyons, Edwin B. Ramsdell and Francis M. Banta. It was decided that the Department would hereafter require three physicians instead of four. The new appointees were chosen from the civil service list and began their duties Dec. 1. The salary of these surgeons is \$2,000 per year. The Commissioners alleged that they removed the surgeons named, or some of them, for cause. It is possible that the two junior removed surgeons will resist the action of the Commissioners by law-suit. They were duly appointed from the civil service list.

A Medical Explorer.—The medical profession has yielded several explorers. Their names are enrolled among those who have helped to rescue Central Africa from barbarism. Emin Pasha and Dr. Parke will not soon be forgotten. Among the feats which had hitherto baffled the efforts of the most intrepid travelers was the exploration of Lake Rudolf. Thomson and Gregory both tried to reach the lake from Masailand, but were defeated in their endeavors by the hostility of the native tribes and the dangers of the climate. A young American medical man, Dr. Donaldson Smith, has, however, succeeded in reaching Lake Rudolf from the north through Somaliland. He is thus the first white man who has visited this *terra incognita*, and geographers are looking forward with interest to the publication of his records and diaries. Dr. Smith was in Somaliland on a sporting expedition, and hearing that no white man had ever penetrated to Lake Rudolf from the north he determined to make the attempt. He came to England and made preparations for this serious and dangerous expedition. He left London last May, and took with him Mr. Gillett, a taxidermist, and Mr. E. Dodson. The former was obliged to return home. It has always been believed that Lake Rudolf lay in the midst of a fertile country, rich in ivory, but peopled by implacable and hostile tribes. We congratulate our medical colleague on being the first to bring light into this dark continent.—*British Medical Journal*, Nov. 23.

The Gold-Headed Cane and Other Mannerisms are now Happily Defunct.—According to a writer in *Lippincott's Magazine*, a great gain has been made in and for the profession of medicine by the shelving of its distinctive marks of attire and demeanor. He says:

"A very gratifying tendency has marked the development of the medical profession in the last generation. The slough of mannerism, the formal dress, the owl-like solemnity have been thrown off, and the physician, by his own choice, is being judged more by his actual attainments than by external appearances. Thirty years ago, a bald head, a white beard and a long frock coat were as much a part of the physician's equipment as his diploma. Now, on the other hand, it is no infrequent occurrence for an elderly man of real ability and modern in his methods of practice, to lose a patient through the fear that he may not be fully abreast of the times. What can be further from the old traditions than a leading surgeon lounging about in an outing shirt and blue belt, or a distinguished physician playing polo? Yet

these amusements are simply a relaxation from the tension of professional study. One of the best indications that people are learning to judge their medical advisors by their merits is the fact that the advertising physicians are being driven to the wall, despite the most specious extrinsic evidences of success that the shrewdest business methods can produce."

Traumatic Mastitis in Men.—At a late séance of the Paris Academy of Medicine, M. Auguet reported the case of a carter 23 years old, in good health, without tuberculous or syphilitic antecedents, who received a violent blow in the right breast by being struck by his horse's head. The force of the blow knocked him down, and he lay unconscious a few seconds; upon rising he felt no inconvenience save slight pain over the contused area, and was able to continue the journey. That night, however, the pain prevented rest; it was of a neuralgic character, shooting to the shoulders and arm, and the following morning he sought medical advice. Upon examination the right pectoral region was found to be swollen and hot, around the nipple was a swollen area in the mammary gland involving the upper and external lobes; the gland was the size of a hen's egg, it was painful, mobile; there was no ecchymosis nor osseous lesions. Treatment consisted of wet compresses, then, the inflammation having subsided, by frictions with Neapolitan ointment, cupping and compression of the breast. In a month the cure was complete but the gland while having a normal consistence remained enlarged. It has continued to increase in size until at present, a year after the accident, it forms a considerable prominence. The submammary groove is obliterated, the nipple is pushed down and in, and the lobes of the gland can be felt distinctly through the skin. The swelling extends 10 centimeters above the nipple, 12 below, 8 to the outer side and 4 to the inner. It is troublesome by reason of its size, so much so that ablation seems indicated, but it is absolutely painless, and there seems to be no morbid change in the glandular tissue. Consequently we have to deal with a simple hypertrophy of the breast, following traumatic mastitis.—*Le Bulletin Medica*, 1895, No. 73.

Sufficiency of Charge of Practicing Medicine Without License.

—By the act of the Legislature of 1891 to establish a State Board of Health and regulate the practice of medicine in the State of Nebraska, it was made unlawful for any person to practice medicine, surgery or obstetrics, or any of the branches thereof, without first having obtained and registered a certificate from the State Board of Health as provided in the act. Certain exceptions were made by Section 11 of the act, but were not from the operation of the portion of the law which required a certificate to be obtained from the State Board of Health, and its registration by persons practicing medicine, surgery or obstetrics. After the expiration of six months from the passage of the act, the persons designated in the exceptions were as liable to prosecution for non-compliance with the law in these particulars, as any others. Consequently, the Supreme Court of Nebraska holds, in the case of O'Connor v. State, decided Oct. 15, 1895, that as the subject of the exceptions did not become a part of the description of the offense of non-compliance with the provisions of the act, or limit or qualify the language of the act creating such offense, no negative averment in regard to the exceptions is necessary in an information charging a person with practicing medicine after the six months has elapsed, etc., without having complied with the provisions of the act. In this, the court overrules a former decision to the effect that a negative averment in regard to the matter of the exceptions was necessary in an information of that character. The statement in the statute that "any person shall be regarded as practicing medicine within the meaning of this act, who shall operate or profess to heal or prescribe for or otherwise treat any physical or mental ailment of another," the court further holds, is a definition of practicing medicine, and that, in charging the crime of practicing medicine without having complied with the provisions of the act, there must be a statement of facts showing the doing by the accused person of one or more of the acts included within the foregoing statutory definition.

Bacteriologic Examination of the Blood in Typhoid.—Dr. Martin Thiemich discusses this question on its practical side. The attempts to find the bacilli in the feces are far from being always successful, and latterly the differential diagnosis between the typhoid bacillus and non-pathogenic intestinal bacteria is found to be attended with extreme difficulty. By puncture of spleen during life, however, the bacteria is obtained in most cases, and in blood from a rose spot the positive results have out-numbered the negative, and the identification of the bacillus is easier from both of these sources. A resumé of the results of different investigators is given, followed by his own in seven cases. Every precaution was taken in his cases to avoid contamination. So far as known, there is no one characteristic of the bacillus of typhoid, obtained through the microscope or by cultivation, which alone will distinguish it from other microbes, but there must be an assemblage of points. The diagnosis was regarded assured in the 7 cases reported, when the typical invisible growth was present on potatoes, when no gas formed in either case, milk, or grape-sugar agar. When milk was not coagulated, the indol reaction was negative and gelatin plates showed no vine-leaf veining. In the seven reported cases, typhoid bacilli were found from rose spots in three (no rose spots present in one case), and from blood from a vein in a fourth. In the three fatal cases bacilli were found, after post-mortem, in the spleen, also in one in the lung with Fraenkel's pneumococcus in pneumonic foci, and in one case in the mesenteric glands with staphylococci. In the fourteen cultures from blood staphylococci developed six times, whether from contamination or their presence in the blood could not be decided.—*Deutsche Medicinische Wochenschrift*, Aug. 22, 1895.

Practical Notes.

Chlorohydrate of Pilocarpin.—During the epidemical grippe this year in the village of Plancher-les-Mines and its vicinity, M. Poulet had occasion to test the usage of chlorohydrate of pilocarpin on 108 patients suffering from grippe and pneumonia. He administered the salt in a daily quantity of 0.5 centigr.; the treatment lasted usually two days, rarely three days. Out of the 108 cases, there were only 4 deaths.—*Revue Internationale*.

Local Treatment of Neuralgia.—(SABBATANI).

R. Menthol 1
Guaiacol aa 1
Alcohol, absolute 18

M.S. Gentle friction with the aid of a pencil to the painful parts, with 4 grams of this mass. The parts are then covered with wadding. The dressing may be repeated two or three times in twenty-four hours.—*Ther. Wochenschrift*, 1895, No. 35, and *Nouveau Remedes*.

Cure of Prostatic Hypertrophy by Section and Ligature of the Vas Deferens.—The priority of the idea of the employment of castration for prostatic hypertrophy belongs to Launois. This operation has been put in practice and tested by Ramm, White, Broome, Haynes and Mouillin, but castration is not always readily accepted; it has, moreover, a certain degree of gravity. Deja Bier, in 1894, proposed the ligation of the internal iliac arteries, with the idea of causing atrophy of the prostate. Isnardi recommends a simpler operation, and one that is a perfect substitute for castration, which has all the advantages, without the inconveniences, namely: Section and ligation of the deferent canals. He has employed this method twice; the first case is conclusive; a cachectic old man, suffering from visceral cancer, which carried him off in two months. The second case is very instructive; a man aged 72 years, suffering from retention and incontinence, due to prostatic hypertrophy. Left testicle atrophied in consequence of blennorrhagia epididymis. The rectal touch revealed on the right side a large tumor like the half of a nut, while the left side showed none. Operation, May 1, 1895; section of the right vas deferens between two ligatures.

Patient recovered from his urinary troubles, the prostate diminished in volume, and the right testicle became atrophied like the left.—Isnardi, *Gazette di Torino*, No. 31, 1885.

Pulmonary Surgery.—In a discussion which took place in the *Société de Chirurgie* (Nov. 20, 1895) M. Ricard related an operation in which he had excised a portion of the eighth rib, incised the pleura and then with a thermo-cautere incised the lung to a depth of seven centimeters. The incision was made toward the center at the level of the opening. MM. Dienlaffoy and Giraudeau had previously examined the patient and located the abscess opposite the inferior angle of the scapula. When M. Ricard had passed the thermo-cautere into the lung to the depth mentioned, he then passed in his finger for further exploration. He felt an induration toward the mediastinum near the diaphragm. He was satisfied from the touch that an abscess existed, and he passed a trocar along his finger and punctured the mass. Pus followed, the cavity was drained and the patient recovered. M. Ricard concludes from the case that in deep pulmonary suppuration neither percussion, auscultation nor exploratory puncture are sufficient to invariably determine the seat of the lesions. He believed it necessary to open the pleura and pulmonary tissue, and he therefore was of opinion that the method of M. Tuffier of detaching the parietal leaf of the pleura, would add to the natural difficulty.

M. Tuffier in reply reaffirmed his view that the detachment of the pleura allowed the finger to transverse the entire lung surface, and he maintained that it was better to put the hand "on the pleura than in the pleura."—*Gazette Médicale de Paris*, Nov. 23, 1895.

Treatment of Vesico-Vaginal Fistulae by Intra-vesical Suture; Recovery.—According to the *Medical Week*, Prof. Duplay presented before the Paris Academy of Medicine, on Nov. 19, a surgical case of great interest:

A woman 31 years of age was affected with a vesico-vaginal fistula, situated much too high up to permit of freshening and suture through the vagina. I therefore decided to resort to supra-pubic cystotomy, followed by intra-vesical suture.

The operation was performed on July 15 last. After incision of the abdominal wall and bladder I easily found the fistula, which was situated transversely in the floor of the bladder, and measured about 2 centimeters in length by 1 centimeter in the antero-posterior direction. With the aid of long bull-dog forceps and a curved bistoury I detached the vesical mucosa all around the fistula, and freshened its edges. I then placed two rows of sutures, one in the vaginal, the other in the vesical wall, the former being silk and the latter catgut sutures. By this means the fistula was completely closed, both toward the vagina and the bladder. The hypogastric wound of the bladder was thereupon united by two rows of catgut sutures, one of which was placed in the mucous, and the other in the muscular coat. Lastly, the abdominal wall was closed, a small drain being left in at the lower end, a slightly compressive, iodoform gauze and cotton-wool dressing was applied, and a self-retaining Sims catheter was introduced. The patient made an uneventful recovery. No urine escaped through the vagina after the operation, and a month later she was discharged completely cured, the only disturbance being slight vesical tenesmus. I have heard from her since. Recovery has been fully maintained, and her general health, which before the operation was somewhat impaired, is now excellent.

Treatment of Pernicious Anemia.—Prof. William Pepper is reported in the *Medical News*, Nov. 23, as presenting to the class at the University of Pennsylvania his views as to the causation and therapy of pernicious anemia. The case in point before the class has had for its origin some form of intestinal disease in a patient who always "bolted" his food, and who has for years had occasional attacks of dyspepsia and diarrhea. The motor power of the stomach is impaired,

and an atrophy of the gastric tubules has undoubtedly taken place; his debility is extreme, and there exists a high degree of oligocythemia with corresponding oligochromemia and poikilocytosis. There are microcytes and macrocytes, misshapen cells and nucleated cells, giant cells and dwarf cells. The treatment is perhaps less obscure than the causation: To begin with, muscular exercise should be forbidden. Absolute rest in bed is for some weeks imperative, and almost complete confinement to bed is advisable for a considerable period longer. General massage is an excellent adjuvant, and should be persistently employed. Inunctions of cod-liver oil, given once daily, have seemed to Dr. Pepper to improve nutrition, and they are being given to this patient.

The treatment, by dietary and by remedies, of the case in question was carried out along the following lines:

"The gastro-intestinal tract demands the most careful diet and treatment, and in these matters each case must be studied for itself. This man's diet consists of finely minced Hamburg steak delicately broiled, so that all the juices are retained, dry toast or stale bread, and hot milk with a little coffee in it. In the last few days he has seemed to enjoy eating, and he does not suffer from nausea. However the diet may be modified, it must be highly nourishing, given in small quantities and often. Hydrochloric acid is generally indicated, and this man is given a couple of drops after each meal. His bowels have been loose, and we have been washing out his colon daily with warm water and following this with an injection of a weak solution of silver nitrate. Were not his stomach so well-behaved with his present diet and treatment I should practice gastric lavage, and cases have been reported where striking results have followed this procedure.

"For the blood we have one drug that exerts over many of these cases a most marvelous influence—arsenic. Under its use some cases recover entirely; others improve greatly, only to relapse. The drug must be pushed to the limit of tolerance—10, 15, or even 20 drops of Fowler's solution thrice daily, guarded with a little opium to counteract the tendency toward diarrhea. You must watch carefully for constitutional signs of over-action, as puffiness under the eyes and gastro-intestinal irritation, and should these appear the dose must be reduced. An irritable stomach does not in itself contraindicate arsenic, as the stomach often improves under its influence. But should the drug aggravate the irritability of the stomach, it should be administered hypodermically. Iron rarely does good early in the treatment; when convalescence is well established it may be advantageously combined with the arsenic. Lately bone-marrow (of lambs and calves) has been tried in the form of glycerol extracts, in some cases with reported good results. In extreme cases the hypodermic injection of large amounts of normal saline solution, direct transfusion of blood, and the injection of defibrinated blood have all been resorted to in some reported cases to good advantage. Treatment must be persevered in for a long time after the blood has been brought back to a good condition; and the patient must be kept under the most careful dietetic and hygienic conditions, and guarded in every way against the all too frequent relapse. This man has been under treatment nearly a fortnight. He expresses himself as feeling better; his appetite has improved, he bears the large doses of arsenic well, and his blood has gained 7 per cent. in hemoglobin and 100,000 red cells over the estimation on admission."

Conservative Surgery at La Pitie—An Old Treatment Revived.

—If the views of Dr. Paul Reclus are correct and borne out in the future history of hospital surgery, the days of the amputator are over. A recent clinical lecture by that well-known Parisian practitioner and professor repeats and emphasizes views that he has already given to the profession. He has already spoken upon the subject before the Congress of French Surgeons for 1895. The clinical lecture from which we are about to quote is given *in extenso* in the *Medical Week* for Nov. 22, as delivered by the author at the La Pitie Hospital, and may be considered to be the pronouncement of a radical conservatism in surgery. Will it survive? Is the hot-water "embalming" process greater than the Catling? The former is a small part only of an enthusiastic presentment of these highly vital questions. Prof. Reclus says:

"Whatever the extent or gravity of the lesions, *I never, under any circumstances, amputate the injured limb*, but merely wrap it in antiseptic substances by a veritable embalming process, leaving nature to separate the dead from the living tissues. This method of treatment possesses the double advantage of being much less fatal than surgical exeresis, and of preserving for the use of the patient, if not the entire limb, at any rate a much larger part thereof than would be left after amputation.

"I should not have the courage, however, to advocate this uncompromisingly conservative treatment, were it not for the excellent effects of hot water, which I use freely. Briefly stated, my procedure in such cases is as follows: The patient, who is almost invariably in a state of collapse from the shock, pale, anemic and cold, is placed on the operating table, where he is wrapped in hot blankets, only the crushed limb being left exposed. The skin of the latter is shaved, all fatty substances are removed by the aid of ether, alcohol or potassium permanganate, and when this preliminary disinfection has been thoroughly done, the injured parts are carefully cleansed.

"The principal agent employed for this purpose is hot water from a cistern, placed at a sufficient height above the bed to insure a forcible jet. The temperature of the water should be between 60° and 62° C., but not higher; for, if it should reach 64° C., the heat would be sufficient to alter the albuminoid constituents of the tissues. This jet of hot water is made to irrigate all the injured surfaces, and to penetrate into all the hollows and under all the detached parts of the wound, without exception. This is the only way of removing all clots, and to wash away all foreign bodies, together with the microorganisms they may contain.

"The advantages of this application of hot water are threefold: In the first place, at this high temperature it is antiseptic. It not only removes such germs as may have entered the wound from contact with the clothing or ground, but it also neutralizes their effect. At 62° C. the development of microbes is checked. Miquel has shown that when 1 cubic centimeter of liquid was maintained for fifteen minutes at a temperature of 55° C., the number of bacilli contained therein fell from 3,500 to 33. Moreover, I mix with the water a small quantity of antiseptic substances, the potency of which, as is well known, is greatly increased by heat.

"In the second place, hot water is hemostatic. Oozing is arrested; the smaller veins and arterioles contract, vessels of a certain size continuing to bleed, however, unless the recoil of the coats and the retraction of the intima has resulted in the formation of an obstruction.

"In the third place, water of a higher temperature than 60° C. helps to compensate for the loss of heat resulting from the bleeding and especially from the traumatic shock. The dangerous hypothermia gradually gives way, and in the majority of cases under my observation I have found that when the patient left the operating table his temperature had already risen to normal, instead of being subnormal, as is the rule after an amputation has been performed for the purpose of remedying the effects of a traumatism. I need hardly insist upon the improvement in the prognosis under such conditions. When this irrigation has been done, it only remains to have recourse to the process of embalming which I have described in the paper referred to above."

Society Notes.

A REGULAR meeting of the Cuyahoga County Medical Society was held at Cleveland, Ohio, Dec. 5.—At the annual meeting of the Society of Medical Jurisprudence held in New York, Dec. 9, the following officers were elected: President, Edward F. Brush, M.D.; Vice-President, S. B. Livingston; Corresponding Secretary, R. Safford Newton, M.D.—The Northwestern Ohio Medical Association held its fifty-first semi-annual meeting in Findlay, Ohio, Dec. 12-13. The following officers were elected: President, Dr. Charles Graffe, Sandusky; Vice-President, Dr. Charles Slocombe, Defiance; Secretary, Dr. J. Parker Baker, Findlay; Assistant Secretary and Treasurer, Dr. T. M. Gehrett, Deshler. Defiance was chosen as the next place of meeting, Dec., 1896.

Hospital Notes.

THE McDONALD MEMORIAL HOSPITAL OF NEW YORK CITY.—This is a new hospital for colored persons and others to be located on West Twenty-fifth Street, adjoining the Bethel

Church. The McDonald Memorial Hospital was incorporated about three months ago. It is named after the late Dr. McDonald, the most eminent colored physician of New York. The hospital will draw no radical line. Its services will be free to all, irrespective of race or creed. It is founded to bring advanced medical aid closer to the people. It will open with a free dispensary. When the necessary funds are available there will be a training school for colored nurses. It will depend for support chiefly upon the colored churches and the contributions of the white. Liberal donations have been promised toward the establishment and support of a well-equipped pharmacal department, and also of a surgical clinic with the kind of apparatus, etc., that is most essential to such an institution.

THE STATE HOSPITAL FOR THE INSANE IN KINGS COUNTY, NEW YORK.—Some changes have been made in the personnel of the New York hospitals for the insane. At the asylum in Flatbush, a ward of the city of Brooklyn, Dr. Robert M. Elliott, of Rochester, has been appointed by the State Board of Lunacy Commissioners as Medical Superintendent. The new appointee will hold the same relative position at Flatbush that Dr. Deering does, who is in local charge of St. Johnland. Dr. Sylvester, the General Superintendent, has been performing the dual functions at Flatbush for some years, and the creation of this new office will give him a better chance to look after both institutions. The new officer has been for five years an assistant at the hospitals at Rochester, and his present change is in the line of a promotion. Since the State took charge of the King's County insane, under the State Care Act, they have created this office of Medical Superintendent at Flatbush. Their first appointment was Dr. Thomas E. Branford, of the Hudson River State Hospital, but he speedily resigned after viewing the accommodations offered him.

THE MASONS have volunteered to furnish a room in the new city hospital at Binghamton, N. Y.—The directors of the Pittsburg Chamber of Commerce have unanimously adopted a resolution recommending that the municipal authorities adopt measures to provide isolated hospitals for contagious diseases.—The financial report of the Southern Indiana Hospital for the Insane shows that the cost of conducting the institution during the past year has been nearly \$85,000. The Superintendent reports \$15,000 expended out of the special appropriation for the construction of new buildings, with a balance of \$15,000.—The third annual report of the Massillon, Ohio, State Hospital has been made. The total disbursements during the year were \$64,446.17, and the report showed a balance of \$194.56, Nov. 15, 1895. The trustees ask that \$300,000 be placed at their disposal for the purpose of improvements and additional buildings.

Detroit Notes.

AT THE regular meeting of the Detroit Medical and Library Association Thursday, Dec. 8, Frederick Robbins read a paper on "The Use and Abuse of Urethral Injections." The author reported two recent cases of gonorrheal urethritis cured in less than ten days by wiping out the first ten inches of urethra with Ag No₃ gr. x-xx to the ounce, followed daily for five days with large douches of Hg c½ I-40000. He condemns the routine use of the syringe as unscientific, useless and dangerous, as it is only useful in the latter stages of an uncomplicated anterior urethritis. He emphasized the fact that the Ultzmann syringe is absolutely essential for treatment of many cases of posterior urethritis.

THE WAYNE COUNTY MEDICAL SOCIETY held a regular meeting Dec. 12. The subject, "Hypnotism," was presented by Cassius M. MacDonald in an interesting manner.

THE REPORT OF THE HEALTH OFFICE for week ending Dec. 14, 1895: Deaths under 5 years, 27; total, 75. Births: Male

36, female 37; total, 73. Contagious diseases for week ending Dec. 14, 1895—Diphtheria: Last report 30, new cases 6, recovered 14, died 15, now sick 40. Scarlet Fever: Last report 21, new cases 6, recovered 2, died none, now sick 25. Smallpox: Last report 1, new cases 2, recovered none, died none, now sick 3. Measles: Last report none, new case 1, recovered none, died 1, now sick none.

Cincinnati Notes.

MORTALITY REPORT FOR THE WEEK GIVES THE FOLLOWING:—Membranous croup 1, cholera infantum 1, diphtheria 3, typhoid fever 6, zymotic diseases 4, cancer 3, phthisis pulmonalis 14, other constitutional diseases 4, apoplexy 7, bronchitis 4, convulsions 5, gastritis 2, meningitis 3, nephritis 2, peritonitis 3, pneumonia 8, other local diseases 21, violence 7, under 5 years 27. Total 110. Rate per 1,000, 17.02. Corresponding week 1894, 137; 1893, 193; 1892, 113.

AT THE Academy of Medicine Dec. 9 Dr. E. W. Mitchell read an elaborate paper on "The Anemias," which was discussed by Drs. F. Southgate and N. Wolfstein.

DR. J. C. CULBERTSON has been elected Commander of the E. F. Noyes Post G. A. R., of this city.

THE ANNOUNCEMENT of the new Laura Memorial College appears with the following faculty: J. M. Withrow, Professor of Gynecology; J. L. Cleveland, Theory and Practice of Medicine; E. W. Walker, Surgery; G. F. Sudhoff, Histology; L. S. Colter, Obstetrics; E. M. Riley, Materia Medica; O. M. Sprague, Chemistry; S. E. Allen, Pathology and Bacteriology; G. W. Ryan, Orthopedic Surgery; Giles S. Mitchell, Diseases of Children; A. G. Drew, Dermatology; C. R. Holmes, Ophthalmology; J. E. Boylan, Laryngology; Chas. E. Everett, Medical Jurisprudence.

AN AMBULANCE service has been established in connection with the City Hospital. The Hospital Corps of the First Regiment of Infantry O. N. G., located at Cincinnati under Drs. F. W. Hendley, G. I. Cullen and Chas. H. Castle, has been granted the privilege of the patrol wagons for this service, and the members have volunteered their services in this line of work. Two members of the Corps are privileged to admission at the Cincinnati Hospital each night.

AN EPIDEMIC of typhoid fever is raging at Waddy, Ky. The scarcity and impurity of the water supply is thought to be the cause.

THE REPORT of the Columbus State Hospital shows a per capita cost of \$138.69 in comparison with \$144.91 of 1894. At the beginning of the year there were 652 male and 612 female patients on the rolls. There were admitted during the year 185 males and 152 females; death rate 5.25 per cent.

DR. W. D. HOOE, Dr. J. L. Hervey and several others were arrested at St. Clairsville, Ohio, charged with running the smallpox quarantine. They all live at Martin's Ferry, which is quarantined against and the accused, it is alleged, passed the lines by denying their place of residence.

BELLAIRE, OHIO, is now cut off by quarantine from West Wheeling, Bridgeport, Aetnaville and Martin's Ferry. Street cars have been stopped. There are about 25 cases of smallpox and a large number of suspects on hand.

Philadelphia Notes.

EXTIRPATION OF THE GASSERIAN GANGLION.—Dr. W. W. Keen, at the last meeting of the Philadelphia County Medical Society, presented two patients, upon each of whom he had performed Krause's operation for removal of the Gasserian ganglion for inveterate facial neuralgia; both were men, and represented the earliest and the latest of a series of six cases. The first one had been operated upon twenty-six months ago, the last one only nineteen days before, and each reported complete relief from the former attacks of pain. The chief points in the communication were: 1, the control of hemorrhage (by packing with gauze, deligation, etc.) with comparative ease, in a case of rupture of the middle meningeal artery at the foramen spinosum. He did not

favor preliminary ligation of the internal carotid artery on account of the possible ill effect upon the nutrition of the cerebrum and a tendency to softening which might result; 2, he especially dwelt upon the fact that the entire ganglion may be removed, a feat considered impossible even by so competent a critic as Hersley, until Krause showed that it could be done. Dr. Keen presented a specimen of the ganglion removed from the last case without mutilation, and showing the motor root. The latter is not to be found in the illustrations of specimens removed by Krause, accompanying his article in the recent issue of the *Archiv. für Klinische Chirurgie*; 3, the influence of the removal of the gland upon the nutrition of the chorea was shown by the tendency to ulceration after the operation. This could only be overcome by stitching the eyelids together, which expedient was successful in the last case. The mortality was small, only one death occurred in the six cases, and this was attributed to infection of the third case through an unaccustomed assistant. The superiority of extirpation over mere destruction of the ganglion was referred to.

PROPOSAL TO ESTABLISH A PAY HOSPITAL FOR CONTAGIOUS DISEASES.—A committee has been appointed by the Philadelphia County Medical Society to formulate plans and to take such steps as will secure for this city sufficient accommodation for those patients suffering with diphtheria and scarlatina, and particularly for those who desire and will pay for special hospital quarters. The present Municipal Hospital has not sufficient accommodation for the present demands upon it, and no special rooms for paying patients. In all probability the Council will respond to the urgent demand and will authorize the construction of additional pavilions in connection with the present structure, instead of building a new hospital.

THE JUDSON DALAND MEDICAL SOCIETY has been organized among the medical students of the University of Pennsylvania in conformity with the custom which has been introduced of late years into this time-honored institution of dividing up the medical classes into groups, in honor of individual members of the faculty.

THE MEDICO-CHIRURGICAL COLLEGE has commenced work on its new clinical amphitheater located between the main hospital building and the maternity. Beside the amphitheater, the structure will contain three private operating rooms—surgical, gynecologic and ophthalmologic—with a large and complete sterilizing apparatus. Provision will be made to flush the amphitheater after each day's demonstration or lecture, so as to insure surgical cleanliness. During the coming year, a new six-story laboratory building is to be erected at the corner of 17th and Cherry Streets, on ground recently purchased, and the institution is to establish its own electric-light plant.

DR. A. F. A. KING, of Washington, Professor of Obstetrics in the Columbian University, was the guest of the Philadelphia Medical Club, which gave him a reception at the Bellevue Hotel, Dec. 11. A large number of local representative physicians were present. The President of the Club, Dr. H. A. Hare, introduced Dr. King, who made a most appropriate and entertaining brief address, in which he indulged in some reminiscences of his student life in Philadelphia when the University was at 9th and Chestnut Streets, and Agnew and DaCosta lecturers in the Philadelphia School of Anatomy and the old Chestnut Street Quiz Association.

DIPHTHERIA.—The number of cases of contagious diseases in the city reported since Oct. 1 are 957 of diphtheria, with 314 deaths. In spite of isolation and disinfection, the number of cases of diphtheria do not appear to be on the decline. Two cases of smallpox and one of typhus fever have also been reported.

BY INVITATION of the Surgical Section of the College of Physicians and Surgeons, Dr. L. McLane Tiffany, Professor of Surgery in the University of Maryland, read a paper on Dec. 13, on "The Treatment of Compound Fractures of the Lower Extremity," and Dr. L. S. Pilcher, surgeon to the M. E. Hospital, Brooklyn, and editor of the *Annals of Surgery*, gave the results of his personal experience in the "Ambulant Treatment of Fractures." Dr. Edward S. Martin, of Philadelphia, made some remarks on "Fractures of the Leg

Treated by the Ambulant Method," and Dr. Thos. F. Branson reported a "Case of Fracture of the Coronoid Process of the Ulna." The discussion was general, and was opened by Dr. John Ashhurst. A reception was tendered the guests of the evening at the residence of Dr. John B. Roberts, after the meeting adjourned.

Washington Notes.

WEEKLY REPORT OF THE HEALTH DEPARTMENT.—The report of the Health Officer for the week ended Dec. 7 is as follows: Number of deaths (still-births not included), white 46, colored 40, total 86. Death rate per 1,000 per annum, white 12.8, colored 23.7, total 16.2. Death rate per annum corresponding week last year, 16.8. The death list last week was materially below the normal. A decline of nigh 20 per cent. in the number of deaths took place, as compared with the week before. From 107 the number fell to 86. The mortality from consumption went from 17 to 7, and from acute lung maladies from 26 to 11. Two deaths from typhoid fever occurred as against 4 by the last report. The prevalence of diseases of the brain and nervous organs stood at about the same degree as has been maintained for the last several weeks, while that from kidney disorders shows a fall of from 5 to 2 deaths. The dangerous contagious diseases present no tendency to assume epidemic form. Of the fatal cases of diphtheria reported, 2 were attended with serious complications. The annual death rate for the week was 16.2, while for the corresponding period of last year it was 16.8.

ALUMNI ASSOCIATION ELECTION.—At the annual meeting of the Alumni Association of the Columbian University held on the 13th inst., Dr. Chas. W. Richardson was elected President for the ensuing year.

INSPECTION OF BEEF POSTPONED.—Secretary of Agriculture Morton has extended the time for the enforcement of the meat inspection law from Jan. 1, 1896, to March 1, 1896. Shippers who fear inspection of their meats should be looked upon with suspicion. Good meat can never be depreciated in value because of a proper certificate that it is from a healthy animal.

FOR THE HOME FOR INCURABLES.—The promoters of the endowment fund of the Washington Home for Incurables have adopted a novel scheme for raising money. Cards were sent out which will just receive a fifty-cent piece and hold it securely. These were sent to a great many residents, and although the fund is considerable already, it is the intention to make it so large that the institution may never be at a loss for money.

SURGEON-GENERAL STERNBERG'S ADDRESS.—Surgeon-General Geo. M. Sternberg, U. S. A., the retiring President of the Biological Society of Washington, at the annual meeting last week delivered a most instructive address on the subject: "The Practical Results of Bacteriologic Researches." His remarks were illustrated by lantern slides, showing the many phases of bacterial life.

PATHOLOGIC LABORATORY FOR THE CHILDREN'S HOSPITAL.—The pupils of Norwood Institute have raised the sum of \$1,000 for the benefit of the Children's Hospital. The good work was done at the suggestion of Dr. S. S. Adams, one of the attending physicians of the hospital, who has decided the fund shall be devoted to the organization of a pathologic and bacteriologic laboratory for the institution.

PHYSICIANS TO THE POOR.—Dr. Charles N. Emmons has been appointed a physician to the poor. Dr. D. G. Lewis has been appointed in place of Dr. H. S. Goodall, whose appointment expires on the 15th instant. Dr. F. O. Roman has been appointed in place of Dr. C. V. Petteys, and Drs. J. R. Shands and G. L. B. Jarvis have been appointed to serve the poor during the absence of Drs. T. Clark and J. R. Devereux. Dr. G. W. Wood has been appointed in place of Dr. C. W. Bordsall, whose appointment has expired.

BENEFIT FOR THE CHILDREN'S HOSPITAL.—The benefit for the Children's Hospital which will take place at the National Theater Tuesday afternoon next, is attracting a great deal of attention. The New National Theater School of Acting is the medium through which the benefit is given, and two plays are to be presented, the first being "My Wife's Dentist," and the second, "Broken Hearts."

TO REGULATE VETERINARY MEDICINE IN THE DISTRICT.—The Commissioners will shortly present to Congress for passage a bill regulating the practice of veterinary medicine and surgery in the District of Columbia. Dr. Robinson, representing the District Veterinary Medical Association, appeared before the Commissioners and presented a draft of a bill which had been agreed upon by that body, and which he urged be presented to Congress for enactment.

The bill provides for the appointment of a board of five examiners, who shall be members of the Veterinary Medical Association, the terms of office to be limited to three years. Meetings for the examination of applicants are to be held on the first Tuesday in January, April, July and October of each year. It further provides that all persons practicing veterinary medicine in the District shall apply to the board for a license, which the board may refuse, and may revoke a license for chronic and persistent inebriety, for advertising in such manner as to deceive or defraud the public or for failure to report any case of contagious disease required by law to be reported. The bill also provides that all persons receiving a license to practice veterinary medicine shall register at the health office. For practicing without a license the offender may be punished by a fine not exceeding \$100 nor less than \$50.

MEDICAL-DIRECTOR GIHON'S REPORT OF THE NAVAL HOSPITAL.—From the report of Dr. Gihon the following quotation is taken. The total number of cases treated at this hospital since its establishment, Oct. 1, 1896, is stated at 3,065, of which number 2,525 were discharged to duty, 314 were condemned by medical survey and 118 died. Over 82 per centum of the cases admitted into the hospital since its foundation have been returned to duty; 10 per centum have been invalidated from the service by boards of medical survey for disabilities unfitting them for further duty, and less than 4 per centum have terminated fatally. Four of the typhoid cases originated at the old barracks at the marine headquarters, and two at the navy yard, one on board the Dolphin and the other on board the Dale.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the society held on the 11th instant, Dr. Burnett reported a case of intra-cranial tumor and presented the specimen. Dr. Beth reported a case of skin grafting for ectropion and presented the patient for examination. Dr. S. S. Adams reported a case of ulcerative endocarditis with specimens, with Dr. Reed's report on the bacteriologic experiments from the case. Dr. H. L. E. Johnson reported seven cases of abdominal sections (gynecological) and presented the specimens.

SURGEON-GENERAL TRYON'S REPORT.—In the last annual report of the Surgeon-General to the Secretary of the Navy, he touches upon a most important question: The sanitation of Government war vessels. He says: "Up to a very recent date no ship had ever been constructed in which the question of the health of the crew had been scientifically considered in the design itself, and there have been few after construction in which intelligent effort has been directed to the preservation of health. The great idea in all time has been to sweep the sea—to have dominion over the waters. For this purpose ships have been built as mere engines of war, and with but little consideration for the fact that the most indispensable mechanical instruments are men themselves. Ships were few, and represented much time and money; men were many, and could be easily replaced. And thus for hundreds of years much more anxiety was exhibited in preserving arms from rusting and cordage from rotting than in considerations affecting the health of crews."

REPORT OF THE SUPERINTENDENT OF CHARITIES.—From the valuable report of the Commissioner of Charities the following quotations are made: "As shown by the report of the sanitary officer to the superintendent of the metropolitan police, public patients were sent to the hospitals by that branch of the District service during the late fiscal year as follows: Freedman's Hospital, 936; Providence Hospital, 848; Hospital of the Washington Asylum, 292; Garfield Hospital, 255; Emergency Hospital, 121; Homeopathic Hospital, 97; Columbia Hospital, 66; Children's Hospital, 31, and 5 to the Sibley Hospital. Many patients in maternity cases are sent to Columbia and other hospitals from dispensaries. The Children's Hospital receives through the same channel, as well as from child-caring asylums. Accident cases are brought to the Emergency Hospital by its own ambulance service, and other medical establishments accept

inmates coming by transportation, public or private, other than that of the sanitary office. The figures given above show a total of 2,751 cases sent to hospitals by the sanitary officer during the fiscal year ended June 30, 1895. During the succeeding quarter, the months of July, August and September, 1895, there were sent to the hospitals in the same manner 1,102 patients, or at the rate of 4,408 cases a year. The number exceeds that recorded during any previous quarter, and the fact shows that, even when no serious epidemic prevails, the hospital accommodations of Washington are no more than adequate to the demands upon them. During the summer and fall at all places of medical refuge, the usual accommodations were fully occupied, and it was necessary to improvise additional ones in order to meet the urgent demands for treatment of public patients. There were also a sufficient number of cases of the minor infectious cases treated by make-shift isolation in the homes and improvised isolated quarters furnished by the medical charities to further enforce the necessity of final and sufficient action upon this long-postponed but vital subject.

EMERGENCY HOSPITAL EXAMINATIONS.—An examination will be held on the 20th inst. at the Central Dispensary and Emergency Hospital to fill three vacancies in the house staff.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 7, 1895, to December 13, 1895.

Capt. William P. Kendall, Asst. Surgeon, upon the expiration of his present leave of absence, is ordered to Ft. Sam Houston, Texas, for duty.

First Lieut. John S. Knip, Asst. Surgeon, will, upon the expiration of his present leave of absence, be relieved from duty at Ft. Spokane, Washington, and ordered to Ft. Walla Walla, Washington, for duty.

Capt. William B. Banister, Asst. Surgeon, leave of absence granted is extended one month.

First Lieut. James M. Kennedy, Asst. Surgeon, leave of absence granted is extended two months.

Capt. Charles E. Woodruff, Asst. Surgeon, now on leave of absence, is ordered to proceed from Washington, D. C., to Ft. Snelling, Minn., and report for temporary duty without delay.

RETIREMENTS.

Major Richard S. Vickery, Surgeon, is retired from active service this date, Dec. 7, 1895.

Capt. Freeman V. Walker, Asst. Surgeon, is, by direction of the President, wholly retired from active service this date, Dec. 4, 1895.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending December 14, 1895.

P. A. Surgeon G. T. Smith, detached from the "Ranger" and ordered to the "Adams."

Asst. Surgeon M. K. Johnson, ordered to the Naval Laboratory and Department of Instruction, New York.

Change of Address.

Brown, F. H., from Pythian Temple to Wildecorn Bldg., Grand Rapids Mich.

Eads, S. O., from Beaver Crossing, Neb., to Science Hill, Ky.

Kneedler, W. L., from Fort Mason to San Diego, Cal.

Kelly, W. D., from 7th and Wabasha Streets to Lowry Arcade, St. Paul, Minn.

LETTERS RECEIVED

Alta Pharmacal Co., St. Louis, Mo.; Alma Sanitarium Co., Alma, Mich. Blackman, May S., Wales Center, N. Y.; Blodgett, F. J., New York, N. Y.; Baldwin, T. S., Quincy, Ill.

Christison, J. S., Chicago, Ill.; Clarke, Almon, National Home, Wis.; Cochran, Jerome, Montgomery, Ala.; Croft, Benj. P., New York, N. Y.; Chambers, J. H., St. Louis, Mo.; Colwell, A. W., New York, N. Y.

Eads, S. O., Science Hill, Ky.; Edwards, John B., Milwaukee, Wis. Freeman, Walter J., Philadelphia, Pa.

Gouley, J. W. S., New York, N. Y.; Gardner, R. W., New York, N. Y.; Globe Mfg. Co., The Rattle Creek, Mich.

Howle, W. P., Oron, Mo.; Hicks, Wm. H., Newark, N. J.; Hooper, P. O., Little Rock, Ark.; Howe, Lucien, Buffalo, N. Y.; Hummel, A. L., Adv. Agency, New York, N. Y.

Izlar, R. P., Ocala, Fla. Jenkins, J. F., Tecumseh, Mich.; Jelks, Jas. T., Hot Springs, Ark.;

Johnson, H. L. E., Washington, D. C. Kelly, Howard A., Baltimore, Md., (2); Kneedler, W. L., San Diego Cal.

Larkins, E. L., Terre Haute, Ind.; Lord & Thomas, Chicago, Ill. Marion Sims College of Medicine, St. Louis, Mo.; Moffett, E. D., Indianapolis, Ind.; Morse, Lyman D., Adv. Agency, New York, N. Y.; Mal-

time Mfg. Co., The, New York, N. Y.; Merrick, M. B., Passaic, N. J. Pharmaceutica! Era, The, New York, N. Y.

Reed, R. Harvey, Columbus, Ohio; Rohf, Geo. H., Catonsville, Ind.; Reed, Chas. A. L., Cincinnati, Ohio; Rosser, C. M., Terrell, Texas; Revue Internationale, Paris, France.

Stearns, Frederick & Co., Detroit, Mich.; Schirmer, G., Chicago, Ill.; Schadle, J. E., St. Paul, Minn.; Schering & Glatz, New York, N. Y.; Sur-

geon-General, U. S. A., Washington, D. C.; Subscription News Co., Chicago, Ill.

Taylor, P. Richard, Louisville, Ky.; Tyree, J. S., Washington, D. C. Vogeler, Adolf G., Chicago, Ill.

Wyckoff, R. M., Brooklyn, N. Y.; Woodbury, J., Philadelphia, Pa. Zumo Pharmacal Co., St. Louis, Mo.

The Journal of the American Medical Association

VOL. XXV.

CHICAGO, DECEMBER 28, 1895.

No. 26.

ORIGINAL ARTICLES.

PRIMARY OR ACUTE CONFUSIONAL INSANITY.

Read in the Section on Neurology and Medical Jurisprudence at the
Forty-sixth Annual Meeting of the American Medical
Association, at Baltimore, Md., May 7-10, 1895.

BY DR. JAMES G. KIERNAN.

FELLOW OF THE CHICAGO ACADEMY OF MEDICINE; PROFESSOR OF FOREN-
SIC PSYCHIATRY, KENT LAW SCHOOL; PROFESSOR OF NERVOUS AND
MENTAL DISEASES, MILWAUKEE COLLEGE; FOREIGN ASSOCIATE
MEMBER FRENCH MEDICO-PSYCHOLOGICAL ASSOCIATION.

Fifteen years ago, Dr. E. C. Spitzka¹ described under the term "primary confusional insanity," (an approximation of the German title "Verwirrtheit" applied to the same mental states) a form of insanity "which develops rapidly on a basis of cerebral exhaustion. Consciousness is blurred in parallelism with the conceptional disturbance and the patients on recovering have, as a rule, but very crude recollections of their condition. Its duration is variable, comprising weeks and months. The prognosis is, as a rule, as good as that of stuporous insanity, which condition it also resembles as to etiology; emotional shock, cerebral overstrain, exhausting diseases and excesses being the principal factors responsible for primary confusional insanity. The patients suffering from this psychosis, after a rapid rise of their symptoms during a period of incubation rarely exceeding a few days, present hallucinations and delusions of a varied and contradictory character. The delusions may resemble those of mania, and more often those of melancholia, but no emotional state is associated with them. The patients assert in the same breath that their property has been stolen and that they are going to take part in some State affair. There is a surface resemblance between the confusion of mania and that of acute confusional insanity. The confusion of mania is not the expression of a genuine confusional state, but of a disparity between the ideational items and of the word channels through which they seek exit. That of acute confusional insanity is an expression of a true essential confusion of ideation."

Several years ago I employed² this designation in connection with an analysis of cases occurring in the literature. In 1889, in an article clearly suggested by Dr. Spitzka's work³ on insanity, Dr. H. C. Wood⁴ used the same term to designate this class of cases. Antecedent to Dr. Wood, Dr. H. N. Moyer⁴ had testified to the existence of certain forms of insanity bearing this designation. The term was adopted from Dr. Wood by Dr. W. Osler⁴ at this time, who employed it to designate the same class of cases. Dr. Conolly Norman⁵ also employed the term to designate this class of cases, taking it from Spitzka.

Three years ago I reiterated an analogy made in 1888 between the psychoses produced by various causes of cerebral exhaustion while classifying them under this title. This psychosis has been carefully

discussed by Dr. J. Ferguson, of Toronto, who is somewhat biased by a seeming analogy between typhomania and acute or primary confusional insanity. Confusion of the two psychoses is not infrequent, nor is it deserving of reproach; albeit typhomania is a furibund, not an exhaustional psychosis.

The features presented by acute or primary confusional insanity may be gleaned from the following case of varied etiology cited from those which have come under my observation.

Case 1.—A young man brought up on a farm was much given to the perusal of sensational literature. He was very superstitious and frequently expressed a fear of ghosts. The boys of the neighborhood becoming acquainted with his weakness devised a plan to frighten him with a pretended spectre at midnight. He always slept with a large revolver in easy reach. During the day the ball cartridges were replaced by blank cartridges and the weapon restored to its usual place. At midnight the victim of the practical joke was awakened by a seeming spectre which stealthily entered the room and stood with outstretched arms, muttering unintelligibly. The victim hurriedly grasped the revolver and sat upright in bed, dumb with fear. The ghost advanced a step; the muttering continued. When the young man, wrought up to almost a frenzy, drew the weapon and stammered, "If you are a man, I shall kill you; if you are a ghost, this won't hurt you," and fired. There was a quick motion of the shrouded arm and the bullet was thrown back, striking the headboard. A second time he took deliberate aim at the figure and fired. Again a motion as if, catching the bullet and it was thrown back upon the bed. He fired a third, a fourth, and a fifth shot, only to have the bullets hurled back with noiseless motion from the ghostly figure. Then for a brief moment he sat as if transfixed, gazing with mute bewilderment, when with a wild shriek of terror he fired the last blank cartridge and hurled the pistol at the ghost. When the pretended ghost revealed himself, the victim was found in a dead faint which gave way to an incoherent frenzy, accompanied with marked initial hallucinations of sight and hearing. He recovered after three months' treatment in an asylum. One of the planners of the joke became insane through remorse and exhibited the like symptoms, but also finally recovered.

Case 2.—A man 50 years old was admitted in a state of violence much resembling that of alcohol. The patient who had a brother insane, had been perfectly well up to a week prior to admission, when he was attacked by rheumatism involving the knees, ankles and wrists, accompanied by a high fever. The third day after the appearance of the fever the patient was exceedingly delirious. Home treatment was for a time pursued, but his violent attempts rendered transfer to an asylum necessary. On admission the patient had a temperature of 101°. His knees, ankles and wrists were swollen. Psychically he was incoherently agitated and presented hallucinations of taste, hearing and sight. The day after admission his temperature rose to 105°, his agitation increased, he being with difficulty kept in bed, desiring to get up continually and drive off a legion of devils pursuing him. He refused to take eggnog on the ground that it tasted and looked like blood. Within three days the patient became comparatively rational and by the end of the second week the mental symptoms had entirely disappeared. The patient soon began to improve physically and was finally discharged. He recovered four weeks after.

Case 3.—The patient had been in very good health up to about three months before the admission which occurred during the year 1874, when he was attacked by headaches for which, on the supposition of its being malarial, three grains of quinin were prescribed three times a day. After taking three doses of this the patient was seized by a violent

attack of incoherent frenzy, with marked hallucinations of hearing of a depressing type. There was considerable dimness of vision; these phenomena persisted for three months as the quinin was continued, and the patient treated with morphine subcutaneously. On admission to the insane hospital, which was at length rendered necessary, the patient was in the condition already described and was placed under chloral and hyoseyamus as a hypnotic, and conium to quiet motor excitement. Under this treatment the patient was in fit condition to be discharged within six weeks¹ after admission. He manifested, a day previous to discharge, some slight evidences of malaria, whereupon quinin was administered which had the effect of bringing on a fresh attack of frenzy with the same symptoms as previously. The quinin was stopped and the same treatment was instituted with equally good results.

Case 4.—A painter 40 years old became incoherently insane during his third attack of lead colic. He felt bees stinging him and saw them fly through the air at him. After three weeks home treatment he recovered.

Case 5.—A girl 6 years old was attacked by scarlet fever, which went through the early stages in the usual way. About the sixth day after the scarlet eruption appeared the temperature (104°) sank to 98° and the child became extremely restless and violent. She had been frightened by a Chinaman two weeks before the attack of scarlatina. She now complained that she saw him at the window with his hands outstretched to grasp her. This condition continued for two days when it gave way to an incoherent hallucinatory state, accompanied with great agitation. The patient recovered in a week.²

Case 6.—A woman 40 years old, who had been engaged in harassing litigation, was grossly insulted by a lawyer during an interview. She wandered away in a stupid state, but was picked up by a friend who took her home. She remained in this stupid state for thirty-six hours and then became incoherently hallucinated, visually and auditorially. Three weeks later she had fully recovered but retained a very confused recollection of her illness.

The phenomena presented by this psychosis bear a superficial resemblance to the episodic excitement of paranoia as well as to the period of transformation. Both are attended by hallucinations and agitation, but in paranoia there is an underlying intellectual element which, together with the precedent history, serves for demarcation. The febrile disorders often set up a neurosis which serves secondarily to the acute confusional insanity as a basis for the development of paranoia. Such an association is, however, purely fortuitous. Acute disorders may expedite in degenerate subjects the development of paranoia after an acute confusional insanity, but this has no special relation to the succeeding psychosis since paranoia was simply hastened in its development, not created by the confusional insanity. This fact, however, led Westphal erroneously to classify acute confusional insanity with paranoia. Rosenbach has recently pointed out these resemblances in a very graphic manner. The temperature in typhomania and the furibund symptoms differentiate it from acute confusional insanity as well as the greater mental defect. Treatment consists in proper nutrition, quiet and relief of agitation. The prognosis is usually good.

A question has been raised as to the essential etiologic factor. Kraepelin,³ who studied psychoses of this type most extensively, is of the opinion that to systemic nervous exhaustion, not to toxic elements, it is due. This is also the opinion of Moeli,⁴ who in a case resultant from lead colic, claims that the ex-

haustion from the colic, not the lead poisoning, was the chief cause of the psychic symptoms. Binswanger¹⁰ in discussing the psychosis as it supervenes on fever from brass poisoning in brass founders, inclines to Moeli's opinion.

As will be seen by the quotation from Spitzka, he regards the adynamia as the essential basic etiologic factor. This opinion of Spitzka has been adopted by Dr. H. C. Wood. Ferguson insists that toxic factors play a part in certain cases. This may be granted but they, as a rule, produce no symptoms differing from the cases developing on exhaustion from other causes. This adynamia is, as many of the older clinicians have shown, simply a nervous asthenia produced by various causes ranging from psychic to toxic. On it the whole group of adynamic psychoses designated as primary or acute confusional insanity develops. During fourteen years private and insane hospital practice in Chicago, I have observed 103 cases.

SOME QUESTIONS OF RESPONSIBILITY IN OPIUM AND COCAIN INEBRIETY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Within a recent period the question of responsibility and accountability for conduct and acts of persons who are known as opium, cocain and other inebriates has been raised in courts, and referred to medical men to answer. The confusing character of the medical evidence offered suggests the need of a more careful study of some of the general facts common to these cases. So far, the contested cases have been disputed wills, strange criminal assaults, thefts and defalcations, and other crimes usually devoid of premeditation and ordinary judgment in the execution. The larger number of these cases have none of the symptoms of insanity as understood in courts and text-books. The prominent manias and delusions and eccentricities of talk and conduct are wanting. The opium cases in public are quiet, secretive, abstract and harmless. The cocain takers are talkative and excited, but equally shrinking and retiring. The other drug takers also avoid publicity, and when exposed seem dull, stupid and indifferent. Many of these persons retain their position in active life, and appear normal, attracting no special attention by acts or words.

The commonly accepted opinion, which is supported by many medical men, is that the use of narcotics daily is not incompatible with ordinary intelligence and average judgment; that it is possible to use such drugs for a long time and be mentally capable. Such views are not sustained by scientific examination of cases.

Practically, all uses of narcotics are the abnormal demands of brain centers for relief. Same condition of fatigue, degeneration, and departure from a normal state, is manifested by irritation, pain and suffering; this the narcotism of these drugs quiets. Later states of poisoning follow, from the derangement of cell nutrition and elimination of waste products, and the increasing chemical disturbance of the higher processes of tissue and cell growth. All narcotics by their paralyzing action on the sensitive

¹ Medical Gazette, 1880.

² Jour. of Nerv. and Men. Dis., Periscope, 1881 to 1886; Alienist and Neurologist, 1883-7; Neurological Review, 1886.

³ Insanity: Its Classifications, Diagnosis and Treatment.

⁴ Weekly Medical Review, 1889.

⁵ Dublin Jour. of Med. Sc., 1890.

⁶ Jour. of Nerv. and Men. Dis., 1881.

⁷ St. Louis Clinical Record, 1881.

⁸ Archiv f. Psych., 1881-6.

⁹ Charite Annalen, 1883.

¹⁰ Neurologisches Centralblatt, 1882.

nerve centers, both poison, starve and exhaust them, and thus destroy the power of the higher centers to recognize the actual condition and relation of the surroundings.

This is practically insanity in its broadest sense. The brain is impaired, its delicate functional processes are lowered, its capacity of reasoning and of comparison is broken up, all sensation is deranged, and coordination becomes more and more difficult. Both theoretically and literally, the highest functional activities of the brain suffer most. The lower organic functions of digestion, nutrition and elimination show little sign of derangement in the early stages. The effect of a single dose of narcotic drugs is noted in the diminished sensitiveness to all impressions from both external and internal sources. The knowledge which sensation brings to the nerve centers is defective and misleading. Events and their relation are obscured and the capacity to discriminate is weakened or destroyed.

It is the masking and concealing of these derangements that makes them difficult to be understood. These drug-inebriates quickly become automatons, following an accustomed line of act and thought, and in this way seldom manifest their real condition. Later egotism and delusions become so prominent that the damaged brain is apparent. In a practical study of cases where this question of sanity and responsibility is brought into prominence, the facts of heredity, and the mental and physical condition of the person before drugs were used and the effect of those drugs on the mind are the essential facts to start from.

The following cases illustrate the influence of heredity in this problem: A. left a will which was contested. He was a business man of excellent judgment and much respected. For the past ten years he had used opium. No history could be obtained of the reasons for using opium. He had been quiet, secretive and reserved all his life, never showing any special interest in his family or friends, and avoiding company unless on business. The death of his wife seemed to deepen his secretiveness, for he would see no one but his confidential clerk, and through him execute orders and business transactions. The last years of his life he manifested alarm and intense anxiety at the nature and quality of the food served him. He would go to the kitchen and question the cook as to the method of preparing the food. There have been certain parts of the food especially sent to his table. He gave his property to a distant nephew and only a small part to his children. The heredity indicated a father who died in an insane asylum; a mother very eccentric who died in childbirth. Both grandparents were inebriates and mildly insane. Two uncles were epileptics; one aunt an imbecile, and several cousins feeble-minded and paranoiacs. From this heredity and history, with the unusual act of the will, his irresponsibility was decided.

B. was before the courts charged with bigamy. He came from a degenerate family, marked by hysteria and eccentricity on the female side, and inebriety, epilepsy and imbecility on the male side. Both parents were paranoiacs of alternate exaggerated and depressed emotions, in constant conflict with the surroundings and the persons they came in contact with. He had been an alcoholic and changed to opium. He was a commercial traveler for a brewery, and was feeble-minded in many respects. The act and his

heredity and present condition pointed to irresponsibility, want of control and impaired consciousness of right and wrong.

In a study of the physical and mental condition of persons before opium was used, the following are selected as typical cases: C., a lawyer who was excessively egotistical and bold at times, then manifested unusual timidity and feebleness of character before the use of opium, became involved in a swindling scheme. He had been considered an unreliable enthusiast who joined all new schemes and theories that came up and deserted them as quickly. He was credulous, skeptical and suspicious, alternately. At one time he was intensely selfish and grasping; at another, he would be very generous and benevolent. This instability extended to all his mental and moral activities and became notorious. After some fever he began to use opium and became secretive and cautious. Delusions of neglect and persecution were followed by dishonest acts and arrest, with conviction and sentence to prison.

D. was an erratic, passionate merchant who was in constant difficulty with his customers, always having litigation to secure and preserve his rights. In his family he was harsh, overbearing and suspicious. He manifested constant fear and alarm of being cheated. For some unknown reason he became an opium inebriate, and two years later was convicted of incendiarism, burning a neighbor's property to keep it from being occupied by a supposed enemy.

In both of these cases the evidence clearly indicated a degree of insanity and degeneration before opium was used. The responsibility of both cases was an open question before opium was used, but after, it appeared to be a settled fact. How and to what degree the use of opium has broken up normal reason is the next essential inquiry. The cases vary so widely it is difficult to point out any particular class of symptoms common to all. The following case has attracted much attention.

E., an opium taker, proved to be a defaulter of a large amount. He had been an ambitious, energetic banker, who for many years overworked and neglected ordinary rules of health. He became wealthy, was temperate, honest, lived abstemiously and was considered a man of good judgment and highly respected. After a severe attack of the prevailing influenza, he began to use opium. A year later he showed marked change in his habits and manner. He was dull and stupid and seemed to have confused notions of many things where he was formerly clear and prompt. His temper became more irritable, and he was suspicious. Unusual fears were manifest to prevent his associates from robbing and taking advantage of the company. New books were opened and expert examinations made of accounts, and explanations demanded of all possible matters. This sharp espionage was continued for three years, becoming more offensive every year, when a board of directors made an examination of his own accounts finding a large defalcation. An attack of acute mania followed the exposure, and later imbecility and death.

F. was arrested for wrecking a train by placing obstructions on the track. He had been for years a reputable mechanic, and from the death of his wife and loss of his property, with illness, became an opium eater. He worked for the railroad, and was discharged, then gradually developed delusions of persecution. He grew secretive and suspicious and

talked to himself when alone. He wandered round the country in the daytime, coming in late at night, only working to get sufficient money to purchase opium. On the trial he could give no idea of his acts and conduct from the day before the act to two days later, and seemed not to realize the crime of which he was accused.

Delusions of injury by others are not uncommon. Thus a woman who used opium accused her physician of criminal assault. A business man asserted that he had signed a contract by threat and force of a partner; a husband asserted his wife had secreted stocks and bonds, and affirmed they were lost. When confined in an asylum, these delusions assumed the form of persecutions and efforts to keep them away and take their property from them.

In a medico-legal case, if the fact of using opium is established, it is necessary to make a thorough study of the history of the person. The facts of heredity will indicate a constitutional tendency and bias to certain general forms of degeneration. The facts of his history, before using opium, points to favoring causes and conditions that would most likely find relief in opium and narcotism. The exciting and predisposing causes which led to the first use of opium, and the effects on the conduct and character of the person, with the length of the addiction, are often the central facts of the case. Lastly, the act or crime committed, its possible motive, and the circumstances associated with it. From these facts the possibility and capacity to think and act sanely may be determined.

In all these cases two conditions are present: One, alteration of character and conduct; the other of enfeeblement and deficiency. The latter may be congenital and the normal state of the person. He may be through defect, disease, and other causes, mentally enfeebled and unstable, deficient in judgment and average reason. Opium will intensify and increase this condition, which may be far removed from imbecility and dementia; and yet it is clearly degeneration, and the power of recognition and discrimination of the relations of duty, obligation, and adjustment be wanting. This condition of lowered intelligence and morality, with reason and judgment below the plane of normal consciousness, is clearly irresponsibility. In the former case, where simply alteration of conduct and character are the most prominent symptoms, opium deepens and widens these changes.

These are some of the cases which pass unobserved through life, attracting no attention except among those intimate with them. When they commit crime, make strange contracts, ignore all claims of duty and obligation, make unreasonable wills, the various questions of mental soundness are raised. The use of opium, no matter for what purpose, is clear evidence of degeneration; not when taken at long or irregular intervals, but when used continuously. The activities of the brain are reduced and all the higher processes which control and regulate the affairs of life with judgment, prudence and restraint are lowered to an automatic level. As a result, such acts manifest this condition more than ideas. The gratification of the senses, regardless of consequences, grows more and more dominant. Indulgences in so-called pleasures are the leading motives, and considerations of family, laws, society, duty and obligation grow constantly feebler. He retrogrades back to lower levels,

and yet in this dissolving process he may not have any of the more common signs of insanity and imbecility. Courts and legal methods of judgment may be unable to find evidence of irresponsibility; and yet it exists, not based on any class of symptoms, but on a general history and comparison of conduct and character.

This region of alteration of character, and the growth of the ego, with increasing feebleness of the higher function, cerebral activities, must be recognized and studied. While the case may remain in this state for a long period, it is liable any time to pass into dementia or general paralysis, and the longer opium is used the more pronounced the organic changes become. Every case must be judged by itself. The question of responsibility is one of degree. The use of opium has put the man in an abnormal condition in which his mental faculties are crippled. To what extent, and how far he has become disabled and made incompetent to think and act wisely, are the questions. The general principles which govern these cases apply to all other narcotic addictions.

The physiologic action of cocain resembles alcohol, in first exaggerating the mental functions, then depressing them. Opium reduces the functional activity of the brain centers and cocain exalts them. In one case a form of melancholy follows; in the other, delirium and mania comes on. In both, the lowering of the higher brain centers is followed by the rise of the lower egoistic impulses. The exaltation from cocain becomes delirium after a time, with cell irritation, fatigue, confusion and exhaustion. The depression from this temporary elevation and exaggeration of cell activity demands relief in the repetition of the drug, and after a time organic changes begin, with degeneration and impairment. The cocain taker more often commits crime against persons than property. Such crime will be fitful, impulsive and lack premeditation and motive. The cases that have been contested have been assaults, thefts, and attempted injury of persons without cause. Several wills have been disputed where suicide followed the execution of the paper. Some cases have been kleptomaniacs, and most of the cocain takers have turned to alcohol and opium for relief. Hallucination and delusions are very common, but usually transient and recognizable by the person when the immediate effects of the drug pass off. The cocain inebriate will at times manifest a degree of mental clearness and superior judgment that is unusual, but this is simply masked delirium and soon ends in confusion and delusion. Ideas and conduct are delusional and transitory, and will not bear the test of examination and comparison. General paralysis begins with a period of cocain inebriety, and the treatment and removal of the cocain brings to light this disease. Cocain may be taken for some time without recognition in the changed character and habits of the case, but a careful inquiry will show a steady decline and debility of all the higher mental operations.

A., a physician who had used cocain secretly for two years, assaulted a stranger in his office. It appeared that he was laboring under the delusion that detectives were hunting for evidence against his character. B. ran away with a large amount of money belonging to the firm he was connected with. He was a secret cocain inebriate, and had delusions. C., a woman, used cocain and was a notorious klepto-

maniac, manifesting cunning and judgment in concealing her real condition.

As in opium cases, each one presents different phases and has to be judged by the facts peculiar to it. Crimes of such cases often come from concealed hallucinations, particularly of threatening voices. The act in its sudden impulsiveness indicates some condition of aural or visual disturbance. One very prominent symptom of mental derangement is loquaciousness, and uncertainty and indecisiveness of thought. Correspondence never comes to an end, one letter suggests another, and so on indefinitely. The same feature is noted in conversation; continuous, random, vague thoughts and opinions, all tinged with delusions of vigor and strength, and boasting of what they have or can do.

The fact that cocain is used medico-legally is presumption of general brain debility and various degrees of irresponsibility. In a disputed case, the same thorough history should be obtained of the heredity, previous health and present condition as in opium cases. This, in connection with the fact that cocain used continuously rapidly develops mental confusion and intellectual disorders, making it impossible to understand the nature and character of the acts and conduct, would go far toward proving irresponsibility in a given case.

A number of drugs have recently come into medico-legal medicine in similar questions. It may be stated as a general fact that all narcotics or drugs which may possibly cause intoxication are poisons. The brain both functionally and in its organic structure is injured, its integrity is impaired. Hence any form of drug addiction is open to the suspicion and most reasonable certainty of lowered consciousness of right and wrong, and general incapacity of reason. These drugs are taken for their effects, which give relief in most cases. Alcohol and opium are the most prominent. Cocain, chloral, chloroform, ether, camphor, belladonna and others less prominent are used in the same way. The effects are intoxications or states of poisoning in which the brain is exalted, depressed, narcotized and changed, and precipitated into states of partial insanity.

The use of these drugs may be a symptom and point to some degeneration and arrested development, attended with irritation and exhaustion for which these drugs bring relief. In all cases they have no food element to build up the brain, but by irritation and depression break up and tear down the higher processes of cell and brain activity. When such cases come into court and the soundness and unsoundness of certain acts are to be examined, then these general facts appear and form the basis for a wider and more exhaustive study.

The medical witness should never try to draw dividing lines as to where mental health and disease join. He should assume justly that from certain causes certain effects are always to be expected. That continuous use of drugs for their effects is always injurious, and no one can be rational and sound who poisons his brain with narcotics. Also, that each case is a law to itself, and from the facts and conditions clear, general conclusions can be affirmed that will bear the test of examination and study. Forensically, the question of responsibility determines the measure of punishment, and here the judgment of the physician should be clear, independent and unbiased.

THE POST-ACTIVE TREATMENT OF NARCOTIC HABITUÉS.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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Very largely among the laity, and, to no small extent, in the profession, an opinion obtains that narcotic inebriety is a cureless disease. My experience, covering a quarter century and compassing the history and treatment of many hundred cases, has convinced me that this opinion is a mistaken one, and in two papers, "The Curability of Opium Addiction," *Journal of Inebriety*, 1885, and "The Curability of Narcotic Inebriety," *Cleveland Medical Journal*, 1893, cases were cited in proof.

Years ago, the opinion was advanced that 30 per cent. of proper cases, properly treated, resulted in permanent recovery. I am no less optimistic now than then, and when the value of a certain post-active régime in the treatment of the disease is fully appreciated, and is insisted on and persisted in as its importance demands, my optimism will assume more generous proportions, and a blot on the scutcheon of professional success along this line will be largely removed.

It is not surprising that this non-hopeful feeling concerning a continued good getting on after quitting a long-used narcotic should so largely be held. The common idea that the habitual user of opium, chloral or cocain is simply the victim of his own vicious indulgence, implies a damaged morale on the part of the patient that militates strongly against any lasting good from a strictly therapeutic endeavor. The somatic factor in causation being denied; the crippled condition being deemed due to impaired psychique rather than physique; and these unfortunates being looked upon as moral lepers, who, having knowingly "sown the wind" must "reap the whirlwind," that measure of sympathetic succor which would bring to them what the resources of modern medicine can surely extend is withheld them, and they are given over by their pessimistic commiserators to a bondage binding for life.

I have held and still hold that this largely prevalent idea as to the etiology of narcotic inebriety—in the immense majority of patients—among the better class (and I assert and insist upon well-marked class distinction in these cases) is a mistaken one, *vide* "The Ethics of Opium Habitués," two papers, *Brooklyn Medical Journal* and *Medical and Surgical Reporter*, 1888; that a physical necessity, not a moral obliquity, is the great genetic factor, and that a full recognition of this fact, in both active and post-active treatment of this disease is absolutely essential to a large and lasting success. And, *en passant*, it is a pleasure to express my belief that the trend of professional opinion is growing along this line, as regards both alcoholism and morphinism, the two forms of inebriety that to-day most menace private and public weal.

The advance of scientific medicine during the last half decade, in the treatment of the last-named neurosis, has been such as to warrant a statement in 1893 before the Pan-American Medical Congress that, at no previous time had it been so simple, so

satisfactory and so successful. Enlarged experience has not lessened this opinion; in fact, the modern and humane treatment of the morphin disease, which so specially attaches to the Mattison method, is securing increased and increasing recognition, appreciation and application; all of which I make bold to say—at the risk of being deemed an egotist—the merit of the method unquestionably deserves.

But while we have reason to felicitate ourselves on therapeutic progress in this field, touching the question of acute cure we are still face to face with the unsettled, because largely unsuccessful, question of what may be termed chronic cure. To the solving of this problem our best effort may well be directed, and it is the purpose of this paper to present certain facts, the outcome of an experience not small, and to commend such details of post-active treatment as will tend in most measure to secure a lasting success.

As stated in a paper, "Morphinism in Medical Men," presented this Association last year, the majority of those who honor me with their care belong to our profession. As fellow-members of a noble guild it is quite natural that we who have not fallen under the poppy blight should feel a more than common concern in their well-being; and, taking them as a class—though the same danger pertains to most ex-habitués—it may be said that three things imperil the permanence of their cure. They are overwork, rum and tobacco.

In laying special stress on these, it need scarcely be said that the full repair of all health infractions—brawn or brain—that stood in causative relation to the initial narcotic using, is a *sine qua non* in doing permanent good. But granting that full repair, and that nothing remains save the entail of a narcotic abuse, many cases present in which the risk of failure pertains to one or other or all of the three causes cited.

Regarding the first of these, overwork, one can easily understand why the varied and exacting demands of an active medical life should make it take first rank among causes effecting an untoward result. And in direct ratio to a premature resuming of the doctor's toil, is the peril of his again falling victim to the poppy need.

It may seem strange that a medical man, who, above all others, should know the disturbing effect of a long-used narcotic on functional well-being of mind and body, does not appreciate the danger of too soon resuming work. Such, however, is the fact. Of course, cases occur where, from conditions beyond control, despite a full realization of this risk it must needs be taken; but too often the lack of good judgment in not recognizing the great truth that a nervous system, battered and bruised for years by narcotic excess, will not in as many weeks or months regain its pristine status, is the main reason for failure in the good work—be it never so well begun. History has repeated itself so often along this line that I emphasize this danger, and warn against it with all the energy at my command.

Alcohol lessens greatly the hope of permanent cure. *No ex-narcotic habitué is safe who uses rum in any form.* The question of kind or quality—mistakenly held by some—is of no import. Pure or impure, beer or brandy, wine or whisky, the risk impends, for it is the alcohol that makes the mischief. Years ago that opinion was reached and each year has but added to this belief. And this prompts me to say that I think the use of alcoholic stimulants in

the active treatment of narcotic inebriety is needless and dangerous. Needless, because success can be secured without them, and dangerous—doubly so—because they retard acute recovery and tend to create a need for continued taking which makes much less hopeful the outlook for continuous good getting on. I am well aware that the opposite idea, both in active and post-active treatment, is held by some—notably among Germans—but, guided by the lamp of my own experience, I am bound to assert my opinion absolutely and everlastingly.

Tobacco endangers recovery. This belief, though more recently arrived at, has become just as fixed as that regarding alcohol; so much so, in fact, that no applicant for my care is accepted unless he or she will agree to abandon the weed. This, it may be, is counter to the common view, but testimony and observation, reasoning and experience have brought me to this precept and practice.

If it be asked why such a radical idea governs my counsel and care in these cases, one broad, general answer is given—this: Large and enlarging experience has convinced me, beyond all question, that the use of alcohol and tobacco by convalescents of this class tends, by lowering nerve tone, special and general, to prevent that return to pristine integrity of health which makes it most largely proof against recurrence of a narcotic need.

While insisting on the eminent importance of this triple abstaining during the post-active régime, care must be taken to continue all those factors which make for good during the early abstinence time. It goes without saying that favoring environment, freedom from worry, care along secretory and excretory lines, and a tonic régime, all play a large part in repairing ravages of narcotic abuse, and must be continued, if need be, for months or years; and when to these are added the special causes that make less vulnerable a post-narcotic state, we shall surely note a lasting betterment in patients' future and in professional good repute.

Prospect Place, near Prospect Park.

REFLEX NEUROSES.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

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The intricate and complex nature of reflex nervous diseases and the difficulties in the way of studying any pathologic changes that may exist, make them the most complicated of any we have to treat. The long, patient and exhaustive line of experiments, tending to unfold the reflex nerve phenomena, has thrown much light on this subject. You are all familiar with these scientific investigations. When we pass from the physiologic to the pathologic field of investigation we find it still more unfruitful in clearing up our doubts, just as all morbid processes are more difficult to unravel than purely physiologic ones.

When the reflex stimulation is increased, there is an increase of the peripheral irritation somewhere, but where, is the difficult question to settle. Reflex irritation means often an increase in the irritability of the afferent or efferent tract. It may mean an increased irritability of the gray matter of the brain

or spinal cord; or it may mean that the inhibitory influence of the cerebrum is more or less diminished, or, lastly, it may indicate that the sensory tracts and psychic elements are increased. Frequently, in a still more complex manner, the irritation is transmitted from the sympathetic system to the sensory tracts of the cerebro-spinal.

If we study carefully the sympathetic nerves distributed to the pelvic viscera and trace them back to the several ganglia situated at and below the bifurcation of the aorta, following these tracts up the spinal cord and the ramifications to the various organs, we can readily see how intimate and frequent these reflex disturbances are. The urinary and reproductive organs and the rectum are particularly subject to irritations that travel up these sympathetic tracts and cause functional disturbances in other organs. But this is true of all organs and it is not yet possible to understand how an ulcer in the rectum, a contracted cervix, disease in the middle ear or errors of refraction can disturb the stomach, but we know from clinical experience that it is so. We can not yet see how certain abnormal conditions of the stomach and liver, variations beyond our ability to differentiate, can, in one instance, cause pain or intermittent pulse, or palpitation of the heart; at other times a variety of headaches, and at other times psychic phenomena, such as depression and melancholia. We can not explain how anything very cold taken into the stomach will cause a severe lancinating pain in the left side of the head. Perhaps it is due to sudden contraction of the blood vessels excited by reflex action.

Many reflex irritations are beyond our knowledge of the line of reflex phenomena. When I was in the Rotunda Hospital we were in the habit of using hypodermics of ergot to control uterine hemorrhage. The effect was too immediate and pronounced to be due to any absorption and physiologic action of the ergot. We concluded that the effect must be due to reflex irritation. By experiments we found that hypodermics of chloroform or cold water would produce the same results.

The number, extent and variety of reflex nervous disturbances are so great, and the uniformity as to their classification so uncertain, that it seems to me desirable at the beginning of this paper that we define as clearly as possible what nervous diseases properly belong to the class grouped under the heading, "reflex neuroses."

Dr. H. Gradle, of Chicago, has contributed to this society a very valuable paper on the study of reflex neuroses having their origin in abnormalities of the structure of the eye. He has also referred to other reflex disturbances. Many others have aided greatly toward the solution of vexed questions referring to these functional nervous diseases.

There has been and still is entertained, by distinguished neurologists and other special workers, a wide difference of opinion in reference to the nature and extent of reflex nervous phenomena, and as to the propriety of including certain nervous diseases in this class. Among those who have considered that many nervous diseases, including certain forms of hysteria, epilepsy and insanity are due to reflex excitement, we need only mention a few names like those of Brown-Séquard, Sayre, Neiden, Hack, Stevens and others. An opposite opinion has been held, as we are all aware, by able men like Skene, Jaccoud, Romberg, Mitchell, Gray and others. This wide dif-

ference of opinion must be due to a want of definiteness of terms and classification, and the results of different experiences in the treatment of diseases. We will be able to clear up some of the difficulties if we make a careful study of the causes of nervous diseases. Malaria, diphtheria, tuberculosis and a long line of diseases are due to a definite cause, a definite germ. Not so with nervous diseases, especially the class we are discussing. Take for instance, the mooted one, epilepsy. It is sometimes due to brain disease, sometimes to brain pressure, sometimes to sensitive cicatrices on the cutaneous surface, sometimes to dyspepsia—more times to causes beyond our ken. We can all bring forward cases to prove that epilepsy has been due to the nerve storms excited by these various causes.

Insanity, with its protean forms of expression, is due to a far greater variety of causes than epilepsy, and is alike difficult to classify. Hysteria, as mysterious and manifold in its causes and expressions, as that weird and popular American disease, neurasthenia, and often associated with it, is subject to the same indefinite laws of classification.

Headaches are due to even a greater variety of causes than any other infirmity we are called upon to treat; frequently reflex and yet by no means always so. We might multiply illustrations indefinitely, but it is not necessary.

Now if we recognize in the first place the law laid down by Wilkes governing functional nervous diseases, much of the diversity of opinion will be cleared up. It is in these words: "Moreover, it is undoubtedly true that there is not a single organic disease of the nervous system which may not be simulated by a functional and curable one."

Now if we recognize in the second place what was indicated in our reference to epilepsy, insanity, hysteria and headaches, viz., that functional nervous diseases are due to a great variety of causes, the line of separation between the different views of neurologists will grow much less distinct. The recognition of these two fundamental facts or laws in the investigation of functional nervous diseases will help us greatly. We are thus enabled to explain how sclerosis, paralysis, locomotor ataxia, etc., also paresis, softening of the brain and various types of insanity have been cured, simply because we have been mistaken in our diagnosis.

When Dr. D. R. Brower was asked what he thought of the success of the man who had cured so many cases of locomotor ataxia, he wisely remarked that he thought he had made a mistake in his diagnosis. A man was sent to me from a neighboring city several years ago, with acute softening of the brain. He recovered and is at work now. How did it happen? That was a mistake in diagnosis.

When we find so much difference of opinion as to the number of nervous diseases that should be included in the class entitled, "reflex neuroses," our simplest way to reconcile the discordant elements is to attribute the difficulty to defective diagnosis. Because one man has a case of epilepsy and cures it by correcting some error of refraction in the eyes, or by the removal of a tumor, or by the correction of some serious trouble in the alimentary tract, or by the removal of diseased ovaries or tubes, and thus places it in the class of reflex neuroses, there is no reason to find fault with the next man who has a case of epilepsy not due to any of these troubles, but to some

serious central lesion which excludes it from the class of nervous diseases we are considering.

It is asserted by some neurologists that hysteria is due to central or psychic origin rather than peripheral or reflex. Hysterical manifestations may be due either to organic or functional disease. They may be psychic or reflex, central or peripheral in their origin.

I had a case under my care several years ago. Her trouble was diagnosed by several of the most noted neurologists of Canada and this country as hysteria. The diagnosis seemed to me correct. She grew gradually worse and after some years died. The autopsy proved the trouble to be tubercular meningitis. Often there is some point of peripheral irritation, as the uterus, ovaries, rectum, etc. A reflex neurosis is developed and it takes on an hysterical type. A psychic element enters in by association of ideas, all the symptoms are greatly magnified and all the extravagant adjectives in the vocabulary are used to describe the symptoms. These cases are purely reflex. But we meet with grave cases at times.

Last year a case was sent me, with a nurse specially trained for hysterical cases. The disease had been diagnosed by four of the best men in New York city and New Jersey as hysteria. All the external manifestations were those of hysteria. Many of her symptoms, such as vomiting, could be controlled by severe discipline. I soon began to notice symptoms that pointed to organic derangement of the bowels. Some obstruction manifested itself and I diagnosed the trouble as malignant; counsel agreed with me. I sent for her physicians and they agreed. Operation revealed the case absolutely hopeless. Now this was undoubtedly a case of mistaken diagnosis, as far as the cause was concerned, but the symptoms were those of hysteria.

Headaches are, in forty-nine cases out of fifty, due to peripheral origin in the eye, the ear, the stomach, the bowels, the liver, the generative organs or at some other point—a reflex neurosis—a functional disease, but the fiftieth case, some one will be unfortunate enough to have, will be due to and part of some grave lesion as a brain tumor, a depressed internal table resulting from a fall or blow, or organic brain disease. Headaches are due to so many reflex irritations that it is often difficult to diagnose them correctly and more difficult sometimes to cure them. We often find a headache the result of more than a single reflex irritation. A headache may be due to derangement of the stomach and liver, the liver and bowels, the stomach and uterine disturbance, or to any of these and some error in refraction. To cure the headache it is necessary to correct all these troubles. The success of the physician depends on his ability to locate the point or points from which the reflex irritation starts.

One writer attempts to prove that reflex irritations are of very rare occurrence and that uterine and ovarian diseases do not produce, *per se*, reflex neuroses, but do so for instance, by indirectly disturbing nutrition and that in turn produces headache and other nervous disturbances. Clinical experience every day disproves this untenable theory.

Three years ago I had a most interesting and instructive case sent me from the East, a lady who had suffered from violent neuralgic headaches which had been gradually growing worse for years, until large doses of stimulants and narcotics were the only

source of relief. She was 55 years old. All approved remedies, local applications, hygienic methods and general tonics were tried for six months. At the end of this period the headaches, notwithstanding her general health was much improved, were no better but rather worse. The case seemed almost hopeless. She had quite a deep unilateral cervical laceration, but as she had passed the climacteric there seemed little to be gained from any operative interference. Having exhausted all other means likely to afford relief, I determined to try this last chance. The operation was done with great care in the adaptation of the opposing surfaces. Union was perfect. Two weeks after the operation she began to improve. There were few interruptions in the progress of the case. The headaches disappeared, the sleep returned, she gained all the flesh she had lost and the restless nervousness entirely disappeared. This was undoubtedly a reflex headache—a reflex neurosis. I might quote from my case-book a number of similar cases, but this will suffice to illustrate this variety of reflex irritation.

Nutritive disturbances are often due directly to reflex disturbances. I remember a case sent to me by a physician in Cincinnati. She was 38 years old, quite regular in all her functions, but was suffering from anemia and neurasthenia, the latter dependent on the defective nutrition. I tried for three months to improve her general health, her nutrition, and build up her nervous system. At the end of this time I could not see much improvement. The only symptom she had of any uterine disturbance was a slight non-irritating leucorrhea. I had spoken of an examination before, but she refused, and as there was so little indication of any disease I did not think it important to insist upon it. The slight leucorrhea could be entirely accounted for by her weakened condition. I determined now to know the exact nature of the trouble. I found an extensive erosion, such as would formerly have been termed ulceration, covering the entire cervix, associated with endometritis. The uterine canal was three and one-half inches long. She was put upon appropriate treatment and the stomach symptoms were soon corrected. She improved in flesh and color rapidly and the nervous symptoms disappeared. This was not a case of nervous dyspepsia as had been supposed, but a case of reflex neurosis.

Chorea is a Reflex Neurosis.—In chorea we find many cases due to embolism of the corpus striatum or thalamus opticus, and other serious lesions, and yet every practitioner knows that many cases—the majority of cases—of chorea from their onset and sudden disappearance are purely functional. Dr. H. C. Wood has made it very clear, by showing that the majority of cases are at first functional and due to some reflex irritation, as nutritive changes, and are cured in this stage; but if they continue there is a change of structure and they become organic diseases. Clinical experience is rich in illustration of these cases. Dr. Osler does not agree, as I am aware, with these views.

Reflex Cardiac Neuroses.—The everyday reflex disturbances of the heart, arising from the stomach and other organs, are too familiar to refer to. These reflex irritations may increase in severity until they simulate one of the most painful and serious diseases of the heart, or, in fact, of the body. I will only recite one case to illustrate this statement:

Not long ago a lady was sent to me from central

New York with the diagnosis of angina pectoris. She was 32 years of age and the mother of three children. The youngest child was 3 years old. The trouble with the heart had existed for one year, but had only been severe for two months, and the attacks had become more frequent also. She had been seen by a number of the best New York physicians and all pronounced it a very grave case and liable to terminate fatally at any time. After considerable correspondence she came with her family physician. That night she had one of her paroxysms and we all thought she would die before morning; sedatives and stimulants tided her over this attack. After a few days of rest and quiet, I began to consider the question of treatment. She had had the most skilful and scientific treatment. Nothing was to be expected from remedies, so I tried to see what I could find that might prove to be a source of irritation. She had several rectal fissures and a good deal of tenderness—there was a deep bilateral laceration of the cervix and the perineum was torn back of the sphincter ani. I felt hopeful that the correction of these conditions might prove beneficial.

As soon as she was in a reasonably good condition, which was not until she had passed through three attacks in each of which we expected she would die, the plastic surgery was done on the cervix and soon after she began to improve. She had several lighter paroxysms but no severe ones. The next step was to repair the perineum and correct the trouble with the rectum. After these were done she had no more attacks, but made an excellent recovery.

Hysteria a Reflex Neurosis—I have referred to this subject in a general way. Two years ago a gentleman came under my care who had been distressingly ill for six years. He had been seen by many physicians in Europe and later in this country. He suffered with agonizing pains in his stomach and shoulders. For these pains and the wretched nervousness he had been given anodynes freely. All the physicians who saw him pronounced his trouble hysteria. These paroxysms of pain and nervousness would come on and grow more and more severe for from twelve to twenty-four hours, when morphin and hot applications would quiet them. His family had become quite estranged from all sympathetic relations, because they felt that these were hysterical manifestations and might be controlled. I could find no pathologic derangement except in the rectum. There I found several ulcers and fissures and marked prolapsus. I corrected these troubles and in about three weeks he was greatly improved and slept well. I kept him on a hygienic course of treatment for two months and he entirely recovered.

Insanity as a Reflex Neurosis—I have had so many cases of insanity in the last ten years, illustrating the influence of reflex irritation producing these mental disturbances, that it is not easy to make a brief selection. I have thought well to draw from other sources also, to give more emphasis to these assertions.

Dr. Frank Churchill reports an interesting case in New York of hysteroneurosis and melancholia, cured by trachelorrhaphy.

Dr. Sprattling, of New Jersey, reports a case of rare and unusual interest, showing the dependence of nervous and mental symptoms on the condition of the other organs.

A patient 28 years old, suffering from hallucina-

tions of a violent type. A large quantity of *débris* was removed from one ear of which he complained a good deal. The patient soon after entirely recovered his health and remained free from the hallucinations.

Some years ago I had a case of melancholia with delusions, due to a contracted cervical canal. Dilatation cured the delusions.

In the *Medical Record* May 2, 1891, Lawson Tait reports a case of periodic insanity with marked homicidal tendency, cured by the removal of the ovaries and tubes.

Drs. Jewell and Mosher report cases of insanity cured by the removal of impacted feces. I have had similar cases.

In 1889 I had a case sent me from New York suffering from melancholia. The patient was 43 years of age and had been complaining for some time. She had been in the care of two excellent gynecologists and was in good condition in this respect, with the exception of a small bilateral laceration of the cervix. I advised douches and paid no more attention to this trouble. She was kept on a course of hygienic treatment, and all remedies and appliances that would correct the digestion, improve the circulation, tone up the system and contribute to the improvement of the mental condition were employed. Every method and plan of treatment I could devise, with the assistance of good counsel, proved ineffectual, and at the end of two years of treatment she was better in general health; but the melancholia had assumed a severer type and she was delirious and was developing a suicidal tendency. Having tried everything else, I determined to repair the lacerated cervix, notwithstanding several of our most noted gynecologists said that it produced no reflex symptoms. After considerable consultation I did a trachelorrhaphy with unusual care in adaptation. She was so wild that it was impossible to keep her still, but we got a fine union and within three weeks we began to see an improvement in the mental symptoms. The patient entirely recovered and is well to-day. This, gentlemen, was a case of reflex neurosis.

EARLY RECOGNITION AND MANAGEMENT OF THE MENTALLY DISTURBED.

Read in the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

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Nothing has so much tended to confuse, distort and implant the supposed need of harshness in the management of the insane as our forgetfulness of the infirmities of the human mind. It was assumed that a broad and unmistakable line of separation marked the difference between the sane and the insane, that detection was, therefore, a matter of ease, while the facts are that a mere mist, a veil separates, and a something that is easily broken through. There is a certain tendency to disorder incident to every mind as regards strength, harmony and development.

Do not the eccentricities, the propensities to vice and crime, the indulgence of the passions, the weaknesses of life demonstrate the inherent tendency to mental disorders? As our body is diversified with counterbalancing functions, and in its delicacy and completeness of arrangement is constantly liable to disease and in fact engenders within itself the ele-

ments of disease, vastly greater is the mind likely to be diseased, poised as it is in a sensitive balance and more complex in its structure. We know that insanity is a disease due to some abnormal condition of the brain. The causes are various, and it is practically impossible to give a definition that will embrace all the phenomena.

A well-balanced mind is like a sound body; in health we hardly realize that we have a heart, a stomach or liver. It is thus with our minds if all goes well and our brain is healthy; our thoughts go out and we scarcely realize that we have a mind until there comes into our lives some disturbing element, some cause for excessive thought, a something that gives us mental pain—we may, ere we know it, realize that we have mental disease. It is difficult to recognize the borderland, to fix the line between sanity and insanity, between health and disease, since they so intimately blend into each other. Before the grosser lesions of well-marked insanity there are often defects in nutrition long before structural changes take place. The time when the most good can be done is during the nutritive disturbances which precede structural or organic changes.

As to the actual curability of the insane but little can be said; therefore, it is all important that active measures be taken before a well-defined mental break-up takes place. The brain, the controlling center, is subject to exhausting influences to a much greater extent than any other organ of the body. An overtaxed brain does not recuperate so readily as other organs to perform its functions, but if from any cause or strain sleep does not follow, rapid exhaustion succeeds, together with hyperemia.

Brain-cell nutrition takes place principally during sleep. Anything that interferes with proper periods of rest and sleep directly interferes with the nutritive plasma passing from the vessels to the cells and derangement of the intimate connections between the nervous and vascular systems will ensue, producing grave disturbances of the nervous system, which are followed, sooner or later, by insanity. We shall not attempt to go into any description of the elementary disturbances or morbid processes, as these are matters treated of in our text-books on psychologic medicines, and such description would extend this paper far beyond its intended scope.

Our object is to urge upon the profession the early recognition and repression of the initial symptoms, believing that thousands are needlessly declared to be insane annually and thus are placed under restraint in our asylums without due regard to the type or degree of mental disturbance.

It is lamentably true that an asylum is regarded as a necessity to any and every one becoming wholly, or in part, deprived of reason; a public feeling which is largely due to a belief that asylum physicians only are qualified to understand and care for this unfortunate class. While we thoroughly believe in our insane asylums and of there being a public necessity for the detention and care of the violent class, we do not believe it is necessary nor is it proper to hurry off to an asylum and associate a slightly disturbed individual, a case of melancholia or reasoning mania, with the worst types of insanity where all is repulsive. What can be more humiliating to a man who has any intelligence left than to be made subservient to an ignorant attendant and his abuses, a condition that does and always will exist, to a greater

or less extent, where hundreds are congregated together. With all due respect to asylum physicians, many of whom are able men and well qualified for the work assigned them, to insinuate that no others are fitted by other mental training for the recognition of the early symptoms of insanity is erroneous and a palpable wrong, kept alive by a few for their own aggrandizement. Many of the most eminent alienists of modern times were never connected in a professional way with an insane asylum. Who has done more to advance the interests of the insane than Dr. Rush? Griesinger, once a leading authority the world over, was never a physician to an insane asylum, nor was Clymer, Seguin, Spitzka, Beard, Mitchel, Jewell and many others of equal renown and assiduous as workers.

There is nothing mysterious or especially obscure about diseased conditions of the brain that require asylum observation only. We recognize the fact that our asylums afford exceptional opportunities for the study of the degenerate types; while we concede this much, we are confident that the general practitioner and the specialist outside of the asylum are the ones who are called upon to intercept and save from the madhouse. It is to them that people go to for advice, and it is their duty to do the best possible thing at the earliest possible moment; yea, when the first symptom shows itself. We believe it an injustice and deleterious to mild forms of mental disturbances; cases capable of reasoning logically regarding the everyday affairs of life; those yet capable of controlling themselves, slightly melancholic cases, acute mania, restricted monomania, hypochondriacs, all of which fare much better outside of asylums than in them, as a rule.

We do not want to be understood as favoring no treatment or watching of such types; on the contrary, we favor the most active measures, such as can only be secured in private homes and institutions, and the placing of these persons among sensible people for companionship, with refined educated persons for attendants.

The association of a partially insane person, day after day, month after month, with others similarly or worse afflicted, restrained from contact with people of well-balanced minds, is fraught with no possible good. Any medical man having had to do with the mentally disturbed, knows that a very large proportion of such cases have physical ailments that are exciting causes, which only need the practical attention of one conversant with such conditions, one skilled more or less in mental aberrations and their causes, pathologic conditions, etc.

We believe it is the province of medical science to arrest in the incipient stage many brain disorders, heretofore considered incurable, with the aid of modern methods if attention is early given.

Disordered function surely means organic destruction sooner or later. Fully 80 per cent. of the insane cases may be cured if treated early and properly, while scarcely 15 per cent. committed to the great asylums of our land recover.

We have said that the brain is peculiarly liable to disorder through disturbance of circulation; in cerebral inflammation, there is first observed an unnatural exaltation of nervous force with intolerance of light and sounds, a general hyperemia and the capillaries are filled; we may also have a general or local hyperemia of a vasomotor origin from prolonged men-

tal work or excessive tension of an emotional character, gastro-intestinal or pressure from disease of the blood vessels themselves or an encroachment upon them by morbid growths, etc. What are the indications? What will follow if active measures are not taken? First, the congested condition—the hyperemia of the brain must be relieved and promptly, if we hope to keep our patient from the madhouse or from general paresis. Long-continued congestion will, sooner or later, produce organic changes; if there be any physical or mechanical reason for the unequal circulation, as gastro-intestinal sluggishness, we would begin by giving a free mercurial purge, one that will unload the primæ viæ; it is not at all an uncommon thing to find a large amount of accumulations and in character of the worst. We have had cases where it would seem that there had not been a free evacuation possibly in weeks; in which cases enemata and purgatives have been given for days, with copious discharges of the most offensive character possible; after the purgatives have been continued until from the character of the evacuation we were sure it had not been long retained or was poisonous, there has been a marked change in the patient following immediately these thorough unloadings; in many instances there would seem to be little or no mental disturbances left. Then, again, it is highly important that we eliminate the excess of uric acid from the system.

A lithemic condition is an important factor in many of the mentally disturbed; in fact, in nearly all cases there is lithemia. If the hyperemia be due to prolonged overwork or business cares it must be stopped at once, and such means used as will procure rest and act upon the weakened vessels of the brain. When the blood-vessels of the brain become dilated, there is a loss of tonicity. For such weakened conditions we have in electricity almost a certain means of restoring tone to the vessels, thereby improving the nutritive conditions; the constant or galvanic current is the one used, and in mild doses, applying the positive pole by means of a crown electrode over a well-moistened towel that has been wrapped about the head, the negative sponge electrode to the epigastric region or under the two feet, using 3 or 4 milliampères, with an occasional interruption of current, we believe is the best possible means. We would also give ergot in moderate-sized doses daily, with the expectation of aiding the electricity in overcoming the dilatation of the blood-vessels from its well-known powers over such conditions. If the congestive conditions are dependent upon a purely mental condition, one of nerve strain, of tension from worry or fixed ideas, it is all-important that the mind be put at ease and the brain have rest.

It is well known that the influence of the mind upon the body is wonderful for good or bad, as the case may be; in health, it may exalt functional conditions or suspend them; the mind is all-powerful over the nervous system and may excite or depress, may stimulate or paralyze the processes of nutrition or secretion even unto death, and in disease, the mind may restore functions, enervate the vasomotor and sensory nerves, thus throwing off disease.

Sir John Forbes gave it as his opinion long ago, that the curative powers of nature were sufficient to explain all the triumphs of homeopathy. We believe that more may be added; it is not to the curative powers of nature alone that the triumphs of

homeopathy may be ascribed, but rather that of suggestive therapeutics; with like certainty may the so-called miraculous healings be placed to the credit of psychic influence rather than any supernatural power. No one disputes that the everyday physician's manner and mode of addressing his patients inspires confidence and has a great deal to do with the recovery many times.

The celebrated Dr. Rush gives testimony to the value of inspiring confidence, and often attributed the cure to vigorous concurrence of the will with the action of the drug used. The power of the will in resisting disease, aside from the influence of imagination or concentration of the mind is unquestionable. Since this is a recognized fact in medicine, are we not called upon as physicians and philanthropists to get control of the mind to such a degree as to carry it in the right direction if we can. To do so we must raise psycho-therapeutics to the plane of a fixed science; to do this a thorough test must be made of the laws and conditions governing the phenomena which heretofore has been enshrouded in obscurity; the hostility and indifference to investigation and acceptance by the medical profession generally is a difficulty to be overcome and will only be overcome by the presentation of facts.

Not only is the prejudice of the medical profession to be overcome, but also the peculiar whims of the laity, as there is an opinion current that one part of the human family is subject to the other; that we are likely at any moment, unawares, to be hypnotized and brought under the evil influence of even the most debased. The general public has enough information or misinformation regarding the phenomena of the so-called hypnotism, that in reality it knows nothing and has its mind filled with imaginations as to the great and dreadful possibilities of one in possession of the power to hypnotize. Thousands are worked up to the belief that all the wrongs of life are due to the evil influence of some one; the influence that somebody has over them, and if they commit an evil deed that they are not responsible, or that some one else should be held responsible for their acts; husbands accuse their wives of being under the power of some one; the wife claims that so-and-so has her husband under control; even some of our courts have ruled in favor of this mysterious influence, setting as they have the minds of the general public aflame. This belief has, indeed, assumed very serious proportions. We read almost daily of some dreadful deed having been committed while under some external influence. We feel warranted in saying that there is not a word of truth in the claims of these people—persons who assume to ascribe their wrong deeds to the mysterious power of somebody else. We do feel that the medical profession is called upon to set the minds of the people at rest by placing hypnotism where it belongs—in the hands of the medical profession only. That there is much good to come from this psychic influence there is, we think, no longer room for doubt; as regards harm, that will be just in proportion to the intelligence that goes with it. Let the people be educated to know that there is no hypnosis without acquiescence or coöperation; then will the idea of evil influence subside and claims of that character will cease. Public exhibitions of hypnotism should not be tolerated; lay papers should have nothing to

do with disseminating the false impressions that have brought distress and ruin to hundreds. Stringent legislation against public exhibitions should be enforced. It is unquestionably true that psychotherapeutics provide a means by which a change of condition and many times a cure can be effected, and that its best field of action is diseases of the nervous system, before organic changes have taken place. Hypnotism is effective in disturbances due to imagination, fixed notions; it is a well-known fact that long and continuous thought is ruinous. If we have in hypnotism a means of directing the mind into healthful channels, away from worry, we are justifiable in bringing it into practical use even though it may be true that only a small proportion of persons are susceptible; and notwithstanding there may be possible danger attending the use of this agent, danger is common to many others. If we were to discard from our therapeutics everything that can be dangerous to life, we would have but little that is good left. Our personal experience is too limited to be of real value as to the weakening effect that hypnosis may have upon the mind of the hypnotized. We do believe that such fears are unfounded; we have read the works of most of the ablest writers, those who have treated thousands of cases, in which they do not report a single instance of harm to the mind or nervous system. We do believe, and yet it is inexplicable, that the hypnotizer subjects himself to the loss of some vitalizing principle in the process of hypnotizing that exhausts more or less rapidly. We have, after spending an hour or more and when with two or more persons, felt decidedly exhausted, and when continued for weeks it was attended with loss of energy and followed by insomnia; hence we believe the danger attending the use of hypnotism is principally to the operator.

SOME NON-MEDICINAL SUGGESTIONS IN THE THERAPEUTICS OF EPILEPSY.

Read in the Section on Neurology and Medical Jurisprudence at the Forty-sixth Annual Meeting of the American Medical Association at Baltimore, Md., May 7-10, 1895.

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Interest in the manner of how not to give medicine in the treatment of disease is daily increasing, and there is, probably, no domain of morbid condition to which human nature has fallen heir that repays non-medicinal medicine more rapidly and well than the so-called diseases of the nervous system, and while epilepsy may perhaps not be a disease pure and simple, for convenience of discussion, it may still remain under that caption.

It may be well to state also, that all medicine must not be condemned because in the past the stomachs of our forefathers or even nearer relations, perhaps those bearing the names which appear upon our own visiting lists, have been dosed *ad nauseam* with the long list of drugs in our pharmacopœia; this is no reason for throwing aside these valuable aids to nature's recovery; it is simply an argument for a more thorough diagnosis, a more intimate acquaintance with pathologic conditions, and a more consistent belief in nature herself and the patent indications for remedies outside of lists of drugs.

I have been more and more forcibly impressed with the advantage of several therapeutic resources not

usually mentioned by modern authors who have written upon epilepsy, in the treatment of this disease. I wish I could begin my suggestions by citing a long list of cures, but you are all familiar with the general intractable condition of the disease and, I take it, are here with the idea of combining our present knowledge of its treatment, and, if not curing at least alleviating, in a greater measure, the many poor sufferers from the spasm proper and the still further awful depredations upon the mentality.

First, I would place in importance the sanitarium, asylum, colony or whatever plan will isolate the patient from the outside world and place him or her in a microcosm of their own, *sans* temptations, and where the physician will be the inspiring genius. I do not believe that any case of epilepsy, be it *petit* or *grand mal*, can be successfully treated when the patient is at home, because medicine alone will effect but few cures, and a rational home where a rational modern scheme of treatment of epilepsy can be pursued is as rare as an egg of the great auk. This is not alone from the fact that few homes have gymnasiums, bathing facilities and hygienic surroundings; the entire atmosphere and environment of the epileptic must be changed; he must be brought under a systematic life, the better to combat the irregular nerve-explosions; in other words, he must undergo a species of training something similar to that of the athlete, with one difference, that it must be lifelong with the epileptic.

Arguments from a utilitarian standpoint might be adduced to show why the epileptic should be isolated from the world, but this paper has to deal simply with the fact from a therapeutic standpoint; a standpoint which says that it is best for the patient to be thus brought under the direct control of his physician, which will give him a greater chance of recovery, and if not recovery, a mitigation of the spasms and at least hold stationary what modicum of mentality the patient may have. The ideal home of the epileptic must be equipped with a gymnasium and a system of baths, especially the so-called "rain bath" which is perhaps the best and only one needed; the value of the Turkish or Russian baths has not yet been worked out. Next in importance as additional resources are methods of employment, such as all the light trades, broom and brush making, carpet weaving, basket making, shoe making, mattress making, wire working, etc., beside, if possible, the manifold duties of the farm. An epileptic who is interested and employed will have fewer spasms, all things being equal, than an unemployed case whose time is principally taken up in contemplation of his unfortunate and well-nigh hopeless condition, albeit, he may be under medicinal treatment, and the former case will suffer less from his spasms than will the latter.

While not claiming originality in the above suggestions, it appears to me that the truths of the propositions laid down so far, merit the earnest attention not only of this Section but of the entire Association; that an earnest and combined effort may be made in behalf of the establishment of more colonies like those of New York, Ohio and Illinois. That every State must eventually assume charge of its epileptics, certainly its poor, is I think incontrovertible, and the sooner the better. To return—the next important resource is not altogether non-therapeutic, inasmuch as some materia medica have now a chapter or two on food, and very much can be done for the epileptic by carefully mapping out for him his daily bread and

butter. Nearly every epileptic who comes under the observation of the sanitarium or asylum officer is gross in proportion and appearance, and will be found to have a voracious appetite; or, if the appetite is capricious, it is made so by the foul condition of his alimentary tract, and the careful pampering of his abnormal appetite by his guardians; "the poor fellow wants it, and he ought to have it because he has so little enjoyment," a fallacious but extremely powerful argument so long as the patient is at home.

Coincident with regularity in evacuations of the bowels and free flushings of the kidneys, is noticed a striking diminution in the frequency and severity of the spasms, and with the disappearance of the unhealthy development of adipose tissue and the general clearing up of the symptoms of over-feeding, is seen usually a brightening up mentally; and all this without the use of bromids or other medicines beside cathartics and the free use of water, internally and externally.

In formulating the diet of our epileptic patients we have to consider those of different age and those of different habits. I think, if it is possible to oversee the bill of fare, week in and week out, for years at a time, there are many epileptics who may be permitted nearly everything that any one else eats, excluding only such articles of food as are known to be indigestible and guarding most carefully against overfeeding. We shall meet some cases who can not eat certain articles of food without danger of a spasm—for instance, I have under my care a child nearly 13 years old who has not had a spasm for more than a year, yet if she should eat a teaspoonful of common beans, no matter how well cooked, it would, I am sure, precipitate one or more convulsions; in this case there seems to be a personal idiosyncrasy in regard to this vegetable, though a sudden fright as an external agent has induced a severe fit in the same child. There are some epileptics who can not take milk in any form, some who do not like acids, but as a rule their appetites are fully up to the standard and their desires gauged only by their opportunity to crowd food down their throats. Be it understood that I am speaking of epileptics who are more or less defective mentally.

In dieting the epileptic, the first point to be considered is *regularity*. Such patients, at home, if afflicted with so-called good appetites, are allowed to feed at will, and I must say the ease with which they can swallow enormous amounts of food and pass it on through their intestinal tract without apparent suffering or injury is marvelous. That an overloaded stomach will bring on a fit or fits is, I think, unquestionable, and the stomach to which additional supplies are being made at short intervals is in an even worse condition than the stomach simply overloaded, for when digestion ceases, fermentation and decomposition begin and the irritation increases proportionately. We are dealing with patients who may never have known restraint upon their desires, for them we make a stringent rule—nothing to eat except at meal time.

Another point is, eating properly. It is said that Gladstone gave every mouthful thirty-two bites before swallowing the bolus, and while this is all very well for those who will do it, it would be an impossibility to insist upon such a plan with our patients. They may, however, by constant and careful attention, be trained to eat slowly, chew their food thor-

oughly and properly and use their knife and fork in a manner acceptable in polite society.

Some have a very disagreeable habit of using their incisor teeth as molars, and much time is taken up in teaching them to roll the bolus of food from side to side and use the back teeth to disintegrate the mass and thus thoroughly mix it with the saliva before it is swallowed.

It should not be difficult to understand the condition of a stomach into which the material of a meal has been introduced in lumps and almost solid masses; the mixture of an ordinary meal is bad enough, without giving the stomach the additional duty of chewing the food as well as digesting it; it is also an easy task to demonstrate the subsequent irritation of the above condition upon sensitive nerve masses, only needing a slight inducement to explode in a wild outbreak of nerve energy, as well as the future results upon the stomach itself and the general nutrition, and further argument for table decorum is unnecessary.

Quantity is an important consideration when it is known that those who eat are not capable of measuring the limit of their desire for food by any reasonable standard. Those whose temperament and ability permit them to take active exercise or engage in regular work which calls for an expenditure of muscular force, naturally need more food either in quantity or quality than those who are feeble, or those who by reason of their mental obliquity are disinclined to exert themselves. The boys and girls who are approaching puberty, whose physiques are in that transition period between childhood and womanhood or manhood, need more proportionately than the older persons who have attained their full physical growth.

Sir Henry Thompson¹ speaks of that period of youth "when the whole system abounds in vigor and strength, much superfluous food may be disposed of—first, by the greater activity of the functions of digestion and absorption, and secondly, by the capacity youth possesses for excessive muscular exercise, by which it can use up and eliminate such excess almost at will." While, however, the system of youth can overcome the effects of overplus, for a time, there must come a time when the relation between the "income" and the "output" must be maintained with care or the many and varied evils of overfeeding begin to show themselves.

It will be found an easier task to keep the average man nearer the normal, under a regular and somewhat limited diet, than to maintain a close average of health upon an irregular and unlimited diet.

The quality of the food bears a distinct relation to the value of the diet. Not in the sense of the cost price, for that varies with the condition of the market and the amount purchased, while to the institution which raises its own supplies the cost is reduced to a minimum. But food has certain values reckoned upon its chemistry. It may be divided into—

1. Organic. Nitrogenous: (a) albuminates. Non-nitrogenous: (a) fat; (b) carbohydrates.
2. Inorganic. Mineral: (a) mineral.

It is a proper proportion of organic and inorganic, nitrogenous and mineral, albuminates, fats and carbohydrates supplied to the organism that enables metabolism or assimilation to take place; the term metabolism also refers to that power which the ani-

¹ Diet in Relation to Age and Activity.

mal organism possesses of accumulating from its food supplies a store of potential energy, which it afterward transforms into kinetic energy or muscular work and heat; it also takes into consideration the excretory products resulting from the changes which have to be eliminated through the organs provided for that purpose.

Equilibrium of metabolism means that the bodily income and expenditures are balanced; that while the normal physiologic conditions are maintained, there is exactly the same amount of new material absorbed and assimilated as there is of effete matter, the product of the retrogressive tissue changes removed by the organs of excretion; the destruction of tissue is exactly compensated by the formation of new tissue. While the body is growing rapidly there is greatly increased formation in the parts participating in the rapid growth, and the metabolism in these parts is correspondingly increased; on the other hand, during senile decay the expenditure is in excess and the body in consequence wastes. The physiologic equilibrium is practically determined by weighing and observing that the body remains of the normal weight with a given diet.

In working out any problem with the defective class in question it is not easy to determine a standard, the variations in weight and height for the same age being only limited by the number of individuals weighed and measured; it is therefore hardly fair to draw more than tentative conclusions from data made up from comparison with normal individuals of the same age.

Curiously enough, very few of the authorities pay much attention to the question of diet when writing of epilepsy. Nearly all coincide with the opinion that meat is hurtful, and push this forward with some emphasis. Hare, whose monograph upon the pathology and treatment of epilepsy is one of the most thorough and comprehensive upon that subject ever published, claims that very little has been done in the way of observing the effects of diet upon any large number of patients. He mentions a report of twenty-four cases, twelve being placed upon a purely vegetable diet, twelve upon a purely nitrogenous diet, for a period of two months, with a result that the vegetarians had a few less spasms than the others, but the difference was so slight as to be of almost no weight in determining the question.

I, myself, have been unable to put more than a limited number under observation; the six cases of my own were all chronic cases, in which the possibility of cure had been abandoned, and we only endeavored to reduce the number of spasms to the minimum and keep the general conditions of each as close to the normal as possible. Each one was taking 60 grains of potass. brom. daily in four doses. For six months meat was eliminated from their diet, a full regimen of vegetables, cereals and fruits, with brown, white and corn-bread without eggs being given; meat, eggs and milk were then added to the list for another period of six months, careful attention being given every month to the weight, and any variation below that of a preceding month being met by an additional portion of fat-making food. Comparisons between the number of spasms for each month of one period and the corresponding month of the other, and the totals of the two periods, gave decidedly negative results, though the average of the six months of vegetable diet was slightly lower than that

of the more general diet. The variation in number of spasms was, however, only that which may be seen in any number of chronic cases under close observation.

Further observation has led me to believe that in such old cases, *diet* has only a subordinate effect upon the fits, and it would seem that so long as care is taken to eliminate any article of food known to be indigestible and to prevent overfeeding, a good, generous and varied bill of fare is the best. In cases where the general health is good, a diet very similar to that prescribed for athletes under training is advisable; for the growing child a fat and blood-forming dietary, and for the elderly and apathetic the most simple and easily digested articles. Monthly comparisons of weights will show losses and gains, and thus permit any necessary change in the amount or nutritive value of the food.

There seems to be much misunderstanding as to what a generous diet means. The parents of our epileptics so many times protest that their child is kept upon the plainest possible diet, investigation showing the statement in some instances to be correct, but the patient is permitted to eat *all that he will*, under a very mistaken idea that because he wants it, his wants are actual needs; in other instances the so-called plain diet is perhaps not a series of dishes fit to be set before a king, but really a rich and highly-spiced bill of fare, entirely unsuitable to a stomach which must not be overburdened, no matter what its capacity. Other parents condemn a diet which, as they say, prohibits cake, candy, pastry and unripe fruit, or fruit known to be indigestible, and say that their poor child has so few pleasures in life, it is a pity to deny him such things. The taste for sugar is no doubt physiological and should be gratified, but candy may be given judiciously just as well as a dessert, as to permit the child to eat it at any or all times. So with fruit, though to my mind the swallowed pulp of oranges and half-chewed bits of banana have been responsible for many a convulsion, and such pleasures are surely a mistake if we are to obtain a cure.

Unless combined with a certain amount of exercise, diet is of an uncertain value; that is, the amount of food ingested to preserve the physiologic equilibrium of metabolism, must be modified. Parkes says of exercise: "A perfect state of health implies that every organ has its due share of exercise. If this is deficient nutrition suffers, the organs lessen in size and eventually degenerate more or less." In common with his more fortunate brother imbecile, who is not afflicted with epilepsy, the epileptic defective is more or less imperfectly developed physically; narrow chests, drooping shoulders and ill-developed muscles so frequently complicated with paralytic deformities are very common.

Very little can be done with the shriveled, useless, paralyzed extremities, though I have seen much improvement in some cases, where the muscles had not atrophied, from properly directed exercise, especially in the lower extremities from the use of a tricycle.

Dr. Graeme M. Hammond, of New York, in a recent number of the *Journal of Mental and Nervous Diseases*, has a very interesting article upon the bicycle in treatment of nervous diseases, in which he cites thirteen cases particularly benefited by riding a wheel under direction. In this connection, Hammond says of exercise: "Exercise, when prescribed

for nervous affections, should preferably be taken out of doors. It must be combined with pleasure and should be prescribed not only with a view of strengthening the muscles, but also for its effect upon the mind. The effect upon the mind is often of greater importance than the effect upon the body. The feeding of the mind on self, and the continual mental introspection which is so common in neurasthenia, hysteria and hypochondria, should be combatted by prescribing an exercise which necessitates the pleasurable concentration of the mind on what is being done, something which demands a certain amount of skill for its successful accomplishment and which must therefore divert the thoughts from morbid channels, stimulate the mental faculties in a normal direction and engender a feeling of brain-rest and mental refreshment."

The value of exercise as pointed out by Dr. Hammond in benefiting certain forms of nervous disease not complicated with spasms is equally marked in the treatment of epilepsy, though the method of exercising must be modified, or rather adapted, to a disease which manifests itself by throwing the victim out of his equilibrium. All varieties of exercise where the patient's life or limbs will be endangered must be thrown out of discussion. The daily risk of danger from falling is sufficiently great without adding anything more. We want in these cases a series of exercises calculated to develop the entire muscular system symmetrically, correct any physical deformity as far as possible, and add nothing in the way of risk from a sudden fall. In beginning systematic exercise with younger patients, the Swedish system of educational gymnastics is invaluable in educating the young, growing muscles for more complicated exercises, giving the best possible results with the least exertion, stimulating not only muscular, but mental development as well, overcoming in a measure the muscle habit of involuntary contraction as seen in the epileptic fit, and generally promoting the physiological action of the internal organs.

Epileptics suffer from obstinate constipation which is extremely difficult to overcome by ordinary treatment, and I am of the opinion that the acne of those who are taking the bromids constantly is in many cases as much due to irregular action of the bowels as to any direct effect upon the skin by the drug; this constipation, skin trouble and depression seen in some cases where larger doses of the bromids are being given, may be cured in most cases by gymnastic and other active exercises, and there is rarely a case so stubborn that it is not at least benefited. One of the most important effects of exercise is produced upon the lungs. It is well known to those whose practice involves a close acquaintance with the chest capacity of the average man, that few utilize the entire compass of their lungs; especially is this seen in these defectives. Now, if the observations of Valentin and Sczelkow are correct—that the greater part of the carbon dioxid which the respiratory organs throw off is formed in the muscles, exercises which shall strengthen respiratory effort and increase the lung capacity should be faithfully followed out. Indirectly exercise may exert very valuable effects upon excitable nerve centers, as well as act positively in eliminating the waste products of the entire body.

Motion, especially such as may be made toward

some pleasurable end, and active work which brings with it some reward, will often break up a beginning epileptic mania, and I am satisfied that all epileptics should be kept as actively employed as their condition and environment will allow.

Walking is as suitable an exercise as can be given. No extra machinery is needed and the effect can be studied many times. It must be compulsory and the distance increased as the muscles permit. In these days of rapid transit the legs are becoming a secondary means of propulsion, whereas they should be the chief.

Americans are celebrated the world over as a nation of dyspeptics. It is certain that we are a nation who use every available means to get to our journey's end with the least possible physical exertion and in the shortest possible time; and the query arises whether the dyspeptic symptoms would not vanish with a revival of walking as a popular method of travel.

Football is another method of overcoming the inertia of our patients by a pleasurable game; the striking-bag of the pugilist may also be utilized for those who can stand the violent exercise; the modern wall-machines offer very elegant and very effectual means for developing the muscles. But all such exercise, whether easy or violent, must be guarded by a watchful and intelligent teacher, lest more harm accrue than good.

That diet and exercise are but subsidiary means in the treatment of epilepsy must be admitted; that they are valuable corollaries to such drugs as may be prescribed is, I think, equally true. But unless properly prescribed and administered their therapeutic value diminishes.

The time will come probably when a large majority of our epileptic population will be gathered together in branch asylums connected with our State institutions for the insane and feeble-minded, or in private asylums devoted to that class of patients, and it is from these asylums, where the patients are under the eye and training of a medical officer who has himself been trained in physical culture and made a study of diet, that results are to be had worthy of study; until then we are, so to speak, in a realm of theory.

The older and chronic cases are beyond cure and almost beyond amelioration; but there are many cases of young children among whom, if taken in time, removed from home environment and placed under discipline, carefully studied physically and mentally, thoroughly drilled in exercises calculated to increase muscular development and to develop muscular control, with less attention paid to teaching book knowledge and more attention paid to training in habits of obedience and decorum, I take it that more might be cured; and certainly the care of the incurable would become a simple problem. It may, I think, be reasonably concluded, that diet and exercise are important auxiliaries in the treatment of epilepsy; that diet should be, as the term implies, food prescribed by a physician; that an extreme opinion, either for or against a dietary consisting entirely of nitrogenous matter or, on the other hand, strictly vegetable, is entirely wrong, and a middle opinion, which will give the patient thorough study and afterward arrange the diet according to the patient's physical needs, is the proper theory; that exercise should also be prescribed by a physi-

cian and followed out under his eye as far as possible, particular attention being given to exercises calculated to develop respiratory action, strengthen the heart and generally promote muscular control.

WHEN SHALL WE OPERATE IN CASES OF APPENDICITIS?

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The above question is one that every member of the profession is trying to solve. The subject has been much discussed. Learned essays have been written, read and discussed by learned bodies, often backed up by statistics which, according to the author's views, clearly establishes the correctness of the conclusions set forth in his paper. He does not stop to consider the possibilities of inaccuracies of his statistics. In fact, I am satisfied that our statistics of appendicitis and its results are not to be relied on.

The disease and its classifications have not been sufficiently understood to make them trustworthy and a valuable aid to definite conclusions. For instance a catarrhal relapsing form of appendicitis may apparently recover seven or eight times under medical or the expectant plan of treatment, and the ninth time, owing to the fact that the patient had had previous similar attacks and recovered without an operation, he refuses to be operated on until he is in a dying condition. He then submits, and dies. Statistics give eight recoveries without operation and one death with operation when in reality there are no recoveries, and all due to the fact that the one case had been treated by an advocate of the expectant plan of treatment, and had not been operated on. Had the same individual been operated on during one of the earlier exacerbations of the disease he would have in all probability recovered, and statistics would show one case, one operation and one recovery, instead of eight cases recovered by medical treatment, and one case operated on and one death.

Such statistics must necessarily be misleading. In order to properly understand appendicitis, we should first classify the different varieties or forms of the disease, and so arrange the symptoms as to be able to make our diagnosis of the class of the disease we have to deal with by exclusion. Until this is done, there will always be more or less confusion and difference of opinion in regard to treatment, whether it should be operative or medical. First, then, we have an acute perforating appendicitis, which runs its course very rapidly, perforation taking place in from twenty-four to seventy hours, producing a septic peritonitis that proves fatal in possibly 95 per cent. of all cases that are operated upon, and 99 per cent. of all cases that are left to medical treatment. Such cases, if correctly diagnosed and operated on before perforation, can nearly all be saved. Then all cases belonging to this class should be referred to the surgeon for operation. Second, we have a catarrhal appendicitis, which is an inflammation due to bacillus coli communis traumatism or a foreign body in the appendix, such as fecal concretions or seeds; the latter cause is seldom present. This form is usually of a recurring or relapsing nature, one or more attacks occurring within a shorter or longer period. Some cases are accompanied with suppuration and abscess within or

without the peritoneal cavity. Some cases result in perforation and cause death very much in the same manner as those cases of acute perforating appendicitis. This form of appendicitis is the one that has caused so much confusion and difference of opinion in the profession in regard to what treatment should be adopted. Some of the cases terminate by resolution and the patient gets well without an operation; some terminate by suppuration, point externally, open and the patient recovers. Those cases that terminate in perforation, producing peritonitis, are the ones that the surgeon is often called to operate upon, and generally after fatal septic peritonitis has taken place.

He operates to give the patient the benefit of the little chance left; death follows; the physician says, "I told you so," and writes a paper condemning operative procedure in cases of appendicitis to be read before his medical society. He has probably treated a few cases of recurring catarrhal appendicitis and succeeding in relieving them of their attacks, for the time being, left them for some surgeon to operate on in the future; he is then able to draw statistics. He has three or four recoveries from medical treatment to report, and one case where surgical treatment failed. He does not state what the result would have been in the case treated surgically had it been treated medicinally. In my judgment, the only way to arrive at a trustworthy decision of the comparative value of operative or non-operative treatment of appendicitis would be, not to report a case as cured when treated medicinally until a sufficient time had elapsed to be sure the case was well and would not return, say a period of two or three years. We should also include the cases under this head that had been so treated until they were in a dying condition before operative interference. In other words, all cases operated on after medical treatment of a longer or shorter time, and at the time of operation were found by the surgeon to be in a condition that excluded the possibility of recovery, whether operated upon or not. It is unfair to surgery to class such cases as surgically treated, and statistics based on such classification are of no value. On the other hand, in making up statistics for the surgeon the only cases that should be included are those that have been treated by the surgeon from their incipency; cases where the surgeon had been privileged to operate at the time, in his judgment, was the most suitable or most promising. Such statistics when carefully compiled would be a valuable aid to the physicians as well as the surgeons in determining the course of treatment to be pursued. What is needed at the present time is more thorough knowledge of the different phases of the disease and the peculiar symptoms accompanying each, that we may be able to distinguish one from the other and so determine the best method of treatment. Until this is accomplished there will always be the widest difference of opinion in regard to what treatment should be adopted. It would also be well for the physician and surgeon, while investigating the different phases of the disease, to carefully study the early symptoms that he may be able to recognize the existence of the disease in its incipency, as a favorable result often depends upon early treatment, especially so when surgical means are resorted to. Among the earlier symptoms are more or less pain over the abdomen, tenderness over McBurney's point, midway between the umbilicus and crest of ilium; sometimes cramps in the bowels, with diarrhea or nausea. If

either of the above symptoms are present we should suspicion appendicitis and make a careful examination for the same. If we recognize it at this stage and operate, 95 per cent. of our cases will recover. If we fail to make our diagnosis until we have a general septic peritonitis, then we have a complication that will add very greatly to the mortality under any treatment. After peritonitis takes place we nearly, if not quite, always have perforation, and, excluding cases of peritonitis caused by septic tubes or ovaries, perforation of bowels by ulcers or traumatism, peritonitis means appendicitis. During the last five or six months I have had several cases, two especially interesting, which I will report.

March 6, I was called six miles into the country to see a young man about 30 years of age. Upon arrival I found he had been awakened during the night with severe cramps in his bowels, attended with diarrhea and some vomiting; his temperature was normal; pulse 80 per minute; respiration 18. Upon physical examination I found the skin moist and cool, tenderness over the entire belly but no distension or tympanites; tenderness over McBurney's point was more marked than anywhere else, and on deep palpation I imagined I could detect a small indurated mass. I diagnosed appendicitis and advised an immediate operation. Upon inquiry on the part of the patient if it were not possible for him to get well without an operation, I told him that very few cases recovered without an operation, but that when they did the trouble often returned and continued to give trouble, and sometimes perforation took place, producing peritonitis, which nearly always proved fatal. He finally said he would think it over until the next day when he would give me an answer. The next day I found him comfortable, no fever, no tympanites, less tenderness over the abdomen and very little over McBurney's point. I imagined that the induration I had felt the day before had disappeared. The patient was not ready to be operated upon and I was much less inclined to urge it. I continued to see him every other day for about ten days, during which time he continued to improve, with regular bowels, no pains, or very little if any. I discontinued my calls with instructions to call me at once if any untoward symptoms should manifest themselves. Two days later I was sent for in a hurry to see him. I found his temperature 103, pulse 100, and quite an indurated mass in right iliac region. I now insisted on an immediate operation. He was sent to St. Mary's Hospital and I operated on him the next day, March 21. I found necrosis of the appendix, and also quite a large portion of the bowel. The appendix had sloughed off and was found in the cavity with the pus and fecal matter that had escaped from the bowels. I removed the appendix, closed up the opening in the gut, washed out the cavity and packed with iodoform gauze. The patient recovered, but he was two months at it. He had no fever or peritonitis after operation. The wound suppurated, the necrosed gut separated, came away and left a large fecal fistula through which all his stools passed for a month. The fistula finally closed and the patient is now well. Had he submitted to an operation when I first saw him it would have been much less dangerous, and he would have been well within two or three weeks with one-tenth of the suffering and annoyance that he had as it was. The other case occurred in a young man 31 years old. I saw him on Sunday morning at 6 o'clock,

Nov. 3, 1895, and found his temperature 102.5, pulse 90, tenderness over the abdomen, and quite an indurated mass in right iliac region, which was extremely tender on palpation. He stated that he had first felt pain and uneasiness in the bowels Thursday night; he was better Friday, and went to the office to look after his business; Friday night he again felt bad and had considerable pain in bowels; Saturday he was again feeling better, and went thirty miles in the country to attend to some business on his father's farm; his bowels moved as usual Friday and Saturday, without pain; Saturday night he had a severe pain in the bowels, attended with fever and a swelling in the region of the vermiform appendix. He then realized he had an appendicitis (he being a physician); he also knew something must be done to avert the impending danger, and he sent for me at daylight to operate. I examined the case; diagnosed appendicitis. I laid the facts before him as I saw them, and advised an immediate operation, which he consented to at once. He was taken to St. Mary's Hospital, where I operated on him at 11 o'clock. I found perforation of the appendix, with quite a quantity of fecal matter and pus, which was shut off from the peritoneal cavity by the flimsiest kind of adhesions. The wall formed by the adhesions was so frail that I am satisfied they would have given away before a few more hours' accumulation of pus and allowed the contents of the cavity to escape into the general peritoneal cavity which would have precipitated an attack of septic peritonitis that would, in all probability, have proved fatal. The patient's convalescence was uninterrupted.

I might go on and report a great many more cases in evidence of the importance of early operations, but I think the above are sufficient. Nearly all operators with much experience have reported many cases where early operations were the means of saving lives, while had they been delayed death must certainly have followed. In conclusion, I think until we are able to differentiate between the cases that are going to perforate and allow the contents of the bowels to escape into the peritoneal cavity and those where nature will throw out plastic lymph and form a wall separating the diseased appendix from the peritoneal cavity in such a manner as to seal up the pus cavity and thus cause it to open externally, and the catarrhal relapsing variety, which sometimes recovers without operation, by means that are unmistakable, that all cases of appendicitis should be operated upon as soon as diagnosed, because the danger is almost *nil* before perforation, but after perforation an operation will not always stop the progress of the septic condition. Of course some cases will never recur, and if we operate on all cases we would operate on some that would get well without an operation; but with our present knowledge we can not tell which case will recur and have no relapse and which will not, and by waiting until rupture has occurred many cases will die which, by prompt surgical interference, would be saved.

The Health of the Pope.—His Holiness is so far re-established in health that on several of the bright, dry, exhilarating days we have been enjoying lately he has been able to take carriage exercise in the Vatican gardens. These outings are timed for midday, when the warmth is greatest, and have included a visit to the Tower of Leo IV and to that stretch of the gardens which is cultivated under His Holiness' direction.—*London Lancet*.

ON SOME DIFFICULTIES IN REFERENCE TO THE EARLY SURGICAL TREATMENT OF APPENDICITIS.

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Although discussions upon appendicitis have been quite numerous lately, I hope there is no need to apologize for bringing this subject up again. In view of the immense importance and the great interest which attach to this disease, and also of the *many points still entirely obscure and unsettled* in connection with it, and last, but not least, the continued existence of so many skeptics as to the prevalence of the affection as well as to the importance of its surgical treatment, it can not at present be discussed too frequently.

While it is true, that the surgical technique of the operation for appendicitis has reached, especially through the efforts of surgeons of this country, a state of perfection hardly to be excelled, it is to be regretted on the other hand that, as to the affection itself, particularly as to its etiology, diagnosis and prognosis, a vast number of errors still prevail. This deplorable fact appears to me to be the more important in that recently even the general press has taken a great and most unpleasant interest in this particular *locus minoris resistentiæ* of our medical knowledge. Thus an obstruction policy is raised against timely surgical interference, which doubtless handicaps the treatment of a great many cases.

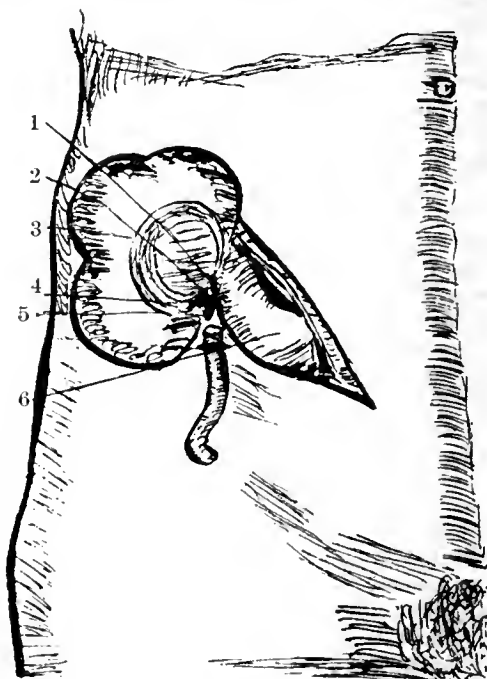
As stated before, the technical part of the question before us has reached a state of most gratifying perfection. As soon as the abdominal cavity is opened, the further surgical strategy is, as a rule, clearly outlined.

If the operation is done for relapsing appendicitis, if, in other words, a simple appendicectomy is to be performed, no difficulty is encountered. Under the auspices of thorough asepsis, in fact, the prognosis is most excellent. The incision, at least four inches in length, should be made parallel with Poupart's ligament and with its center opposite the spina anterior superior ossis ilei. In this way enough space is secured to allow complete and safe work. The section of the musculus obliquus externus and of the aponeurosis should be made to correspond, care being taken by using blunt instruments (handle of scalpel, of closed Cooper's scissors) not to cut any fibers crosswise. If the parts, thus separated, are well readjusted after the operation, perfect union will take place. Thus formation of abdominal hernia will best be prevented. Care should naturally be taken to use the same blunt instruments for separating the fibers of the musculus obliquus internus and transversus, the direction of which is somewhat oblique to those of the musculus obliquus externus.

After the peritoneum is divided and the caput coli pulled out, the appendix is easily brought to view and removed. Care should always be taken to ligate the mesenterium of the appendix in several portions, before the latter is severed. Having carried out this precaution a reliable assistant presses the appendicular region of the cecum firmly together in order to prevent any outflowing of the intestinal contents, while with the scissors the appendix is snipped off very close to the cecum. Previous to the

separation, however, if palpation has shown the presence of fecal matter within the appendix itself, it is my custom to prevent its escape by surrounding the appendix with a ligature close down to the point of the intended division. (See illustration.) In case of insufficient assistance it is advisable to put a prophylactic suture around the base of the appendix between the point of the intended division and the cecum. This can be removed after the small opening is closed. The closing is effected by two to three Lembert's sutures of thinnest silk, inserted through the serosa. Perfect approximation is facilitated by stripping the musculo-serous coat somewhat backward to the cecum, just as the skin flap is retracted in a circular amputation, and cutting off the protruding mucous coat.

A small amount of iodoform powder is dusted into the inner surface of the stump, but the wound itself must not be brought into contact with any antiseptic substance. Silk is chosen for the peritoneal work, as



APPENDICECTOMY.

1, 2, Prophylactic ligature. 3, Cecum. 4, Stump. 5, Protruding mucosa ligature. 6, Lower portion of ileum.

well as for that of the abdominal wall, on account of its antiseptic reliability, which, in my mind, outweighs the otherwise considerable advantage of catgut.

The same principles hold good when extensive adhesions are found. These are divided. To gain more ground for safe work it will be sometimes advisable to add a second incision, rectangular to the first and running from its center toward the spina anterior superior ossis ilei. It is to be understood that union by first intention is striven at just as in a case of ordinary appendicectomy.

But an entirely different plan of treatment must be pursued if the inflammatory process has been followed by the formation of an abscess. Most fortunately, protecting adhesions are established in the great majority of such cases, creating a real empyema. (I would propose to call this pyo-appendix, in analogy to pyothorax, pyosalpinx, etc.) As this is practically an extraperitoneal abscess, it gives a most excellent

prognosis, as a rule, and is not to be compared in significance with that of a pus accumulation in the free peritoneal cavity.

The incision through the abdominal wall in such cases should be the same as described above. Then, after the peritoneum is reached, a grooved director is introduced in the direction of the abscess. As soon as pus appears in the groove of the instrument, a small Péan forceps is pushed in alongside the groove of the director. After the opening is gradually dilated, the cavity is exposed by holding back the tissues with blunt retractors. If the appendix is now found lying free in the cavity, its removal is a matter of course. The whole cavity is then packed loosely with iodoform gauze, which is then protected by a large layer of mossboard.

When, however, the appendix is gangrenous and is surrounded by strong adhesions, having become, in fact, a portion of the walls of the pus cavity, thereby shutting off the latter from the great peritoneal sac, the danger of its immediate removal would be very great. It is a well-adopted surgical principle to remove gangrenous tissue, wherever it may be, without delay. But like many other axioms this has to be taken *cum grano salis*. The punctum saliens will be here, whether the price paid for the removal of such an appendix is not too high. While it would certainly be desirable to see such a dangerous element eliminated, the breaking-up of the protecting walls would certainly entail the greatest possible risk of infecting the whole peritoneal cavity. Great is the difficulty of determining a border line between radical and conservative indications in such cases, and it will frequently be left solely to the surgical instinct whether the appendix should be hunted for and removed or not. The more radically disposed surgeon, eager to avoid possible recurrence, tries to get hold of the appendix, cost what it may. The conservative surgeon, eager to avoid infection of the general cavity by risky manipulations, is apt to satisfy himself too easily by simple evacuation of the liquid contents of the cavity, thereby assuming the risk of overlooking a second pus accumulation. It is deplorable that, so far, it has been found impossible to lay down a golden rule for the guidance of the surgeon at this herculean crossway.

If the gangrenous appendix is not removed, it should be carefully surrounded by iodoform gauze, in the expectation that it can be removed a few days later. Beside packing the cavity with iodoform gauze it is advisable to pour in about a tablespoonful of a 10 per cent. mixture of iodoform-glycerin.

If appendicitis has ceased to be a local infection and a general peritonitis is fully established, the surgeon is at a loss in the far greater majority of cases. Much, however, can sometimes be done by careful and extensive examination of the peritoneal cavity, the finger or grooved director being valuable diagnostic means. Such explorations, done if possible under anesthesia, frequently disclose conditions, which by superficial examination were not discovered, such as secondary abscesses between the loops of the intestine, etc. Here the treatment should be to thoroughly evacuate the abscess, wash out the peritoneal cavity with a hot saline solution, carefully wipe off the fibrinous exudations, and introduce iodoform gauze—preferably wicks, on account of their greater absorbent power—or small drainage tubes surrounded by iodoform gauze, as advised by

Miculicz. Such procedures will once in a while, even in bad cases, meet with astonishing success. Clinical experience has shown that recovery has taken place even when the surgeon proceeded to the operation without a spark of hope, where, for instance, the pulse was not perceptible. Vice versa, however, cases have ended fatally where the prospects were comparatively good. It is no doubt depressing for a surgeon to proceed to heroic manipulations under such circumstances. But it should not be lost sight of, that a patient suffering from general purulent peritonitis has, indeed, nothing to lose: he should therefore be operated upon at all hazard. The permission of the patient can be obtained almost always on account of his great suffering and his cognizance of the unfavorable outcome of treatment by internal



ABDOMINAL SCAR TWO WEEKS AFTER APPENDICECTOMY.

medication. It has been my experience that the trouble in getting the permission in such cases comes from the attending physician and not from the patient or his friends. Consultation and consideration usually consume most valuable time.

Extensive exposure of the peritoneal cavity enables the surgeon to evacuate the pus from pockets and crevices of the abdominal cavity and destroy adhesions which form the walls of small abscesses. These adhesions are generally the outcome of a previous inflammatory process, and often form a great impediment to the thorough evacuation of the pus. A thorough disinfection of the abdominal cavity is still a desideratum, but if at least a large quantity of infectious material is removed the degree of the toxic influence is considerably reduced. By thorough

evacuation also the intra-abdominal pressure is necessarily lessened, so that the respiration, as a rule, becomes much freer.

How much such heroic procedures as alluded to above can sometimes achieve, may be illustrated by a case of my own, the history of which I beg to submit (Compare Beck, "Tubercular and Suppurative Peritonitis," *New York Medical Journal*, April 21, 1894.):

Jacob W., aged 7 years, who had always been in good health before, was suddenly taken sick with chills and sharp pains in the region of the umbilicus. Vomiting set in a few hours later. Dr. Sandberg of this city, who was called in, administered laxatives and also washed out the stomach and bowels without effect; he was accordingly led to suspect ileus from intestinal obstruction and advised immediate laparotomy. When I saw the patient on the evening of May 17, 1893, I found a strong, well-nourished boy, showing the typical facies Hippocratica. The weak pulse was 131, temperature 101, and the respiration 32. The abdomen was tympanitic and very painful to the touch. Resistance or particular tenderness at the right iliac fossa was not present. After thorough aseptic preparations at the house of the patient, an incision, 5 inches in length, was made in the manner described above. About three tablespoonfuls of gray malodorous pus were discharged. The intestines were found glued together by fibrinous adhesions to the extent of about half of the peritoneal cavity. They were of a dark red color and could be brought to view only after a cross incision, rectangular to the original one, reaching nearly as far as the umbilicus, was added. Above the synchondrosis sacroiliaca dextra a second pus cavity was found and evacuated. By hunting for the appendix the cecum was found tightly adherent to the synchondrosis sacroiliaca dextra, from which I was afraid to separate it. It can safely be said, that fully two yards of the small intestine, covered with fibrin and purulent exudation, were carefully pulled out, washed with sterile water, and wiped with peroxide of hydrogen. Iodoform powder was dusted over all the portions of the intestine, which had been covered with exudations. The edges of the cross-incision only were united. One loop, about twelve inches in length, was kept outside the abdominal cavity, as it had a dark blue tint, which gave a suspicion of possible ensuing gangrene. It was enveloped in iodoform gauze and the fossa iliaca dextra was also packed well with the same material and the whole was protected by a large moss-dressing.

After the patient had rallied from the shock, his condition became quite satisfactory, until, five days later, pain as well as a considerable elevation of temperature induced me to examine the cavity closely by introducing my index finger, whereupon a retention of pus was discovered in the lumbar region. A counter-incision was made at once above the crista ossis ilei and a large drainage tube, surrounded by iodoform gauze, introduced. Great improvement followed this procedure. It was not ten days before I replaced the enveloped portion of the intestine. At the same time I again tried to find the appendix but in vain, and as the patient made rapid and satisfactory improvement, no further attempts were made to improve it.

Three weeks after the first operation the patient was seized with sharp pains in the region of the bladder; frequent micturition troubled him and his general condition became considerably impaired. No retention of pus could be detected, nor did examination through the rectum and the urine reveal anything in particular. The patient gradually became weaker, had incontinence of feces and several attacks of syncope. After I had conquered a good deal of opposition, the patient submitted to another operation. By pushing the index finger toward the bladder, adhesions were destroyed which had formed the walls of a cavity, extending from the posterior wall of the bladder to the rectum. Two tablespoonfuls of creamy pus were discharged. Forcing my index finger as far as possible toward the opposite side, I succeeded in incising on its tip, so that a drainage tube, nearly one foot in length could be pulled through. Great improvement followed this time also, and two weeks after a portion of the drainage tube was pulled out. This "post-vesical cavity" was now drained from the right side only, so that the counter-opening on the left side became obliterated. Contrary to my instructions the patient was allowed to get up and was taken sick again with chills and convulsions, the source of the trouble this time again being furnished by retention of pus in the same post-vesical

cavity. Drainage was again established as before, from the right to the left side. When the symptoms had subsided, the drainage tube was pulled out from the left side and the old right opening was allowed to obliterate. Two weeks later the drain was removed entirely and iodoform wicks substituted for another week, after which recovery became perfect. In the right iliac region a large ventral hernia is left, doubtless due to the weakening of the abdominal wall by the long continued drainage. As it does not disturb the patient, it is difficult to persuade him to submit to a secondary operation.

In this case the dangers arising from repeated pus retention were readily counteracted by energetic interference. So fortunate an outcome, however, must be regarded as an exception. Though we are well-nigh letter-perfect in the technique of operative treatment of appendicitis, we are deplorably ignorant of its etiology. If we accept Chauffard's dictum: "*Toute la thérapeutique est dans l'étiologie*," such ignorance may furnish the explanation of the uncertain therapeutic measures which are still adopted by many physicians at the early stage of the disease.

It is customary to say that the prognosis of the disease depends upon its toxic agent, but this is a rather defective explanation. Appendicitis may have its starting point in a simple inflammation of the mucous membrane of the cecum near the ilio-cecal valve. Such catarrhal process might easily extend into the appendix, and even though giving rise to no immediate symptoms might, nevertheless, produce a stricture of its lumen that would lead to retention, or it may even obliterate a part of the appendix (appendicitis obliterans). Even during such slight inflammation the patient is always exposed to the danger of peritonitis, be it caused by perforation or not. The protecting epithelium of the mucous membrane of the appendix might also become displaced or eroded, so that bacteria can easily invade the rich layer of adenoid tissue beneath, finding there most favorable conditions for their development. As the bacillus coli communis has its permanent domicile in this part of the bowels, and as it very frequently is found in pus cavities in or around the appendix, it was at first thought to be responsible for the trouble. But other microorganisms are also found in company with the bacillus coli communis, particularly the streptococcus. Welch advanced the theory, that it is the companionship of these two microbes which excites inflammation in this connection, and that the fact that the streptococci were not found should not be considered a sufficient proof of their absence. The colonies of the bacillus coli communis grow so much more rapidly and extensively than those of the streptococcus, that the much smaller ones of the latter may be completely overshadowed. But as both microbes exist in the intestines of every individual, certain conditions, still unknown to us, must arise in order to give these elements a chance to exert their infectious influence. Do such conditions exist in changes of the mucous membrane as alluded to above or in circulatory disturbances, caused by the curved and angular shapes of the appendix, by an insufficient supply of blood or by encysted fecal matter, particularly if previous catarrhal inflammation has left a stricture? Regarding foreign bodies as an etiologic factor, I must say that in about one hundred and fifty cases of appendicitis operated upon in my own practice, I have been able only once to discover one seed. For the last few years I have taken particular pains to search for the appendix in all my other cases of laparotomy, and have repeatedly found hard

masses, probably fecal matter, in the lumen appendicis in individuals who had never up to that time and have never since shown any symptoms of appendicitis. Slight pressure sufficed to press such contents out into the cecum. I have frequently asked myself in such cases, whether it were not my surgical duty to remove the appendix, but up to date I have not been able to convince myself of the necessity of such a radical step. Such observations, however, have led me to believe, that despite the absence of a circular muscular layer, circulation of fecal matter in the appendix is possible.

In considering the microbiotic theory of the causation of appendicitis we must also not overlook the fact that the micrococcus lanceolatus (Fraenkel), the bacillus pyogenes fetidus and other microorganisms are also found in the pus formations. Furthermore, in reference to the much-discussed bacillus coli communis, it must also be borne in mind, that according to the experiments of Kiessling (Hygienische Rundschau. Bd. 3, p. 724), what is usually called bacillus coli communis does not represent a single bacterial species, but that a great many intestinal bacteria are grouped under this head, which, though alike in several respects, differ distinctly in others. Apropos of the whole germ theory of disease, it will doubtless puzzle us for a long time to name the conditions under which the same streptococcus will set up a trifling tonsillitis in one case or a fatal meningitis or appendicitis in another. Nor will it be less difficult to explain why the same toxic elements in one case cause a circumscribed inflammatory process or a localized abscess, while in another they produce rapidly fatal septic infection. Undoubtedly there exist various forms of sepsis, which our defective means of diagnosis hinder us from differentiation. If we were cognizant of these conditions it might be possible to form a prognosis by bacteriologic test. During operation, of course, specimens can easily be obtained. Unfortunately, however, only a few microbes can be recognized by the microscope alone, so that no adequate conception either of the cause or of the amount of the sepsis can be formed. The great majority of microbes at present known can be made out only by bacteriologic examination, which has the disadvantage that the cultivation of most species consume so long a time as to be practically useless in this connection. Therefore, clinical experience, ocular inspection and the estimate of the general condition will more often furnish the grounds for prognosis as well as the indications for further surgical steps.

Difficult though it may be in many cases to determine the best course to pursue after we have opened the abdomen—how much more difficult is the decision before it has been done. Are the symptoms, so well known to us through the text-books, always sufficiently developed at an early stage; the stage which warrants success after surgical interference? The diagnosis of appendicitis is based upon the presence of acute abdominal pain, the suddenness of the attack, the tenderness and resistance at McBurney's point, the occurrence of nausea or vomiting together with more or less febrile disturbances. Increased temperature in itself is not a reliable symptom, but Madelung regards a marked difference in temperature between that of the mouth and that of the rectum in favor of the latter as peculiar to this disease.

But all the symptoms mentioned are at times

also found in other abdominal diseases. The surgeon's knife has frequently demonstrated the presence of appendicitis in cases in which a diagnosis has been made of psaos abscess of the abdominal wall, typhlitis, perityphlitis, paratyphlitis, salpingitis, oöphoritis, peritonitis, intestinal obstruction, typhoid fever, cholelithiasis, hepatic abscess, nephrolithiasis, and even of malaria, influenza or pneumonia. Very often the patient has reached the autopsy table before the error diagnosed has been discovered. The effect of these unfortunate mistakes has been to bring cases to the surgeon's notice at an earlier stage than formerly, and to throw upon him the responsibility of choosing between the danger of delay and the rashness of operating before the symptoms are sufficiently developed. Is it fair to expect that he will always choose aright? As explained above, he can not at that stage of the disease obtain sufficient knowledge of the toxic agent and of its significance and localization. Is it possible, for instance, to recognize a small ulceration in the appendix or to distinguish it from a so-called benign catarrhal process? There is, as a rule, not a single reliable symptom for differentiation. As soon as perforation has taken place the symptoms become violent enough to leave no doubt—but then the disease is no longer appendicitis but peritonitis.

It has always seemed to me, however, that the thing to be feared in cases of appendicitis is not as much the danger of perforation as the possibility of septic infection from the original seat of inflammation. If this be so, early operation would seem to offer the strongest, frequently the only chance of success. This would imply that the surgeon should operate even during the first twelve or twenty-four hours. A family physician holding this view might be disposed to urge immediate operation. But woe to the surgeon, if his expectations are not realized after the abdomen is opened. It has happened, that just he who urged most strongly, will be his most pitiless critic, shifting all responsibility upon his shoulders. If, on the other hand, the surgeon defers the operation until the symptoms become more manifest, any unfavorable result will subject him to the same ungrateful treatment. I have a vivid recollection of a 6-year-old boy who, after having swallowed a considerable number of orange seeds, was suddenly seized with sharp pains in the right iliac fossa. Vomiting and slight convulsions set in shortly afterward. His temperature was 106 F., pulse 144 and respiration 42. Tenderness at McBurney's point being also discovered the family physician, quite naturally, made a diagnosis of appendicitis. The fact that the boy's abdomen had been jumped upon by a companion during play seemed to add further weight to this opinion. A well-known surgeon of this city was called in on the same day, but as he could not ascertain any marked resistance in the right iliac fossa, advised expectant treatment. The right leg of the patient, by the way, could be lifted without causing any pain. I had a chance to see the patient at the same time. A general examination of the patient gave me the impression of a pulmonary disturbance, the difference in the percussion note, however, being only slight. It was agreed to call in a specialist for lung diseases, who, upon examining the child on the following day, made the diagnosis of pleuro-pneumonia. [Three weeks later I resected a rib for pyothorax; recovery.]

This case is simply a sample of many of the cases in which a surgeon is called to operate for appendicitis where no appendicitis exists. They all serve to show that physicians have learned that procrastination in the surgical treatment of appendicitis is a dangerous thing. And yet, while in the case described above, a laparotomy, although in this connection an unfortunate procedure, would perhaps have been justifiable, in other cases a thorough general examination would have been sufficient to show the inadvisability of operation. It seems to be the opinion of some physicians that, if any trouble arises in the region of the right iliac fossa, no further testimony as to the existence of appendicitis is required. For instance, I was recently called by a most able brother to see a young woman who, six weeks after confinement, was supposed to have acquired appendicitis. There was acute pain in the right iliac fossa, distinct tenderness, vomiting, constipation and slight fever. If I had suggested an operation the family physician as well as the family would have consented at once. Examination of the sexual organs had previously been proposed by the physician, but the patient had stubbornly refused it. Having finally overcome these objections, however, we easily made out a salpingitis, undoubtedly due to the confinement.

In this connection let me say, that in operations for salpingitis I have repeatedly found the appendix participating in the inflammatory process, its end being sometimes soldered to the ovary. I have several times removed ovary, salpinx and appendix together, imbedded in a colloid mass. In such cases, which naturally were preceded by inflammation of long standing, particularly after confinement, the peritoneum was partially resected, as it was found considerably thickened. All these cases turned out well.

Considering all the points alluded to above, it is doubtful whether the time will ever come when it will be possible to make a rational prognosis of the course of appendicitis through its early symptoms, particularly as to whether the case will be one that will "heal spontaneously." This much, however, should be maintained, that appendicitis should not be looked upon as a medical disease up to the time that it has reached an "operative stage." It should not be left to the family physician to call in the surgeon when he wishes him to operate, thus putting the surgeon in a most undesirable position in relation to the case. It should not be left to the family physician to decide whether the operation is to take place at all or when; but the surgeon should bear the full responsibility from the very beginning. An illustration of the fairness of such demand may be furnished by the following case:

A man, 37 years old, a builder of this city, while on a vacation in the Alleghany mountains, had an attack of appendicitis, which was recognized as such by his physicians at an early date. Medical treatment was advised. As the patient himself was aware of the dangers of his disease and also of the advisability of early operation, he demanded a surgical consultation. His condition having improved two days after the onset of the disease, a report was sent to me by the physician, saying that the necessity for an operation had fortunately ceased, but if against all expectations my surgical assistance should be wanted a telegram would be sent me. On the following morning they summoned me to operate. After

having gone more than one hundred miles of my journey, I received a dispatch on the train telling me not to come, as operation was unnecessary. Thinking that the patient had succumbed to the delay, I returned. Two days later, to my great surprise, the patient appeared in my office, telling me that on account of his great improvement two days before, after he had had another severe attack, the physicians had persuaded him to keep surgical interference at a distance. This morning, although he had had another attack of violent pain and was feeling very weak and nauseated, he had made up his mind to risk leaving for New York, a journey of ten miles on mountainous roads and six hours' travel on the train. In examining him I found all the classical signs of appendicular abscess, particularly the pain and the presence of a tumor in the right iliac fossa. His temperature was normal, pulse 76 and respiration 29. He could only walk in a bent position. At the operation, which was performed on the following day, a gangrenous appendix was found, loosely attached to the hard walls of a cavity which contained a pint of yellow creamy pus. The wall of this cavity completely excluded it from the cavum peritonei. The opening left in the cecum after the removal of the appendix could be closed only with great difficulty. Two days after operation feces were found in the cavity, indicating the presence of a fecal fistula which, however, became obliterated two weeks later. With this exception recovery was uninterrupted.

In this case the diagnosis was made at the proper time and therefore immediate operation was indicated. The physician who advised procrastination may feel excused by the fact, stated by so many capable men, that a number of cases of appendicitis recover without operation and that the appendix was repeatedly found healthy when an operation for supposed appendicitis is performed. In reference to the first point, however, there is a doubt whether the diagnosis is covered in those cases of appendicitis which are said to heal spontaneously, and, furthermore, whether such recoveries are not temporary and whether the fortunate outcome at a time has not to be dearly paid for by a sudden perforation or spreading infection in a second attack.

In reference to erroneous surgical diagnoses it may safely be maintained that they can fairly compare with those made by the pillars of general medicine. The few surgical mistakes made in this connection are well offset by the numerous fatal cases of appendicitis, not recognized and consequently not operated upon, which, if they had been given the advantage of an early exploratory incision would probably have recovered.

Weighing all the numerous difficulties alluded to, I may summarize my conclusions in that, if there is any doubt as to the presence of appendicitis at an early stage, an unnecessary exploratory incision is by far the lesser evil.

Another Fatality Chargeable to Athletic Sports.—A press dispatch from Salem, Mass., states that a young man, aged 25 years, died Dec. 6 from the effects of being struck on the head by a polo ball at the Salem and Fall River game. He did not complain of the injury until after reaching home. Medical assistance was procured, but it was of no avail. Serious injuries to polo players are not infrequent by reason of falls and collisions, but fatal accidents are not so common as might be expected. We do not remember heretofore to have seen a reported death chargeable to a blow from a polo ball.

SOCIETY PROCEEDINGS.

Chicago Pathological Society.

Regular Meeting, Nov. 11, 1895.

WELLER VAN HOOK, M.D., President, in the chair.

D. W. GRAHAM, M.D., made a report of cases with specimens:

Case 1.—Hypertrophied Bladder, Kidney and Ureter.—Mr. A. F., 27 years old, entered the hospital Sept. 17 last, with extensive extravasation of urine invading the peritoneum, scrotum and penis and extending up over the pubes. This began four days before with spontaneous rupture of the urethra from strictures. There was already when the patient entered, profound septicemia, from which he died on the 19th, notwithstanding free incisions with drainage and external urethrotomy. The patient had a history of gonorrheal stricture of two years' duration with little or no treatment for the gonorrhea and no treatment for the stricture. A limited post-mortem examination was obtained. The right kidney and its ureter seemed normal in size and consistency. The left kidney is twice its normal size but there is no hydronephrosis. The ureter is dense and as thick as the little finger. The bladder walls are enormously thickened, averaging three-fourths of an inch, and the cavity can not be made to expand to more than one-fourth or one-third its normal capacity. The microscopical sections show the hypertrophied bladder wall to consist of muscular tissue.

The specimen is interesting as showing some of the remote results of gonorrheal urethritis when not treated, as well as the immediate consequences of untreated urethral stricture.

But it is particularly instructive as explaining what is generally called and treated as chronic cystitis or irritable bladder following stricture even when all the obstructive symptoms of stricture as such have disappeared. A patient with a contracted bladder cavity like this and hypertrophied bladder wall would necessarily have frequent micturition both night and day in spite of any and all kinds of drug or instrumental treatment.

Case 2.—Microscopic Specimen of Anatomic Tubercle.—It was excised from the middle knuckle of the hand of a medical student recently. It began while working in the dissecting room last winter. The section shows characteristic tubercular tissue, but tubercle bacilli have not been demonstrated. Anatomic tubercle is now universally recognized as a local tubercular infection of the skin and occurs in the form of a warty elevation, a softened thickening at intervals, or as a thickened erythematous patch. This specimen was of the latter form. When favorably situated they should be excised.

Case 3.—Chronic Bursitis. Popliteal Bursa Extending into the Leg.—The patient was a male 20 years old, large, robust and muscular. He was apparently free from all the constitutional diseases, such as tuberculosis, rheumatism and syphilis to which chronic bursitis is generally ascribed. There was only a slight suspicion of hereditary syphilis. He had been under my observation somewhat irregularly for two years complaining of pain and soreness on the inner side of the right leg and a limited disability in walking. During this period the patient was on antisyphilitic treatment part of the time because the pain seemed to be in the bone and periosteum and of possible hereditary origin. After an absence of several months he reported to me in May, last, with an oval fluctuating swelling situated midway between the knee and ankle, and between the inner border of the tibia and the muscles. Aspiration showed the sac to contain a synovial-like fluid. Later I extirpated the sac which I now exhibit, and which when removed, was as large as a goose egg. The intimate connection of the sac with the deep fascia and the periosteum seemed at first to point to some kind of a congenital cyst. It developed, however, that the upper end of the oval sac was continuous, by a tubular process as thick as a lead pencil, with the inner popliteal bursa. This tubular process was excised as high as the tuberosity of the tibia. By means of a probe and flushing with a syringe the flattened popliteal sac was found to cover the whole popliteal space and to extend upwards a considerable distance. Not having the consent of the patient and not being prepared for so important a procedure as opening the popliteal sac, with the idea of a more or less complete extirpation, in view of the fact that the sac probably communicated with the knee joint cavity, I deemed it prudent to make no further dissection. I swabbed the whole cavity freely with

full strength carbolic acid, inserted a drainage tube and maintained elastic compression. In a few days the patient went to work and the discharge of synovial fluid seemed to increase rather than diminish. I then injected an ounce of the full strength carbolic acid and maintained it in the sac as long as possible, corking the tube and putting the patient at rest for twenty-four hours. This was afterward repeated. After each treatment there would appear tenderness and effusion in the knee joint. This resulted in diminishing the discharge which also became thinner but it was still sufficient to saturate a heavy dressing twice a day. At this juncture (in July) the patient went to the old country and is now living in Vienna, Austria, where I learn he has since had some kind of an operation. I should add that the patient complained of nothing and I observed nothing previous to the operation which led me to suspect that there was any trouble with any of the popliteal bursæ or other strictures in that region.

My diagnosis is a chronic bursitis of the semimembranosus bursa possibly of tubercular origin although there were in the sac none of the "rice grain" or "melon seed" bodies usually found in such cases. The semimembranosus bursa is the largest of the natural bursæ. Of the four popliteal bursæ it is the one most frequently enlarged. In the adult it almost always communicates with the synovial sac of the joint as well as with one or more of the contiguous bursæ.

DISCUSSION.

DR. GUSTAV FÜTERER—The anatomic tubercle is a warty growth of an extremely chronic character. I have observed them on my own hands and on the hands of others in great numbers and for many years. Here, for instance, I can show you one near the tip of my index finger, on the volar side, one which needed more than ten years, to reach this spot from a place on the back of the finger, about an inch distant from whence it started. It will be noticed, that this tubercle has grown like most such tubercles, occurring near the end of fingers in a peripheral direction, and that it has left fine scars, representing the appearance of a net with very fine meshes.

In favor of the genuine tubercular nature of those formations, I would say, that quite a number of investigators found tubercle bacilli enclosed in the tissues of the anatomic tubercle, that I have also seen them and furthermore, that I have seen tuberculosis of a hand-joint originate from anatomic tubercles of the skin, the latter almost covering the entire back of the hand. This was in the case of a man, who for years daily prepared a number of cadavers for my work. A resection had to be performed. The tubercular granulations of the anatomic tubercle share another peculiarity with other tubercular granulations, and that is their fragility.

Excision is not the only proper method for removing those tubercles. I have had between thirty and forty of them on my hands and have successfully removed a number of them with the aid of muriatic acid, while the larger ones were successfully treated by Professor Schoenborn of Würzburg in the following way: Schoenborn dipped a sharp but short-pointed glass rod into a 95 per cent. solution of carbolic acid, then piercing the tubercle with it and repeating this five or six times at a sitting. This procedure was very painful, but it caused the tubercles to shrink and after several treatments removed them entirely. It was just then, I had occasion to observe the fragility of the granulations, for, while the point of the glass rod at first in the upper layers would find a strong resistance, later overcoming this, it would rush right through the granulations, down to the bone.

DR. D. D. BISHOP—The anatomic tubercle was examined for tubercle bacilli, but only a limited number of sections were prepared, and, of course, the fact that the tubercle bacilli were not found would only indicate to us the fact that we probably did not search long enough, because the bacilli are known to be frequent in this variety of tubercle.

LUDVIG HEKTOEN, M.D., read an abstract of a paper on THE VASCULAR CHANGES IN TUBERCULOUS MENINGITIS—ESPECIALLY THE TUBERCULOUS ENDARTERITIS.

The genesis of tuberculous meningitis presents a great many points of interest. Thus, for instance, the frequent, almost exclusive, localization of this process about the arteries of the pia mater, particularly those in the sylvian fissure; the question of the mode of importation of the bacilli into the brain; the presence of a mixed infection or not—these are all subjects of interest.

Already in 1872, Buhl characterized general miliary tuberculosis, in which tuberculous meningitis often occurs, as a

resorption and infection disease, likening the miliary tubercles to the metastatic abscess in pyemia; and Huguenin, in 1878, came to the conclusion that tuberculous meningitis was due to embolism into the meninges of some product produced in the older tuberculous foci which are nearly always found in the bodies of those who die from tuberculous meningitis. Koch's discovery of the tubercle bacillus, and Weigert's demonstration of the way in which tuberculous foci may break into the veins, by changing the vein walls into granulation tissue, and thus flood the circulating blood with bacilli, furnished the direct evidence of what was thought to be the case.

At the present time the majority of authors regard the infection in tuberculous meningitis as occurring through the blood. There are only one or two exceptions to this statement. Thus for instance, Babes thinks that in certain instances of tuberculous meningitis, particularly those secondary to tuberculosis of the peri-bronchial glands, the bacilli may be carried into the meninges along the deep lymphatics of the neck, by a retrograde import, and Hübner assumes the same route in a case described by him. Then Demme and Coates have both described cases of tuberculous meningitis which may have been due to infection through the nose. There seems, however, to be no question but that in the vast majority, if not in all, of the cases of tuberculosis, the bacilli reach the brain through the circulating blood, and that meningitis is secondary to some tuberculous focus in some place in the body. A bona fide instance of so-called primary tuberculous meningitis does not seem to have been described. And yet there is really no reason why a real primary tuberculous meningitis might not originate when we take into consideration the fact, for instance, that Strauss examined twenty-seven healthy persons and in nine of these he found tubercle bacilli present on the mucous lining of the nose. There is no reason why tubercle bacilli from the nose might not be carried directly into the brain by means of the lymphatics, and give rise to a tuberculous meningitis, precisely in the same way in which many forms of non-metastatic, suppurative meningitis are assumed to originate. And then tuberculous bacilli have been found in the ear, and they might easily gain entrance into the meninges from that place. These are only suggestions showing that a real primary tuberculous meningitis is not entirely impossible. Now the opinion being so prevalent and universal that tuberculous meningitis is always of a hematogenous nature, the location of the tubercles in the vicinity of the vessels and the close connection with the vessels have been looked upon as sort of matters of course. If we study the literature we find that the majority of the writers do not seem to have investigated this question very closely. The exact relation of the vascular changes to localization have not been so very thoroughly investigated; we find for instance, that Rindfleisch, Zeigler, Birch-Hirschfeld, Lancereaux, Baumgarten and Guarnieri, and a number of others, all regard the localization of the bacilli as occurring almost always if not exclusively in the adventitia of the arteries, and from the adventitia the outer walls may be involved.

In connection with this primary tuberculous periarteritis, there has been described, particularly by Guarnieri, but also by Baumgarten and others, an endarteritis, which has been regarded as secondary, either due to direct extension through the walls of the periarteritis, or produced in a rather indefinite way, somewhat in the same manner as chronic inflammatory processes in the vicinity of the arteries in various tissues appear to cause a proliferation in the intima, as witness the case described by Weintraud. Then there are others, such as Huguenin, Huettenbrenner, Cornil and Hirschberg, who have observed a tuberculous endarteritis in tuberculous meningitis which they regard as primarily due to the direct implantation of the bacilli upon the intima of the arteries and to which many of the other lesions in the meninges are secondary.

Now with this brief review of the literature before us, it is in order to summarily describe the cases which were examined in Prof. Chiari's Institute in Prague. Nine cases of tuberculous meningitis were studied; the technique of the examination was the ordinary histologic. The only particular point to be called attention to was the fact that pieces of arteries, both large and small, were examined by means of serial sections. It was found that only in this way could one gain a clear idea with reference to the mutual relations of periarterial and endarterial foci. The bacteriologic examination was made by inoculating glycerin agar plates with the exudate at the time of the post-mortem. In only one of the nine cases did there seem to be a mixed infection due to the staphylococcus pyogenes albus, but as shown by the histologic examination this staphylococcus did not seem to have in-

fluenced the changes much. The ordinary lesions characteristic of tuberculous meningitis were found. In three out of five instances in which cultures were left under suitable conditions for the development of tubercle bacilli growths of tubercle bacilli were obtained. In a majority of the cases, it was possible to demonstrate bacilli in cover glasses made from the fluid exudate. This shows that the diagnostic measure of puncturing the spinal canal in certain obscure intracranial lesions may be of value because it may be possible to demonstrate tubercle bacilli that may be present in the cerebro-spinal fluid. In two instances rabbits were inoculated with the exudate and developed tuberculosis. In addition to examining the fluid in the meninges, bacteriologic examination was also made of the nose in some of the cases. In these cases this examination was also limited practically to a search for tubercle bacilli. In two out of five cases that could be examined in this way tubercle bacilli were found in small numbers. Inasmuch as these cases were instances of multiple chronic foci of tuberculosis, the exact significance or source of the bacilli found in the nose can not be stated. Gradenigo examined the contents of the internal ear and of the pharynx, and also the nerves that pass through the ear, and in a number of instances of tuberculous meningitis he found tubercle bacilli in these places, and he regarded these bacilli as passing out from the cranial cavity along these routes.

Concerning the arterial changes, it may be said that in addition to the ordinary extra-vascular lesions, which are familiar to all, it was possible in all the cases to demonstrate changes in the intima of the smaller of medium-sized arteries that have to be regarded as primary and as due to the direct implantation of tubercle bacilli into the intima. The lesions that result from such implantation take two forms that are frequently combined but often singly present. There may be a diffuse tuberculous endarteritis, consisting of a proliferation of epithelioid cells located underneath the endothelium, between the latter and the elastic lamina. In addition to this diffuse tuberculous subendothelial proliferation, which sometimes exists to such a degree as to close practically the entire lumen of the artery, there were also found isolated miliary tubercles upon the intima. In some instances giant cells were found in the diffuse tuberculous proliferation just mentioned, but without such an arrangement of the surrounding cells that the appearances could be characterized as a typical tubercle. The more typical internal tubercles, however, did not present any special variations from ordinary tuberculosis. When caseation was present in the intimal tubercles the endothelium over the tubercle would be absent. In many preparations, including pieces of arteries in which there were no other changes except those located in the intima, it was possible to trace the process in its progression outward. The cell proliferation penetrated and split up the elastic layer and infiltrated itself into the media. In some instances the ends of the elastic layer were bent outward and the media had become so much weakened that a slight bulging in the artery was produced, so that there were appearances that could be likened to small aneurisms. In addition to these intimal changes that leave no other interpretation regarding their origin open except that they are due to implantation of tubercle bacilli upon the intima, there are more diffuse changes which in many cases must be regarded as having proceeded from periarterial foci; on the other hand it may be concluded that at times they had proceeded from the endarterial lesions. Tubercle bacilli were found in small numbers in the intimal lesions and frequently in immense numbers in the adventitial foci and in the walls of diffusely changed arterial segments. Regarding the veins in tuberculous meningitis, the following broad statement can be made, viz.: That in every instance there is a marked, diffuse and extensive phlebitis, with giant cells and granulation tissue growing out into the lumen of the vein and causing there a parietal or, often, obliterating thrombosis.

Experimental tuberculous meningitis has been produced by Deutschmann and Darenberg, and more particularly by Tedeschi. The latter worker experimented with a large number of various kinds of animals, particularly rabbits, dogs and guinea pigs, and was able to produce a diffuse meningitis, usually accompanied by changes in the cord and brain. But, inasmuch as no one seemed to have attempted to produce a tuberculous meningitis by means of direct injection of tubercle bacilli into the arteries, the following experiments were made:

A suspension of tubercle bacilli in bouillon or in sterilized water was injected directly into the carotid artery of a rabbit and so far as the experiments have gone—they are not as

yet concluded—it has been found that a meningeal miliary tuberculosis can readily be produced in the rabbit by this method. On the other hand it has not been possible thus far to produce a typical meningitis in rabbits. The lesion in rabbits simply takes the form of a miliary tuberculosis, without the exudate which is characteristic of tuberculous meningitis in man. In the specimens which have been examined from rabbits the lesions have all been so large, that the exact relations of the process to the various layers in the arterial wall have not been demonstrable. The lesions have been found in close connection with the arteries. The arteries have usually been entirely obliterated by granulation tissue, but caseation had proceeded so far that the exact relation of the endothelial lining to the process could not be determined.

The changes observed in the arteries in tuberculous meningitis may be summarized as follows: There is found a primary tuberculous endarteritis which is due to a proliferation of epithelioid cells underneath the endothelium, between the endothelium and the elastic layer; this proliferation may extend to such a degree as to practically obliterate the vessel. As it becomes advanced, leucocytes appear among the epithelioid cells, but in the early stages it consists of pure epithelioid cells, that is, cells with rather large bodies and small nuclei. In addition to this primary tuberculous endarteritis there may be limited intimal tubercles. These may be present singly or they may be present in conjunction with the diffuse endarteritis. These intimal changes may proceed outward and invade the remaining coats of the vessels, and having reached the adventitia, the process may be spread throughout the meninges by means of the cerebro-spinal fluid and the lymphatics.

In addition to these changes we can trace from within, there are, of course, the better known and more extensive ordinary extra-arterial or adventitial changes, which may proceed inward and invade all the coats of the artery, and produce also changes in the intima. The changes in the intima produced in this way, however, are not so extensive nor so well marked as the primary intimal changes to which your more particular attention is directed.

There remains to consider the origin of the epithelioid cells found in this sub-intimal proliferation in tuberculous meningitis. The authors, especially Baumgarten, as well as Brodouski, Guarnieri, Cornil and Hirschberg, that have observed these changes and described them more or less fully, trace the epithelioid cells to the endothelium, and maintain that they are produced by the proliferation of the endothelial cells lining the vessel. Baumgarten, in his classic work on histology of tubercle, maintains with reference to tubercles growing in the intima of the pulmonary arteries as well as elsewhere, that they are produced by proliferation of the endothelial cells.

It will be observed that the appearances in the specimens presented are in direct opposition to these views of Baumgarten and others, because the specimens show the endothelium to remain intact and unchanged until caseation has commenced in the intimal tubercles, and then the endothelium is absent. The shape alone of the epithelioid cells described does not allow any inference as regards their origin, but the fact that the endothelial lining remains absolutely undisturbed in the shape of a single layer covering the cells of the proliferation, seems to be a very strong argument against the theory that the epithelioid cells originated from the endothelium, because if the endothelium should proliferate, if, for instance, one single endothelial cell should divide it would result in the displacement of the cell with regard to its relation to the other cells constituting the endothelial lining of the vessel. On the contrary, the endothelium remains not only passive, but even resistant to the process, because it is present even when the endarterial proliferation has reached such a degree as to bring the endothelial lining in contact in the central part of the vessel, as you will see in the specimens under the microscope. Consequently the conclusion seems justifiable that the sub-endothelial proliferation of epithelioid cells that occurs in the tuberculous endarteritis of tuberculous meningitis does not come from the cells of the endothelial lining of the arteries, but more likely from the subendothelial connective tissue, which is present in such arteries, into which the tubercle bacilli, circulating in the blood, are forced, the bacilli passing between the endothelial cells which remain resistant to their influence until subendothelial caseation occurs.

DISCUSSION.

DR. J. B. HERRICK—Mr. President and Gentlemen of the Society—It was my privilege, through the kindness of Dr.

Hektoen, a few days ago to read in full the paper of which he has given this admirable abstract. After reading Dr. Hektoen's paper, and noting the details of the histologic examinations, and after studying his drawings and the beautiful microscopic preparations here presented to us, one is forced to believe that his conclusions are warranted, and that we may look upon it as an established fact that there may be a primary intimal tuberculosis, as well as a primary infection of the vessel wall through the adventitial lymph channels.

While Dr. Hektoen's paper is one of a purely histologic and pathologic character, it is not amiss, I think, to call attention to certain practical results that follow directly from the knowledge that his investigation gives us. In fact, we may say, in passing, that a purely scientific result, a result that is purely pathologic, histologic, or anatomic, is of very little positive value, unless something practical can be derived from the knowledge thus acquired, unless the result obtained helps us the better to understand the phenomena of health or of disease, or aids us in the rational treatment of bodily ailments.

There are certain cases of tubercular meningitis that are sometimes spoken of as cases of anomalous or abnormal meningitis. Hirschberg has collected the histories of these cases. (*Deutsches Archiv für Klin. Med.* xli. 528.) In this anomalous form of meningeal tuberculosis, the onset is sudden and with symptoms that may resemble very closely those of cerebral hemorrhage. The symptoms are focal. There may be a Jacksonian epilepsy, a hemiplegia, an aphasia, and the practitioner's attention is scarcely called to the possibility of meningeal tuberculosis until after the lapse of several days when ordinary symptoms of a meningitis appear. At the autopsy in these cases the amount of exudate may not be sufficient to explain the focal symptoms; nor are they explained by the presence of a large solitary tubercle, nor by ventricular exudate or by cerebral edema. But there is an area of cerebral softening, usually on the convexity. This softening is the direct result of the tuberculosis of the wall of some of the cerebral arteries. The tubercular mass may bulge into the lumen of the artery and occlude it; or a thrombus may form at the constricted portion, the result in either case being a cerebral softening that may, in case the vessel is of sufficient size and without anastomosing branches, produce marked focal symptoms. The process in this case would be a simple encephalomalacia.

In a second group of cases this softened mass in the encephalon is itself tuberculous—tuberculous encephalitis. And when we think that between the tuberculous mass in the wall of the artery and the lumen of the artery, there is in so many cases but the thin barrier of the layer of endothelial cells, it is a cause of wonder that oftener the mass does not break through the endothelial lining, in this way liberate into the blood current the bacilli, and flood the little area of the brain that is supplied by that artery, thus producing a localized tubercular encephalitis.

In a third group of cases, the focal lesion may be a softening, the result of arterial occlusion through endarteritis obliterans, induced by a neighboring subacute or latent tubercular process. This origin of obliterating endarteritis is in accordance with the investigations of Friedländer. Weintraud, to whom Dr. Hektoen refers, reports a case of this kind. A localized unilateral hyperesthesia and a monoplegia preceded for some days the onset of recognizable symptoms of tubercular meningitis of the meninges, and in its immediate vicinity an artery with marked endarteritis obliterans—no tubercle bacilli, no giant cells, but abundant young fibrous tissue—thrombosis, and resulting encephalomalacia.

In cases, therefore, in which we can exclude a valvular disease, which practically excludes embolism; in cases where we can exclude an abscess or tumor of the brain; in young persons the walls of whose arteries seem to be perfectly healthy and not predisposed to hemorrhage, and particularly in a young person in whom we find some tubercular focus in lung, gland, or bone, we should always remember that a sudden seizure with hemiplegia, a monoplegia, a Jacksonian epilepsy, an aphasia, or some local sensory disturbance, in other words, a suddenly developing focal symptom, may be the initial symptom of a case that will later run the course of an ordinary tuberculous meningitis.

DR. GUSTAV FÜTTERER—Dr. Hektoen's paper is an excellent one and the microscopical specimens which he showed, proved conclusively every assertion made in his paper in all its details. The fact that Dr. Hektoen has made his examinations of the blood vessels of the pia mater in continuous series, gives him a valuable advantage, enabling him to form precise ideas on each tubercular change itself

and on its relations to other tubercular changes surrounding it; that means here especially the relationship between the tubercular new formations in the tunica intima, the tunica media, and the perivascular sheath. Dr. Hektoen's opinion, that the miliary tubercle of the intima does not originate from the endothelial cells, but rather from the subendothelial layers, seems to be well founded and after examining his specimens, I rather believe, that in the near future, he will be able to furnish sufficient proof of this, because these blood vessels are the best material for such examinations, as the lamina elastica cannot furnish the material for the miliary tubercle and only the endothelial cells and the subendothelial layers have to be considered.

Dr. Hektoen has shown that the tubercle of the intima can be found in the majority of cases of tubercular meningitis and necessarily further anatomic and clinic inferences must be drawn from this. Those tubercles—if located in smaller vessels, may cause obstructions, which, when present in arteries, will bring about an anemia of the parts which they supply, or if located in veins, a venous stasis will be followed by an atrophy, while a breaking down of those tubercles would cause a general miliary tuberculosis as Weigert has described it in similar changes of the veins of the lungs.

As Dr. Hektoen intended to deal with the endovasculitis and mesovasculitis, I will take the liberty to say a few words about the tubercular changes of the perivascular sheath, which are predominant in all cases of tubercular meningitis and deserve our due consideration. A cross section of a blood vessel of the pia mater shows us a tube in a tube, the inner tube consisting of intima and media, the outer of adventitia and the space between both representing the lymphatic space. The miliary tubercles are located on the outside of the perivascular sheath like beads around a ring; this is the case in the pia mater, where no resistance is offered to the growth of the tubercles in a peripheral direction. Consequently, those will neither press on the perivascular lymph spaces, nor on the blood vessel itself, but we see their cells proliferate into the lymphatic space and infect the media, thus causing a mesovasculitis, which is of the highest clinic importance, as it causes a rigidity of the blood vessels, which prevents their full contraction and the proper propulsion of the blood current.

In the brain substance the above described process is about the same, but the tubercles find a much greater resistance by the compact mass surrounding them and they grow in the direction of the blood vessel, which they compress and which thus becomes involved in the tubercular process much sooner than the vessels of the pia mater. This involvement is then, as a rule, represented mainly by a mesoarteritis, or a mesophlebitis, while the lamina elastica forms a barrier against the infection from outside, even, as a specimen which I have with me will show you, until infiltration and pressure close the lumen of the vessel entirely. This latter fact, together with Dr. Hektoen's observation that the endothelial layer over the intima tubercle, remains intact, gives a further strong support for his opinion on the histogenesis of those tubercles.

I said before that the rigidity of the vessels is of great importance, but this importance varies, according to the seat of the process and I would propose to classify as follows:

1. If the diffuse process is located along some larger arteries, for instance, around the arteria fossae sylvii, a larger territory will be deprived of a part of its nutrition and anemia and atrophy may follow, as we find it in atheroma.
2. The affection of small vessels of the pia mater causes atrophy of the marrow substance of the nerves, which we find in the outer portions of the cortex and a diffuse lessening of the same substance in the deeper layers of the cortex and of the adjoining portions of the white substance.
3. If the vessels of the cortex are affected, the atrophies are comparatively small, on account of the rich blood supply of these parts, in which we find a dense net of small blood vessels, which has its smallest meshes wherever there are the most ganglion cells; so the ganglion cells are well supplied.
4. On entering the marrow or white substance of the brain, the meshes of the capillary net become much longer and wider and the poor blood supply in those parts is easily disturbed by the vascular process described, the more so, as a total obstruction of vessels comes about so easy.

Tuberculosis of the pia mater can heal. I have examined a case of Leube, in which he had made the diagnosis of a tubercular meningitis and to his surprise the patient recovered. Leube could not doubt his diagnosis. Two years later the patient died of a tubercular cerebral meningitis. I

then made a detailed examination which revealed old cicatrized miliary tubercles along the vessels of the pia mater spinalis, sprinkled with calcareous deposits, the latter showing that the tissues were dead. I have demonstrated those specimens in the Medico-physical Society at Würzburg and have published drawings of them in the year of 1890.

ASSOCIATION NEWS.

The Rush Monument Fund.

Received Oct. 5, from Dr. J. W. Russell . . . \$	1.00
Received Nov. 6, from Newark, N. J., Practitioner's Club (through Dr. J. D. Brumley)	12.00
Received Dec. 5, from Dr. J. B. Hamilton, Chicago . . .	43.00
Received Dec. 10, from Dr. J. L. Thompson, Indianapolis . . .	5.00
Received Dec. 14, from Dr. J. H. Kellogg, Battle Creek, Mich. . .	5.00
Received Dec. 19, from Rush Medical College, Chicago . . .	100.00
Received Dec. 20, Interest . . .	25.00
Previously reported . . .	3,357.39

Total . . . \$3,548.39

GEORGE H. ROHÉ,

Secretary and Treasurer Rush Monument Committee.
Baltimore, Dec. 21, 1895.

Amendment to the Constitution.

(Offered by Dr. H. Bert. Ellis, at the Baltimore meeting and by inadvertence omitted from the minutes.)

Amend Article II, page 7 to read as follows: Members by invitation shall consist of practitioners of reputable standing, not connected with affiliated societies. They shall receive their appointment by invitation, etc.

NECROLOGY.

WILLIAM COMPTON, of Lancaster, Penn., December 15, of pneumonia. He was born in 1825, at Cambridge, Lancaster County, was graduated from the Philadelphia Medical College in 1853. After serving as resident physician in one of the city hospitals, he went to Lancaster and began practice over fifty years ago, where he remained until his death. He was at various times physician to the county prison and almshouse, coroner's physician and one of the local physicians to the Pennsylvania Railroad Company. He had been president of the Lancaster County Medical Society and for many years was a member of the AMERICAN MEDICAL ASSOCIATION.

SAMUEL FLEET SPEIR, M. D., of Brooklyn, died December 19 aged 56 years, from hemorrhage of the stomach, probably due to a malignant growth affecting that organ and the liver. He was a native of Brooklyn, the son of Robert and Hannah Speir. On his mother's side he was a descendant of Captain Thomas Fleet, a retired Royal Navy officer, who settled on Long Island about 1660. Dr. Speir received his medical degree at the New York University in 1860, taking the Mott gold medal; also the Wood and Van Buren prizes. He was a thorough anatomist and for a time served as demonstrator at the Long Island College Hospital. He studied abroad, after graduating, giving special attention to surgical clinics. In 1864 he took the prize medal of the AMERICAN MEDICAL ASSOCIATION for an essay "On the Pathology of Jaundice." In 1871 he took the prize of the New York State Medical Society by an essay in which was described his device, called an artery-constrictor, for the arrest of surgical hemorrhage without the use of a ligature. In the same year he read a paper before the New York Academy of Medicine on the microscopic differentiation of morbid growths. He was physician to the Brooklyn Dispensary, curator, microscopist and surgeon to the Brooklyn Hospital, also surgeon to the Eye and Ear Infirmary. He was one of the originators of the Seaside Home for children and a benefactor of many charitable undertakings. He was a collector of exotics and other rare plants, and was a lover of fine dogs and Alderneys. His kennel of hunting dogs had many a prize-winner. He was a member of a number of medical and social clubs and societies, and the founder of one of the best of the sportsmen's seaside homes, known as the Robins' Island Club. He leaves a widow and one daughter.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

PER ANNUM, IN ADVANCE \$5.00
SINGLE COPIES 10 CENTS.

Subscriptions may begin at any time and be sent to

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SATURDAY, DECEMBER 28, 1895.

FILTRATION AS A MEANS OF IMPROVING THE
WATER SUPPLY OF CITIES AND TOWNS.

A long step in the settlement of this important question has been taken by the State Board of Health of Massachusetts. By the Legislative act of June 9, 1893, the State Board was directed to "investigate, consider and report upon the question of a water supply for the city of Boston and its suburbs within a radius of ten miles from the State House, and for such other cities and towns as in its opinion should be included therewith."¹ The result of the act, was the production of the exhaustive report of February 7, 1895.

In that report filtration of Merrimac water was considered as less desirable than to introduce a satisfactory water from another source. The report states (p. xv) "Examinations have also been made with the view of taking the water of the Merrimac River above Lowell, subjecting it to efficient filtration and bringing it down to the metropolitan district. The quantity of water that could be obtained in this way and for this purpose is unlimited; and if there were no way of obtaining a better supply of water and one which was above suspicion, it would be practicable to introduce water from that source at a cost somewhat less than from any other source considered.

"The estimated cost of filtering and conveying this water to the metropolitan district is \$17,500,000, but in the opinion of the Board it will be better to pay 10 per cent. more from a source that is not polluted. The experiments carried on by this Board for a succession of years at an experiment station in Lawrence under the immediate direction of H. F. Mills, C. E., a member of this Board, and the filter con-

structed in connection with the waterworks of that city, have shown that waters as polluted as those of the Merrimac can be effectually filtered and rendered safe for domestic use; but it is also true that filtering areas require continuous care on the part of trained attendants, and that in a few instances at least, inefficient administration or inherent defects of construction have allowed disease germs to pass through filters which were assumed, by good authority, to be a sufficient protection. We are the more easily led to reject the filtered waters of the Merrimac because we have found an entirely satisfactory water in the south branch of the Nashua River above the city of Clinton."

The report further states (p. 104): "The most feasible way of purifying a water like that of the Merrimac River is by filtering it through sand, a method which has been tested at the experiment station of the State Board of Health at Lawrence for many years, and has been in actual use for filtering the public water supply of this city for more than a year. At this place a sand filter was completed and put in operation in September, 1893. It has an area of two and one-half acres, and consists of a bed of sand about five feet thick, through which water is filtered at a rate not exceeding 2,000,000 gallons per acre per day. The sand was very carefully selected with a view to having its grains of such a size that they would remove from the water the germs of typhoid fever. The practical results obtained with this filter have been very satisfactory, indeed, as there has been a very great reduction in the death rate from typhoid fever and some other diseases in Lawrence since it was put in operation."

This system was devised by the Board in 1890, and was the result of "strenuous efforts to produce a filter that would remove all disease-producing germs that could be applied to it, and at the same time filter rapidly enough to serve for a city's water supply. Billions of typhoid germs were cultivated and applied to filters of different construction, and in 1891 we succeeded in removing all that were applied when filtering 2,000,000 gallons per acre daily."²

In the current annual report the Board practically concludes the subject by the details of its experiments extending over a period of seven years and including the results of more than thirty thousand bacteriologic analyses.³ After considering the subject of the filtration of sewage, the report continues the discussion of the great hygienic problem of purification of the sewage-polluted waters of the State by sand filtration. The statistics of the work of thirty experimental filters are given, in addition to those of the large filters at Lowell. For the sake of greater accuracy the report uses some new technical expressions which are self-explanatory:

¹ Report of the Massachusetts State Board of Health upon a Metropolitan Water Supply, Boston, 1895.

² Annual report Massachusetts State Board of Health, 1893, p. 546.

³ Annual report Massachusetts State Board of Health, 1894, pp. 675-710.

- a. Bacterial efficiency.
- b. Bacterial purification.
- c. Hygienic efficiency.

"The question of hygienic efficiency of filtration," says the report, "in a great majority of cases is the vital one to be considered." The subject is concluded by an interesting paper by Mr. H. W. CLARK on the physical and chemical properties of sands with special reference to the filtration of water, in which some of the facts that have been brought out by the long continued observation are reported.

As to intermittent and continuous filtration, the Board says, p. 653: "Intermittent filtration is successful in the chemical purification of all waters containing ordinary organic matter. Chemical purification by continuous filtration is successful only in the case of those waters which do not contain organic matter in excess of a certain limit determined by the relation of the organic matter to the free dissolved oxygen, which is limited in quantity by the saturation point." The Board, however, goes further than this (p. 645): "It may be stated that so far as the amount of ordinary organic matter and free oxygen are concerned, satisfactory bacterial results may be obtained under proper conditions from the intermittent filtration of any water even when its composition approaches that of sewage."

It is quite clear from an examination of the investigations of the Board that filtration under such conditions as those in operation at Lowell, is a hygienic measure of the highest importance, and it is not probable that in this country generally we shall ever attain the best results that applied hygiene can furnish until the rule is absolute, that all public water supplies shall be filtered. It seems, too, that the "bacterial efficiency" and "bacterial purification" of water filters increase with age (p. 597), a rather important fact in its bearings upon the economic value of a proper filtration plant.

To those municipal authorities engaged in the study of this question, we commend the careful examination of the 1894 report of the Massachusetts State Board of Health as the most exhaustive, thorough and complete report on the subject.

HEREDITY IN RELATION TO INSANITY AND IDIOCY.

The opinion that a neurotic inheritance is the chief predisposing cause to insanity is now very generally held. Some alienists are disposed to go even further, and declare that it is mainly to the original constitution of the brain that we must look for the first and chief cause of mental breakdown, the ordinarily assigned causes being none of them, in themselves, sufficient to bring on insanity. It can scarcely be called into question that what is called rather indefinitely "the neurotic inheritance" does render the

brain more liable to be affected by such proximate causes, and the belief is now general that, whether we can discover the fact of such inheritance by outward and visible sign or not, its existence and evil influence are indisputable. Indeed, the opinion has by a recent writer been rather dogmatically expressed in the statement that "the condition common to all mental disturbance is to be sought in inherited and inherent brain-defect." This is exclusive of the forms known as septic or toxic insanity and those instances of aberration of mind symptomatic of cerebral exhaustion, traumatism, and other pathologic lesions.

In view of the present etiologic importance assumed by this neurotic inheritance, or hereditary predisposition, it would be well to define this condition and determine its definite relationship to insanity and idiocy. The views of a distinguished German alienist are pertinent to this consideration and may be briefly quoted. In the preface to his work on Psychiatry, PROF. THEODOR MEYNERT expresses dissatisfaction with the statistical method, which, in his opinion, has laid inordinate stress upon hereditary predisposition, and which broadly teaches that predisposition itself is a form of disease and not a condition antecedent to it. Nor is he content to accept what he terms the "mystical conception of heredity," but he insists upon certain anatomic peculiarities in patients which constitute this predisposition. The existence of such peculiarities are to be inferred not only from symptoms and external signs, but also from due consideration of all abnormal proportions of the body. The doctrine of heredity, according to MEYNERT, is carried to an extreme in the assumption of the existence of innate ideas and, in clinic medicine, has led to the erroneous theory of moral insanity. With DuBois REYMOND and WEISSMAN, he criticises DARWIN'S theory of acquired faculties, and quotes approvingly WEISSMAN'S words, "Talents do not depend upon the possession of any special portion of the brain; there is nothing simple about them, but they are combinations of many and widely different psychical faculties." At the same time, MEYNERT fully recognizes the possibility of an abuse of the doctrine of inherited anatomic peculiarities and of hereditary predisposition, even from the standpoint of actual fault of organization as its tangible basis, on account of the constant suspicion of mental defect attaching thereto. But he reminds thinking physicians that they may avoid this danger by distinguishing between the many who are possibly called to disease and that fortunately smaller number of persons, who are, in the saddest sense of the term, chosen for disease.

The following conclusions upon this subject have been formulated at our request by DR. JOHN B. CHAPIN, a distinguished American authority, now in

charge of the Pennsylvania Hospital for the Insane at Philadelphia:

1. Physical characteristics, those distinguishing the human species for instance, are transmissible by inheritance.

2. Knowledge, genius, culture, being dependent on the influences of education and environment upon the individual, are not transmissible; but what may be termed mental receptivity, and degrees of cerebral evolution and development, may be inherited. Psychic qualities are not necessarily an inheritance, as they require favorable surroundings and circumstances for their growth and development.

3. Insanity, as a disease, is not transmissible by inheritance but may be acquired or evolved, especially where a neurotic heredity exists as a basis.

4. A neurotic predisposition is transmissible by inheritance; but there is no absolute rule that it will be transmitted in every case.

5. As regards the formation of a neurotic heredity, the in-breeding of neurotic temperaments is most conducive to its creation.

6. Idiocy and imbecility may be the resultant of certain defects having origin in consanguineous marriages; in pre-natal conditions, accidents, arrested cerebral development, infantile meningitis, tuberculosis, and lack of potency on the part of one or both of the parents from unexplained causes.

Premature closure of the sutures in the cranial vault has also been recognized as a cause of imbecility, and for the relief of this condition linear craniectomy has been proposed and performed, without, however, a gratifying amount of success. Indeed, BOURNEVILLE asserts that the theory of LANNELONGUE in regard to craniotomy in microcephalus has no anatomic and physiologic basis, in fact, and that the operation should be banished from the list of justifiable surgical procedures. It is clear that a distinction is to be made between those microcephalic cases in which there is premature synostosis with arrest of cerebral development, and those in which the head is small because the brain itself is small. Among the unexplained causes of lack of potency on the part of one or both parents alcohol may be placed, according to very prevalent popular belief. Not only may the mental endowment of the child be unfavorably influenced by acute alcoholism at the time of conception; but also the cerebral changes and nerve degeneration, and inflammation, resulting from chronic alcoholism are distinctly prejudicial, from the standpoint of heredity.

To broach the topics of degeneration and atavism would take us beyond the limits of the present article, although they are closely related to the subject of the relation of heredity to insanity and idiocy. But to sum up the foregoing, it is evident that MEYNERT recognizes an anatomic peculiarity, which

may or may not manifest itself by symptoms of aberration. CHAPIN holds that neurotic instability may be transmitted by inheritance, yet it is capable of exerting only a potential influence in the later development of mental disorder, which may be evoked by social condition, environment, or pathologic changes in the cerebral cortex. Imbecility and idiocy, however, may directly result from defective cerebral development or pre-natal disease.

The whole subject of the etiology of insanity is a complex and difficult one, and, as pointed out by HOLLAND some fifty years ago in his "Medical Notes and Reflections," it is rendered more abstruse by the fact that the pathologic change may be so minute as to defy the search of the pathologist, although sufficient to produce disturbance of intellection; while, on the other hand, great organic changes in the brain are not incompatible with the occurrence of a lucid interval, which, if we are not on our guard, may lead us to entertain false hopes of recovery.

THE ANTISTREPTOCOCCIC SERUM.

MARMOREK, in a recent article,¹ gives the results of his experiments in obtaining a serum with which to combat infection by streptococci. The microbe loses its virulence very rapidly when cultivated in artificial media, hence his first effort was to secure a suitable culture medium. It seems to grow most favorably in a mixture of two parts of human serum with one part of beef bouillon. As the former is difficult to obtain, ascitic fluid was used, and finally one part of this fluid and two parts of the bouillon adopted. To enhance the virulence of the microbe, the author first made a culture of streptococci from an angina in bouillon; then blood, taken from a rabbit killed by intravenous injection of this culture, was inoculated from the same culture. Part of this was injected into another rabbit, which died in eighteen hours; another culture made and injected into a third rabbit, which died more rapidly; and so on. Finally, by successive passages, MARMOREK obtained a microorganism of such extreme virulence that a culture in the dose of one one-hundred-millionth of a cubic centimeter was inevitably fatal. Having obtained these results, and the streptococci found in the human organism being identified, the next step was to obtain immunity in animals. Several methods have been suggested, among them injection of cultures sterilized at 120 degrees, or injection of living and very virulent cultures. The author made use of the latter methods. Efforts are made to immunize the largest animals—the ass, horse and sheep. The ass bears the inoculations very badly. Whichever animal is selected a very small dose must be used to commence with, for one cubic centimeter will produce a marked reaction; the quantity may be in-

¹ Ann. de l'Inst. Past., 1895, No. 7.

creased slowly, but it takes a long time to secure the inoculation—at least six months. Horses immunized against diphtheria support these inoculations better than fresh animals. It is possible that serum may be produced which is both antidiphtheritic and antistreptococcic. Three or four weeks must elapse after the last inoculation before the serum is used, so as to be sure that all reaction has subsided. It will be noticed that there is a marked difference between this method and that of BEHRING and ROUX. The latter authors use toxins and not virulent antitoxins. MARMOREK has been unable thus far to isolate the streptococcic toxins, and serums collected from animals inoculated progressively with filtered or sterilized cultures does not possess very manifest antitoxic properties.

The preventive process of the serum is well marked in animals. For instance, a rabbit weighing 1,500 grammes and given an injection of 0.c.c.2 of the serum will, in twelve to eighteen hours, withstand a dose ten times the mortal one of the streptococcic virus. In the various streptococcic affections of human beings, the serum has not given satisfactory results as yet. Thus in erysipelas, injected in the dose of 10 to 20 c.c., according to the gravity of the case, it seemed to produce an amelioration of the general state. In 413 cases the mortality was 3.87 per cent., which is but little less than that usually found—5 to 6 per cent.

ROGER read a paper on "Immunity Against the Streptococcus" before the French Congress of Internal Medicine. Two principal theories have been advanced, he says,² to explain immunity. One invokes the phagocytic action of the leucocytes, the other the bactericidal power of the fluids. The previous researches of this author did not seem favorable to the last hypothesis. He showed that microbes developed with the same facility in the serums of vaccinated as in that of fresh animals. Pursuing his studies he found that microbes from the serum of vaccinated animals had lost the greater part of their virulence—they were attenuated. The results obtained in these experiments were disputed. It was said that the author's cases showed not an attenuation but a therapeutic action exercised by the serum which was injected at the same time as the microbe.

In order to convince the skeptics ROGER undertook a new series of experiments, which he asserts refutes all objections. He inoculated three rabbits. One received a culture of streptococci and succumbed in three days; the same received the same quality of the culture, but one c.c., of serum was afterward injected, this lived five days; the third animal was given the same amount of culture and serum, but after being mixed it either lived or died very late. Hence the serum does not act on the organism, it

acts on the microbe. M. ROGER, who was the first to point out the value of antistreptococcic serum, does not deny its therapeutic effect, but believes it is due to the attenuating action. The attenuating property does not belong to the serum only, it is found in the blood circulating in the vessels. Repeating the experiments made in the serum by using blood transfused so rapidly (15 or 20 seconds) that it had no time to undergo the least alteration, exactly the same results were obtained. These experiments clear up the mechanism of immunity. It can readily be conceived that microbes coming into the vaccinated blood rapidly lose their noxious action by becoming an easy prey for the phagocytes.

THE JOURNAL IN 1895 AND 1896.

At the close of another year of the JOURNAL's existence it is fitting that a few words should be said as to its past and its prospects for the future. This is a custom that is honored in the observance, when it can be well done and there is a creditable past to review, and a future for which an honest promise of still better things is possible.

The Editor of the JOURNAL feels no hesitancy in referring to its past from the day of comparatively small things in its incipency, to the present, when it is unquestionably the largest medical publication in this country and is only exceeded by two or three in other lands. In the present half-yearly volume there are nearly twelve hundred pages of closely printed matter, and while mere bulk is not in itself a merit, it is believed that the quality of the contributions and other literary material has been, on the whole, not inferior to that in any other medical periodical. The JOURNAL is now in a position to command the best scientific thought in the medical profession in this country, as a glance at the list of contributors will show. A review of the work of the Sections as at present organized in the ASSOCIATION, will demonstrate that, from that source alone, a very large number of papers from the leading men in each specialty of medicine have the JOURNAL as the medium of their publication. It is believed that with the plans now adopted, and with its daily increasing circulation (over eight hundred increase during the past year), the JOURNAL will become more than ever the choice of the leaders of medical thought, both through the ASSOCIATION and otherwise, for communicating their ideas and discoveries to the profession. While it is the organ of no specialty and neglects no branch of medical science, it has probably had during the past year in its columns more original articles on certain special departments of medicine, than have appeared in some journals devoted to them alone within the same period.

A special effort has been made to report as fully as possible the proceedings of the higher grade of

² Le Bulletin Med. 1895, No. 73.

medical societies, more especially those which, notwithstanding the merits of their papers and discussions, are not so likely to receive adequate notice from the leading journals of the Eastern section of our country. The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION belongs to no section and has not limited itself in this respect to any particular region of the United States, but it is natural and appropriate that it should give some special attention to medical matters in the great central region which comes less directly under the view, in this respect, of the widely circulated medical periodicals of the East.

In its editorial columns it has been the aim to present living questions in medicine in a judicious and, on the whole, a conservative way, especially where there is room for reasonable differences of opinion. While this conservatism at times may not accord with the individual views of members of the profession, it is believed to be the wisest policy and it has been abundantly justified by events in the past. Enthusiasm is an admirable thing in medicine as elsewhere, but the scriptural injunction to prove all things, is in medical as in religious matters an essential preliminary to holding fast that which is good. The Hippocratic maxim that "experience is fallacious" is our surest protection against going wild over "*propter hoc*" cures.

A good weekly medical journal is an essential to the progressive practitioner of medicine; it is only by such an aid that he can keep in touch with the scientific advance of his profession. Text-books, hand-books, systems of medicine, and cyclopedias all begin to deteriorate as scientific guides from the date of their publication, but a good medical weekly is always at the front line of medical progress. It is the aim of the JOURNAL to be behind none of its contemporaries, as an exponent of the actual state of medical science throughout the world.

The promise for the future must be taken from the performance in the past. The JOURNAL will take no backward steps.

CORRESPONDENCE.

Shall We Continue to Sterilize Milk for Infants.

To the Editor:—Your editorial under the title "Overdone Sterilization," in the issue of December 14, appears to me very timely. As an early, consistent and persistent advocate of the germ theory, in connection with many diseases, I yet feel that we are too much in danger at the present time of forgetting that there are other causes of disease than micro-organisms. The possibility that the exclusive use of sterilized milk as a food for infants, while it would avoid the dangers arising from the occasional presence of the bacteria of typhoid fever, tuberculosis and other infections, may prove a serious obstacle to assimilation and nutrition and thus lead to the development of rachitis, scurvy and other allied conditions of mal-nutrition, as suggested in the recent article of Dr. Starr, to which you refer, was pointed out by me in a

paper read before the meeting of the American Orthopedic Association, at Washington, D. C., May 30, 1894, on the subject of rachitis. I quote from this paper as follows:

"In conclusion I would call attention to the fact, which I think I have observed, that rickets and its congener, scurvy in infancy, have within the past few years been decidedly on the increase. In point of fact, if one looks over the text-books on the diseases of children written forty or fifty years ago, he will fail to find the slightest reference to the last named disease. And this notwithstanding the fact that our fathers in medicine saw it twenty times in the adult where we see it once. Manifestly it was not for want of familiarity with its symptoms that they failed to recognize it as one of the infantile diseases. Indeed we need hardly go back more than ten years to find medical literature barren of allusions to this subject. To what are we to attribute this somewhat sudden increase in diseases of defective nutrition? Is it simply a coincidence that this condition has developed simultaneously and *pari passu* with the introduction of the practice of the sterilization of milk? One curious feature of this increased development of these affections is that we meet it not among the poor, not among those whose hygienic environment is faulty and whose food supply is insufficient or of inferior quality, but among the children of the wealthy who live under the most favorable conditions with strictest attention to hygienic precautions and an abundant supply of the richest milk. Let us consider for a moment the part which ferments play in the preparation of food for digestion and assimilation. We know to how great an extent the digestibility of the great staple of life, bread, is increased by the development in the flour of the *saccharomyces cerevisiae*; how beer in its various forms becomes a wholesome drink through the action of the same ferment; how the vinous fermentation furnishes us healthful beverages and useful stimuli and how the acetic fermentation supplies us a most valuable condiment. We also know that of all the ferments none approaches so near the fluid known as the gastric juice as lactic acid. We know what a wholesome and nutritious article of diet milk becomes in the shape of curds and whey, buttermilk, cheese and matzoon, after having been acted on by the lactic acid ferment. We know that under all ordinary conditions milk contains the lactic acid bacterium. Now is not the supposition warranted that up to the point when this ferment has been developed in milk to such an extent as to produce an acid taste which leads most persons to dislike it, its action on that fluid may be in the highest degree favorable to its digestibility and assimilability? Moreover, may not the lactic acid have a very important function in taking up the lime salts and, in combination with phosphoric acid, putting them in condition to be absorbed by the lacteals and appropriated by the system. The fact that sterilized milk is indigestible no one questions. May we not be denying our infants some of the most important of the constituents of milk, allowing them only the fats while we deprive them of the salts? To atone for presenting them a less digestible milk we pre-digest it before giving it, thus depriving the stomach of the natural stimulus afforded by the presence of food requiring digestion, discouraging the secretion of the gastric juice, and still further interfering with the assimilation of the mineral constituents. Do we not perhaps need to revise our recent conclusions on the subject of infant diet and sterilization of milk?"

I observe that that eminent authority, Prof. A. Jacobi, in the leading article of "Pediatrics" for January, 1896, in which he reviews the question of infant feeding at length, while urging the importance of the sterilization of milk in the strongest possible terms, yet calls attention to the fact that "sterilization has been claimed to be no unmixed boon because of its changing the chemical constituents of milk."

In speaking of the method of Dr. Rotch, which consists in sterilization, mechanical separation in order to remove impurities, and remixture of the milk and cream, he says:

"I know of a number of babies who in health and disease have done well on the protracted use of the laboratory milk. Only one observation struck me in a few cases. The formation of the muscles and part of the bones appeared to be slow, the teeth came a number of weeks or even months too late, the cranial bones turned slightly soft in a few instances. In a few such cases I had to add animal broths or juice before the usual time; in one I tried phosphates, (elixir phosphori) which was rejected, in others it was well borne and useful."

For myself I am not prepared to admit that the lactic acid ferment is, up to a certain point, injurious, or indeed that it may not on the other hand be essential to the full digestion and appropriation of milk. It is a well known fact that certain tribes in Africa who subsist largely on milk never, under any circumstances, drink it until it has begun to sour, their experience having taught them that the use of fresh milk is very apt to result in the development of fevers. When circumstances, such for instance, as residence in large cities, make it necessary to adopt means to prevent the lactic acid fermentation from proceeding to the stage in which an acid taste is developed, up to which time I believe the process to be beneficial, I should much prefer boiling to sterilization or Pasteurization, for the reason that I believe that in this way the destruction of morbid bacteria will be more completely effected, and also that changes of a protective nature will be produced in the dead bacteria and ptomaines with which the milk is loaded after sterilization. In this suggestion I feel that I am supported by the experience of Professor Jacobi, who, after saying, "virtually sterilization" (that is to say by means of boiling) "has been practiced by me these more than forty years, and has been taught by me these thirty-five years both in lectures and in books and essays," adds "I always urged that safety increased with the number of boilings." No doubt he was led to give this advice in consequence of carefully observed results of the benefits following repeated boiling as compared with a single boiling. And this leads me to say in conclusion that the great danger of modern medicine appears to me to be the tendency to push theories to an extreme, and to disregard the teachings of experience. No better proof of the existence of this tendency could be advanced than is found in Professor Jacobi's allusion to the advantage of the admixture of cereals for the purpose of finally dividing and suspending the casein of cow's milk in preparing it for digestion by the infant stomach. As we well know it is not many years since we were assured in most positive terms that it was utterly impossible for a young infant to digest farinaceous food at all, and our theoretical teachers instructed us to banish it entirely from the infant dietary. He calls attention to the fact that the researches of Schiffer, Korowin and Zweifel have experimentally proved in diametric contradiction to the statements of previous experimentalists, that a certain amount of starch can be digested by the saliva and pancreatic juice of young infants, and that Heubner of Berlin recommends in intestinal diseases of the very young the simplest flours, mainly of rice and oats, which have a finer microscopical structure than wheat. "Practical experience," says Heubner, "surpasses theoretical conclusions."

Jacobi in a foot note ventures the prediction that "before long more than to-day it will be a generally accepted axiom that cereals must be given to make teeth when milk food alone does not suffice for their development."

My own advice to mothers unfortunately compelled to nourish their infants artificially, if they are able to obtain pure milk, from cows of authenticated good health, and from dairies where proper sanitary precautions are known to be taken and are able to use the milk within twelve hours after milking and after very limited transportation, is that they should keep the milk in hermetically sealed jars and in a cool temperature, but should not subject it to Pasteurization, sterilization or boiling. Under other conditions namely those of protracted transportation, prolonged exposure to high temperature, ignorance of the conditions of health of the cow or of cleanliness of the dairy, they should resort to boiling in preference to sterilization or Pasteurization. It is possible that the boiled milk will tend somewhat more to induce constipation than will the sterilized milk, but this is a trifling objection which can easily be met.

BENJAMIN LEE, M.D.

Successful Implantation of Teeth.

ALMA, MICH., Dec. 18, 1895.

To the Editor:—My little daughter, aged 2 years and nine months, fell headlong down the cellar stairs and struck the two upper middle incisors on the edge of the step, extracting them as completely as if by forceps. The alveolar processes of the right tooth were fractured and the gum lacerated the entire length of the root. After the fright and the crying, which continued a half hour or more, the child was rocked to sleep in her mother's arms and placed in her buggy. We found the teeth on the cellar steps uninjured. They were placed in a normal saline solution of tepid temperature. On the arrival of an assistant with the chloroform for anesthesia, the child was sleeping quietly. Chloroform was administered without the child awakening and the teeth were placed within their sockets and pressed into position; the edge of each tooth fitting firmly in a groove of one blade of a forceps, the hand of the operator being placed on the back of the head with the pressure properly directed. The gums about were cleansed antiseptically and the teeth left in position without further dressing or application.

The accident occurred about 2 o'clock and when the child awoke from her sleep at 5:30, her teeth were in place. The teeth had been out of the mouth fully one hour. Milk and soft food were administered and the lacerated edges of the gums cleansed after the eating. Healing of the gums occurred by first intention.

It is now over four weeks since the teeth were placed and they are now solid, in good position and of normal color. The gums are normal in color and consistency and the appearance of the mouth quite natural.

I report this as a successful case of transplantation of teeth that had been out of the mouth over an hour and as another demonstration of chloroform anesthesia during natural sleep.

E. S. PERRYJOHN, M.D.
Medical Superintendent.

It Was Hot Springs.

TENNESSEE STATE BOARD OF HEALTH, NASHVILLE, Dec. 20, 1895.

To the Editor:—On page 1000, December 7, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, second column, line 10 (from bottom), "Little Rock" should read "Hot Springs." Much fault is found with me because of this error. It is proper to state that I read no paper, only said a few sentences in a conversational way. No proof of the proceedings was sent me, as should have been done. The error is doubtless that of the reporter. You know too well how these things happen. Please make necessary correction, and oblige,

Very respectfully,

J. BERRIEN LINDSLEY, M.D.
Secretary and Executive Officer.

Defense of Hypnotism.

CLEVELAND, OHIO, Dec. 20, 1895.

To the Editor:—I have read with much surprise the note to you from Dr. W. P. Howle, Oran, Mo., published in the issue of the JOURNAL of December 14, in which he condemns hypnotism, along with the fallacies of clairvoyance, faith cure, etc., which intelligent men know to be frauds. But, Doctor, in the light of my extensive experience in regular practice, where I have hypnotized 1,000 cases, never once having failed to produce hypnosis where I made the attempt, I must protest against such indiscriminate and uncalled for condemnation of a great remedy in many cases which can not be rationally or successfully treated by other means. If you are ready for it, I will prepare a paper for your next issue, dissecting this remarkable set of statements. Kindly advise me.

Truly, M. MAURICE CARNES, M.D.

Papers for the Surgical Section.

SOUTH BETHLEHEM, PA., Dec. 18, 1895.

To the Editor:—As Secretary of the Surgical Section of the Association, I am now engaged in arranging a program for the Atlanta meeting. We have selected "The Surgery of the Cerebro-spinal Axis and its Bony Encasement," as the special subject for discussion. I am anxious to obtain as full and as representative a discussion on this important subject as practicable. Will you permit me through the JOURNAL to call the attention of our surgical members to this subject, and to request from them a liberal contribution of papers, and careful preparation for discussing the subject. Besides this special subject there will be room on the program for papers on other subjects. I solicit the active assistance and contribution of the members. Members who desire to contribute papers to the Surgical Section will please notify me and send the title of their papers to me as soon as practicable.

Very truly yours,

W. L. ESTES.

International Scientific Language.

CHICAGO, Dec. 21, 1895.

To the Editor:—I have read with great interest your address on "The International Scientific Language" in the JOURNAL of this date. The position taken with regard to French seems to be good although as a matter of fact, Spanish is an easier language even than French, and is now used by a greater number of people than any other language excepting English.

Would it not be well, as a means of familiarizing the profession at large, in this country, with one of these languages, to have a page or two of the contents of the JOURNAL, each week in the proposed International language?

Very truly yours,

W. S. CHRISTOPHER.

BOOK NOTICES.

State Charities Aid Association of New York. HANDBOOK FOR HOSPITALS. By ABBY HOWLAND WOOLSEY. Third Edition. 12mo, pp. 267. New York and London: G. P. Putnam's Sons; Chicago: The W. T. Keener Co. 1895.

The first edition of this Handbook was published by the Association in 1877 and the second edition in 1883. No recent work having been found that would supply its place, the managers of the Association appointed a committee to revise it, Miss Woolsey having died since the appearance of the edition of 1883.

This committee consisted of Drs. Charles Hitchcock, George G. Wheelock and W. Gill Wylie.

"Not often," say the committee, "has a work so easy or so grateful been assigned to any committee. Twelve years have elapsed since the publication was last revised by the author, and yet the work done was so thorough, the personal knowledge of the subject so exceptional, and the standard of excellence so high that, beyond the bringing of statistics up to date, and the addition of some footnotes to show the advance, within a very few years, of hygienic requirements, there were but few alterations to be made."

We have been familiar with the former editions of the book, and we concur in the opinion of the committee that "every commissioner of charities and superintendent of the poor, every superintendent of a hospital, will welcome the many practical suggestions to be found in this volume. It should be in the hands of all visitors to hospitals and other charitable institutions and on the shelves of every library in this country."

Twenty-Sixth Annual Report of the State Board of Health of Massachusetts. 8vo, paper, pp. 892. Boston: 1895.

The reports of the Massachusetts State Board of Health are without doubt the most valuable sanitary publications in the country, and they afford not only an object lesson for other State Boards, but they demonstrate the enlightened

character of the legislation under which they are produced. In another column we refer to one important inquiry in which the Board has been engaged, but it would be quite within bounds to say that within the pages of the twenty-six volumes are included luminous discussions of nearly every topic of hygiene that is of interest to the municipal sanitarian. The present volume is of exceptional interest.

Practical Urinalysis and Urinary Diagnosis: A MANUAL FOR THE USE OF PHYSICIANS, SURGEONS, AND STUDENTS. By CHARLES W. PURDY, M.D., Queen's University; Fellow of the Royal College of Physicians and Surgeons, Kingston; Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School. Author of "Bright's Disease and Allied Affections of the Kidneys"; also of "Diabetes: Its Causes, Symptoms, and Treatment." Second revised edition. With numerous Illustrations, including Photo-Engravings and Colored Plates. In one crown octavo volume, 360 pages, in extra cloth, \$2.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street. Chicago office, Lakeside Building.

In our notice of the first edition of this work (Nov. 24, 1894, p. 805) we said, "To the practitioner and as well to the clinician, this book must prove invaluable for the extent of information contained in its pages, and its practical character."

The author has "corrected all discovered errors" in the first edition, has revised it and has added several illustrations. The early call for a new edition is a tribute to its scientific accuracy, and we congratulate the author on the merited appreciation of the book by the profession.

Pregnancy, Labor and the Puerperal State. By EGBERT H. GRANDIN, M.D., Consulting surgeon to the New York Maternity Hospital; Consulting Gynecologist to the French Hospital, New York, etc.; and GEORGE W. JARMAN, M.D., Obstetric Surgeon to the New York Maternity Hospital; Gynecologist to the Cancer Hospital, New York, etc. Illustrated with forty-one original full-page photographic plates from nature. Royal octavo, pages viii, 261. Cloth, \$2.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street. Chicago office, Lakeside Building.

This work, say the authors in the preface, aims at being a guide to practice and is clinical in its teaching. There are three parts, of which one is given to pregnancy, containing three chapters; the second to labor, containing four chapters; and the third, on the puerperal state, is disposed of in two chapters. The photographs are excellent and the text instructive. It is a faithful representation of the modern practice of obstetrics.

Ohio State Medical Society.—Transactions of the Semi-Centennial meeting held at Columbus, May 15, 16 and 17, 1895.

This volume shows that the society is keeping up to its usual high standard of work. There are valuable papers on diphtheria, influenza, autopsies, intestinal surgery, typhoid fever, leprosy, and these papers are discussed in an able manner. Appended is a copy of the Mosworth Bill to regulate the practice of medicine, which the society indorsed, and which has also received the indorsement of the Ohio State Eclectic Society and the Ohio State Homeopathic Medical Society. The whole profession is in support of this bill, and as there are eighty physicians in the House of Representatives, it is confidently expected the bill will become a law. The society is to be congratulated on its good work, its vigorous life at 50 years and its chances for the future.

Lectures on Appendicitis AND NOTES ON OTHER SUBJECTS. By ROBERT T. MORRIS, A.M., M.D. Illustrated. 8vo, cloth, pp. 163. New York and London: G. P. Putnam's Sons. 1895.

The first eighty-three pages of this book are given up to the lectures on appendicitis, and the remainder to notes on various surgical topics, mainly reports of interesting cases. They all show excellent surgery. The illustrations of the vermiform appendix in the first section of the work could not well be improved upon.

Announcements.

"The College and Clinical Record" will be hereafter known under the name of *Dunghison's College and Clinical Record*, a Monthly Record of Practical Medicine."

The *American Medical Review*, edited by Dr. Daniel Lewis and Dr. George B. Bradley, and published in New York, made its first appearance last week.

The *Medical News* of Philadelphia will be edited and published in New York after January 1, 1896.

PUBLIC HEALTH.

Typhoid Fever in Ohio.

OHIO STATE BOARD OF HEALTH. OFFICE OF THE SECRETARY.

COLUMBUS, OHIO, Dec. 21, 1895.

To the Editor:—Owing to absence your letter of the 17th just received. I returned from the smallpox district yesterday and am going back there again to-day. In Bridgeport and immediate vicinity there were up to yesterday morning twenty-eight cases. At Martin's Ferry, which is a separate corporation but practically the same community, there were forty-eight cases. There is one case at East Liverpool and one case at Lisbon. These two latter cases contracted the disease at Martin's Ferry. The disease was not introduced by emigrants, but is due to a negro having smallpox who was landed at Wheeling early last fall.

The disease was started in Wheeling and ran several months, but has been suppressed there. It crossed the river to Bridgeport and Martin's Ferry, which are in Ohio opposite Wheeling and connected by street car lines. Our Board has now put in force proper regulations for preventing further spread of the disease, and these are being strictly carried out. General vaccination is being carried out by house to house visitation by physicians. I confidently expect that the disease will soon be under control.

Yours truly, C. O. PROBST, Sec'y.

The New York City Board of Health.—The Board of Estimate of the City of New York has appropriated \$519,508 for the Health Department's operations in 1896, which is an increase of \$59,000 as compared with the current appropriation. This increase is, partly at least, believed to be rendered necessary by reason of the new and expensive work done by the Bacteriologic Bureau, in the production of anti-diphtheritic serum.

Typhoid in Wisconsin.—At a meeting of the State Board of Health of Wisconsin December 19, a statement was made that the number of cases of typhoid fever reported to the Board since July 1 throughout the State was 625, of which 133 were reported in Milwaukee, 115 in Superior, seventy-four in Shell Lake, fifty-two in Ashland and twenty-four in La Crosse. The causes of the prevalence of the fever were invariably due to the use of contaminated water. Plans were submitted for the proper filtration of Ashland's water supply, and a committee of the Board will go to that city to look into the matter.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Dec. 7 to 14, Detroit, Park Township and Rochester, smallpox reported.

New Orleans, Dec. 7 to 14, 11 cases, 2 deaths.

Tennessee: Shelby County, Nov. 15 to Dec. 15, 15 cases; Memphis, Nov. 29 to Dec. 13, 13 cases; Ashport, Dec. 2, 1 case; Alamo, Dec. 2, 2 cases.

SMALLPOX—FOREIGN.

Rio de Janeiro, Nov. 9 to 16, 58 deaths; Nov. 16 to 23, 49 deaths.

Havana, Dec. 5 to 12, 1 death.

London, Dec. 1 to 7, 1 death.

Dublin, Dec. 1 to 7, 5 cases, 1 death.

Corunna, Oct. 1 to 31, 3 deaths; Nov. 1 to 30, 5 deaths.

Constantinople, Aug. 1 to 31, 14 deaths.

Madrid, Nov. 19 to Dec. 3, 12 deaths.

Odessa, Nov. 23 to 30, 3 cases, 2 deaths.

Pernambuco, Nov. 2 to 16, 108 cases, 28 deaths.

Prague, Nov. 23 to 30, 19 cases.

Rotterdam, Dec. 1 to 7, 1 death.

CHOLERA—FOREIGN.

India: Bombay, Nov. 12 to 19, 9 deaths; Calcutta, Nov. 2 to 9, 47 deaths.

Japan, to Nov. 14, 56,367 cases, 39,721 deaths.

YELLOW FEVER—FOREIGN.

Rio de Janeiro, Nov. 9 to 16, 7 deaths; Nov. 16 to 23, 18 deaths.

Havana, Dec. 5 to 12, 6 deaths.

Pernambuco, Nov. 2 to 16, 12 cases, 4 deaths.

Santiago de Cuba, Dec. 1 to 7, 20 deaths.

MISCELLANY.

It was the College of Pharmacy.—We printed last week a press dispatch in regard to a conference with the Board of Trustees of the University of Illinois, with five members of the Chicago College of Physicians and Surgeons. The item was in error. The conference was held by representatives of the Chicago College of Pharmacy.

The Mary Thompson Hospital of Chicago for Women and Children.—Dr. Marie J. Mergler, Professor of Gynecology and Clinical Gynecology, Northwestern University Woman's Medical School, has been appointed Gynecologist and Head Physician and Surgeon to fill the vacancy caused by the lamented death of Dr. Mary Harris Thompson. In memory of the valued services of the deceased physician the name of the hospital has been changed from "The Chicago Hospital for Women and Children" to the above. The hospital extends the privilege of bringing patients from all parts of the country and retaining the care of them, to physicians in good standing other than those of the medical staff. Dr. Mergler holds the position of gynecologist to the Wesley Hospital and the Post-Graduate School and is also surgeon to the Woman's Hospital of Chicago.

New Provision for Care of Oklahoma Insane.—Section 2,990, paragraph 1, chapter 42, of the Oklahoma Statutes authorizing the Governor of the Territory to contract with any Territory or State in the United States, or with the proper authorities thereof, for the care of persons who become insane within the Territory, and who are citizens thereof, such care to be had in the insane asylums of the Territory or State with which such contract may be made, has been amended so that it is now, in substance, as follows: The Governor is authorized and directed to enter into a contract with responsible individuals or private corporations, for the treatment, care and maintenance within the Territory, of of the Territory's insane, and of all persons who become insane within the Territory, and who are citizens thereof, for a term not to exceed three years from on or before June 15, 1895, and at a rate not to exceed \$300 per annum for each patient; *Provided*, That the contract shall stipulate that the regulations prescribed by law of the States of Illinois or Kansas for the treatment of the insane, shall be those governing the contractors in the care and treatment of the insane, as far as the same can be made applicable; *Provided, also*, That burial expense and accounts for conveying discharged patients to their residence shall be a county charge. The Governor, it is also enacted in this connection, shall also have power under this act to contract for the deaf and dumb of the Territory, by parties within or without the Territory, in like manner as provided in this act for the care of the insane.

Tablets of Quinin Not Approved.—The conservative editor of the *Practitioner* offers a very original, not to say unpopular, notion that quinin be taken in effervescent solution. The writer seems to have had a better experience with pills than with tablets. He says, "It will frequently be found that if prescribed in a liquid effervescent form, quinin will agree

well with the stomach. As a prophylactic remedy, basic hydrochlorate of quinin is less irritating than the sulphate and more pleasant to take on account of the absence of the extremely bitter taste characteristic of the latter. The dose can be carefully regulated, and it contains a proportionately larger quantity of quinin than the sulphate. It is easily transported, and keeps perfect. Hydrobromate of quinin, it seems, ought to be employed particularly for the treatment of obstinate fevers, in which the hydrochlorate has failed to produce the desired effect. Quinin salts should not be put up in the form of tablets, as repeated examinations of samples from various sources have proved that they are either too brittle or completely insoluble. After having administered such tablets to rabbits, the investigators found them two hours later to be entirely unaffected by the gastric juice. Better results were obtained with gelatin capsules and medicinal pearls, which readily dissolved in slightly acid solutions or in the stomach of the rabbit. The advantage of these preparations is the ease of controlling their composition and their small size. Pills, contrarily to the prevailing opinion, gave the most prompt and invariable results, even when silver-coated pills, which had been kept upward of a year, were used. Pills of pearls, containing 15 centigrams of quinin hydrochlorate, may be administered for prophylactic purposes—two daily, in a little water."

No Public Money for Private Hospitals.—A hospital founded by a private benefactor is, in point of law, a private corporation, although dedicated by its charter to general charity. When the corporation is said at the bar to be public, it is not merely meant that the whole community may be the proper subjects of the bounty, but that the government have the sole right, as trustees of the public interests, to regulate, control and direct the corporation, its funds and its franchises, at their own good will and pleasure. These statements of the Supreme Court of Illinois in the case of the Washingtonian Home of Chicago v. City of Chicago, decided October 11, 1895, furnish the key to its holding that the Washingtonian Home, which was incorporated as an institution for the care, cure and reclamation of inebriates, with power to elect its own directors and adopt such by-laws as it thinks proper, but subject to no State, county or city control, is nothing more than a private corporation. The act under which this institution was incorporated provided that it should receive ten per cent. of all money paid for all licenses granted by the county or city for the right or privilege to sell spirituous, vinous or fermented liquors in the county or city, and it was to compel the city of Chicago to pay it \$25,000 thereunder that this suit was brought. But conceding that this was a constitutional provision in 1867, the Supreme Court holds that it was rendered void by a clause in the State constitution of 1870 declaring that no county, city, town, etc., shall ever become subscriber to the capital stock of any railroad or private corporation, or make donation to or loan its credit to any such corporation. The fact that the city has for over twenty years made the payments after the adoption of the constitution, the court further holds, does not estop it from claiming the unconstitutionality of the act under which they are demanded.

Contracts Not to Practice Medicine.—It has come to be settled law that the mere sale of the goods, stock in trade and good will attached, without any express stipulation not to resume or engage in the business in that locality on the part of the seller, are not sufficient to warrant a court of equity in restraining the seller from again engaging in such business in the same locality. And in such case it is to be noted that the sale necessarily puts an end to the business of the seller, at least for the time being. But a sale by a physician of his residence, for example, need cause no interruption of his business, and therefore it would seem to be the conclusion of the Supreme Court of Indiana that in the latter case by so much the more will there be no interference to protect the purchaser aside from what he may be entitled to under an express contract. In the case of Beatty v. Coble, which that court decided Oct. 18, 1895, a practicing physician contracted, in consideration of the purchase of his property, to "retire from the practice of medicine and surgery" at the place named. The court holds that this contract must be

construed or interpreted from the language employed therein, and from the circumstances surrounding the contracting parties, and thus get at their intention as expressed in the instrument. In this way its plain meaning and import is found to be that the selling party agreed not to engage in the practice in that field, without limitation as to time. His contention that a good-faith retirement for a year and a half was a sufficient compliance, the court does not agree with. It holds that the want of definite limit is no objection to the contract. And it is a contract which will be enforced by injunction. The adequacy of the consideration will not be inquired into. Nor is a want of consideration shown in the fact that, at the time of making the contract, the physician was not owner of the property sold, but it was the sole and separate property of his wife, which was built for and used as a residence, and not as a physician's office; and no part of the consideration for the conveyance thereof was ever received by him, and no consideration ever passed between the purchaser of the property and him for the execution of the agreement sued on. That, pending the appeal to the Supreme Court, he located in another town, the court also holds is no ground for dismissing the case, his practice reaching into portions of the county which constituted his former field of labor.

Declarations to Physician.—The declarations of a patient to his physician respecting his condition and symptoms at the time of seeking medical aid are admissible as evidence in his behalf, under a well-settled exception to the rule excluding "hearsay." The exception originally rested on the ground, first, that as the common law forbade parties testifying, the facts involved could not be proved in any other way; and second, that the patient's interest in the physician's opinion precluded danger of falsehood. The modern practice of admitting parties as witnesses has removed the first of these grounds; but this is not considered a sufficient reason for excluding the testimony. To render it admissible, however, the plaintiff must establish the fact on which the exception rests—that is that the declarations were made when seeking medical aid. So says the United States Circuit Court of Appeals in the case of Del. & W. Ry. Co. v. Roalefs, decided Oct. 28, 1895. This was an action brought to recover compensation for personal injuries sustained in a railroad accident. The only contest was over the amount due. The plaintiff called as a witness a physician of great reputation as a medical expert, who had examined him professionally a year after the accident, when his condition was much improved, and asked him to state the former's declarations at the time respecting his condition and symptoms past and present, together with his own opinion based on these declarations and the personal observations made. This testimony the court holds should have been excluded because the inference was irresistible that the plaintiff did not call to consult the doctor with a view to medical aid, but to employ and qualify him as an expert to assist in maintaining the pending suit. Still the court holds that the doctor's opinion might have been taken hypothetically—based on his observations and the facts embraced in the plaintiff's statements. Whether the admissions of such opinion should follow or precede proof of the supposed facts would have been a matter of discretion; but until the facts were proved the opinion could not be considered, and if its admission preceded the proof it should have been ruled out if the proof did not follow. The opinion being inadmissible, nothing indicating how much it rested on the declarations and how much on personal observation, it must be accepted or rejected as a whole.

Practical Notes.

The Aluminum Corset.—Dr. Phelps, of New York City, recently addressed the Academy of Medicine on the merits of the various materials used in spinal disease. In lateral curvature, the jacket of aluminum was, so far as he had tested it, freer from objections than the others, but it was somewhat expensive, costing fifty dollars or more. A plaster corset was first made, the patient being suspended; this was filled with plaster, and over the latter the aluminum corset was hammered into shape. It had numerous perforations smaller than a dime. The weight of the apparatus is about two pounds. If the patient changed much in shape and size it would be necessary to make a new corset.

Bacteriologic Examination of Nine Cases of Diphtheria Treated with Antitoxin.—Stokes (*Boston Medical and Surgical Journal* CXXXII, No. 24) describes briefly the results of the bacteriologic examination of nine fatal uncomplicated cases of diphtheria treated with the antitoxin. The examination consisted in making slants upon blood serum from the lung, liver, spleen, kidney and the heart's blood. In five cases the streptococcus was found in the liver, spleen, kidney and heart's blood; in one case in kidney and heart's blood; in one case in the spleen. The pneumococcus was found twice in the kidney and in one of these the streptococcus was present in the spleen. In one case the only organism present was the bacillus coli communis. In the lungs of all these cases were found the bacillus diphtherie, streptococci, pneumococci, and staphylococcus pyogenes aureus, either alone or in various combinations. The bacillus diphtherie was found in the kidney in four cases, once in the heart and once in the spleen. The presence of these various organisms in addition to the bacillus of diphtheria enables one to understand the fatal issue in spite of the antitoxin administered, because this agent can not be assured to act against any other microorganism than the bacillus of diphtheria. Assuming the efficacy of this remedy to be greater, the earlier it is administered, it can not be too greatly emphasized that its thorough, early introduction may lessen the dangers of a secondary infection because it places the system in a better condition to overcome the various ill effects of various complicating bacteria that may be present in the body.

Condyloma of the Trachea.—Dr. Harrison Griffin, of New York City, has reported in the *Medical Journal*, of that city, an instructive case of condylomata of the trachea. The patient, a female aged 40 years, sought medical relief on account of a dryness and irritation in her throat, with a tickling cough; occasional great difficulty of breathing, which increased at times without any assignable cause; patient's voice was weak and hoarse, the breath fetid, and the respiratory movements labored during both sleeping and waking hours. The slightest cold would develop a paroxysm of dyspnea. There was a history of pudendal chancre about eight years ago. An examination of her mouth, nose, and post-nasal space was negative; an examination of her larynx showed the mucous membrane to be free from any congestion or ulceration.

A view of the trachea during the act of inspiration showed a large projecting and granular growth, red in color and covered with a pultaceous secretion; the growth was irregular on its surface and separated by fissures, their edges being abrupt and sharp.

The projecting mass was attached more to the anterior portion of the trachea and extended around two-thirds. It seemed to be situated only a short distance below the vocal cord and extended down on the trachea to the distance of about an inch. The lumen of the trachea was very much diminished. The examination by the laryngoscope was made with great difficulty owing to the patient being very nervous. The condition of the larynx and her unusual shortness of breath pointed to an immediate tracheotomy, but this was deferred as a last expedient. The patient was given large doses of potassium iodid (1 drachm four times a day), and unguentum hydragryi oxidi rubri was ordered to be rubbed in over the thyroid cartilage. The case was seen daily for three weeks when she was discharged with the parts completely healed, but warned her to continue medicine for a certain space of time.

An examination with the laryngoscope at this period showed but slight narrowing of the trachea at the point of the syphilitic affection. Her breathing was normal and the swelling of the neck subsided as she came under the influence of the iodid. She was now able to lie prone in bed and all attacks of dyspnea subsided.

The rarity of these cases is indicated by the statement of Sir Morrell MacKenzie, that he had met with three cases only among 1,145 cases of syphilis of the region of the larynx and pharynx.

Detroit Notes.

PAPER ON CROUPOUS PNEUMONIA.—The Detroit Medical and Library Association at its regular meeting, December 16, listened to an instructive paper by Dr. D. S. Campbell on "Croupous Pneumonia." The Doctor said; "My paper is on the present management and treatment of croupous pneumonia, based on the fact that it is a specific or constitutional disease, similar to that of typhoid fever, etc., that it will run a natural course and can not be abated by any mechanical or therapeutic measure; also that the ever constant symptom of greatest importance is the excessive temperature which is independent of the local manifestations in the lung. About 80 per cent. of croupous pneumonia cases do not require anything but good nursing and care, but that the remaining 20 per cent.—those who are attacked with it very seriously and from the out-set with perhaps several rigors, denoting its approaching malignant type and impending excessive fever—require active measures toward holding this latter symptom in abeyance, which if continued for a day or two, would tend to produce cardiac insufficiency, the other organ which is most dependent on its efficiency. The treatment for this is laid down from actual experience, and was best carried out by the use of cold applications, or the bath commencing at 90 degrees, gradually reduced to about 65, the patient to remain in it from thirty to forty minutes as the case demanded, and if any reaction resulted they were given freely whisky or brandy in modern doses; but from my experience the excessive fever should be reduced from one-half to two and one-half degrees. If pain was present in the onset I employed hypodermic injections of morphia with atropia in their usual doses, and chloral hydrate if the patient required it from want of sleep or restlessness."

Dr. Christian F. Kapp's suit against George Hermindinger as noted in the last number of the JOURNAL, in which the Doctor sought to recover \$15,000, for making 372 calls and furnishing the medicine upon smallpox cases, Mr. and Mrs. Hermindinger with their children being the patients, resulted in a verdict for the Doctor for \$400. One practicing physician in testifying said \$2 was enough for visiting a smallpox patient. This suit was tried by a Washtenaw County jury in Ann Arbor. Health office report for week ending Dec. 21, 1895: Deaths under 5 years, 22; total 85; births, male 41, female 49; total 90. Contagious diseases: Diphtheria: Last report 40, new cases 36, recovered 36, died 7, now sick 33. Scarlet fever: Last report 25, new cases 3, recovered 6, died 1, now sick 21. Smallpox: Last report 3, new cases none, recovered none, died none, now sick 3.

St. Louis Notes.

REPORTS OF THE HEALTH OFFICE.—For the week ending December 14, the total number of deaths from all causes was 170 as compared with 159 for the preceding week, and 154 for the corresponding period of 1894. Births reported, 204. Report for the week ending December 21: Total number of deaths from all causes, 167; in corresponding period of 1894, 145. Contagious diseases reported during the week ending December 14: Diphtheria, 111 cases, 9 deaths; croup, 14 cases, 8 deaths; whooping cough, 4 cases, one death; measles, 9 cases; typhoid fever, 6 cases; scarlatina, 7 cases. During the week ending December 21: Diphtheria, 87 cases, 10 deaths; croup, 14 cases, 5 deaths; typhoid fever, 14 cases, 1 death; whooping cough, 1 case; scarlatina, 16 cases.

ST. LOUIS MEDICAL SOCIETY.—The meeting December 14 was the occasion of a change of program and an extension of courtesy to Dr. B. Sachs, of New York, who read a paper on "Syphilis of the Spinal Cord." The meeting on December 21 was notable as the occasion of the presentation to the society, by Dr. Warren B. Outten, of a portrait in oil of the late Dr. Charles A. Pope. The portrait is the product of Dr. Outten's artistic talent and was presented by him in a very happy speech. One of the Nestors of the society, Dr. William M. McPheeters, responded on behalf of the society in a speech of acceptance. Dr. Pope was well known as the first Dean of the St. Louis Medical College, and his life and work exercised a marked influence upon the medical thought and practice of St. Louis, and more widely through numerous students.

Reminiscences of his life were related during the evening by Dr. Pollak and others of his immediate contemporaries.

THE CLINICO-PATHOLOGICAL SOCIETY.—This society was organized in November with an initial membership of twenty. The executive board is constituted by Drs. James A. Close, Hugo Summa, H. J. Cummings, A. F. Bock, and C. G. Chaddock, Secretary. The meetings are held on the second and fourth Mondays of each month. At the meeting December 9, Dr. B. M. Hypes read an important paper on "The Use of Intra-Uterine Injections of Glycerin for the Induction of Labor." The paper and discussions overwhelmingly condemned the use of glycerin for such a purpose because of the unavoidable dangers attending it. The paper was based on a fatality following the injection of glycerin, and written anent favorable reports of its utility that have recently appeared in literature. The remainder of the evening was devoted to the discussion of pathologic specimens and cases, in particular the case of a death in chloroform narcosis presented by Dr. Summa, where the kidneys were found to be in an advanced stage of cirrhosis. The question raised for discussion was what should be the criterion of contra-indication for the use of chloroform in such cases. It was pointed out that not the simpler urinary indications should be the guide, but rather the indications to be gained from an exact quantitative estimate of the excretion of urea. The program announced for the meeting December 23, includes a paper on "The General Medical Relations of Urinalysis," by Dr. Hugo Summa, and "A Case of Cerebral Tumor, with Specimen," to be discussed in its diagnostic and surgical relations, by Dr. C. G. Chaddock. The program for the first meeting in January includes a paper by Dr. J. A. Close entitled "What Amount of Work in Bacteriology should the General Practitioner be able to Perform?"

Louisville Notes.

PETITION.—The women of the State are circulating a petition among themselves which they will present Governor Bradley, requesting that he appoint only married men as resident physicians at the various insane asylums in the State. It is an assured fact that the governor will not countenance any such reflection on the prominent physicians of the State whose names have been mentioned in connection with the appointments.

IRREGULAR PRACTITIONERS.—Dr. J. N. McCormack, Secretary of the State Board of Health, has issued a circular letter, under date of Dec. 16, to all county medical referees, calling their attention to the fact that a number of so-called "doctors" from the advertising "medical companies" of Indianapolis, Cincinnati and Chicago, are plying their trade in the outlying districts of the State. They accept fees, in negotiable notes, payable at some point outside of the State. These are promptly discounted, and in this way thousands of dollars have been extorted from families who can the least afford such a loss. One conviction has been obtained in Grant County, and warrants are out for others. The referees are admonished to be on the lookout for them and to report to Dr. McCormack.

ACADEMY OF MEDICINE.—At the regular meeting of the Academy on Monday evening Dec. 16, Dr. I. N. Bloom read the paper, on "An Historic Sketch of the Etiology of Chancreids." The Academy voted to give up their present quarters in the Fonda Block, and will move to the Louisville College of Pharmacy building, corner First and Chestnut Streets, where they will be at very much less expense.

DEAF MUTES.—Superintendent J. E. Ray of the Kentucky Institution for the Education of Deaf Mutes, located in Danville, Ky., has just made his report to the governor, extending over a period of two years. It shows that for the year ending Oct. 31, 1894, the expenditures for all purposes amounted to \$41,709.55, or a per capita expense of only \$164. For the year ending Oct. 31, 1895, with 335 pupils enrolled, against an enrollment of 225 the previous year, the expenditures aggregated \$49,267.29, or a per capita expense of less than \$147. This is a most successful work.

SURGEON-GENERAL.—Dr. J. F. Kimbly, of Owensboro, has been appointed Surgeon-General of the State Guard with

rank of colonel. Dr. Kimbly is a prominent republican and made the race for Congress in 1892, being defeated by W. T. Ellis.

RUBEY.—William Rubey, who has been illegally practicing medicine in this city, was arrested at the instance of the State Board of Health, tried in the City Court and fined \$100, having been previously convicted and fined in the Boyle County Court for the same offense. The testimony of the two witnesses showed that Rubey claimed to cure by the "laying on of hands" and administering a "kidney tonic," receiving in the case of one witness compensation therefor.

HEALTH ORDINANCES.—The upper Board of the Common Council has passed the health ordinances drawn up and presented by the health officer, Dr. White, and await now the signature of the Mayor. These are very comprehensive laws and provide for the notification of the health office of contagious diseases and the proper placarding of houses in which the cases are; the control of funerals of those dead from contagious diseases; the care of smallpox cases; the vaccination of school children and all persons exposed to smallpox; and the abatement of sanitary nuisances. There has been a general cut of all city officials' salaries, and Dr. White's has been reduced to \$1,800 from \$2,000, and his clerk has been removed. This is greatly to be regretted, as the added work on account of the recently passed ordinances makes a clerk indispensable to the proper conduct of the health department.

LICENSE.—It is greatly to be regretted that the excellent work of the new Common Council recently elected in reducing the city expenses should be marred in its efforts to obtain revenue, by adding an additional sum to the license required of practicing physicians. The license required at present is \$10 per year, and it was recently raised to \$15.

DEATHS.—The weekly death report shows a total of sixty-one deaths, forty-five white, sixteen colored. Pneumonia caused four deaths, consumption six, typhoid fever four and diphtheria three.

Washington Notes.

WEEKLY REPORT OF THE HEALTH OFFICER.—The report of the Health Officer for the week ending Nov. 30 is as follows: Number of deaths (still-births not included): White, 66; colored, 44; total, 100. Death rate per 1,000 per annum: White, 18.3; colored, 23.8; total, 23.8. Death rate per 1,000 per annum corresponding week last year, 14.2. The deaths reported at the Health Department during the past week numbered 110. The mortality for the week previous was 86. The increase is mainly due to brain, lung and kidney diseases, the deaths from the latter malady numbering 10, and those from lung troubles reaching 27. Nearly one-fourth of all the persons who died were under 5 years of age. Forty of the decedents were over fifty years old. There were 6 deaths imputed to typhoid fever, 3 were from diphtheria and 1 from scarlet fever. The deaths from violence numbered 5, of which 2 were suicides. Hospitals reported 21 and the coroner 10 deaths. Marriages reported were 41, and births returned were 107 and still births 14.

OFFICERS OF THE FOUNDLINGS' HOSPITAL.—At a meeting of the Board of Directors of the Washington Hospital for Foundlings held December 16, the following were chosen as officers of the Board of Lady Visitors: Mrs. W. P. Kellogg, President; Mrs. S. W. Cullom, Mrs. M. C. Stone, Mrs. Charles G. Dulin, Mrs. F. E. Warren and Mrs. J. N. Whitney, Vice-Presidents, and Mrs. C. B. Beall Secretary.

DENTAL SOCIETY ELECTS OFFICERS.—At the twenty-ninth annual banquet of the Washington City Dental Society, held December 19, Dr. A. W. Sweeney read the annual address and Dr. L. C. F. Hugo officiated as toastmaster. Officers for the ensuing year were elected as follows: Dr. William M. Hunt, President; Dr. D. E. Wilbur, Vice-President; Dr. W. N. Cogan, Secretary; Dr. M. F. Finley, Treasurer; Dr. N. H. B. Noble, Librarian, and Dr. Garnett L. Hills, Essayist.

HOSPITAL DIRECTORS APPOINTED.—The Commissioners have appointed as Directors of the Columbia Hospital and Lying-in Asylum, to fill two vacancies, Surgeon-General George M. Sternberg, U. S. A., and John B. Wright, Secretary of the Board of Trade. Formerly the Directors filled all vacancies occurring in the Board, but Congress recently amended the charter of the hospital requiring the Commissioners of the District to fill all vacancies.

PHYSICIAN TO THE POOR APPOINTED.—Dr. A. T. Mitchell has been appointed physician to the poor, vice Dr. J. C. Meredith, whose term has expired. The Commissioners have accepted the resignation of Dr. V. B. Jackson, resident physician at the Washington Asylum Hospital, and appointed Dr. T. B. McDonald to fill the vacancy. Dr. McDonald was first assistant resident physician to the Emergency Hospital and resigned to accept the late appointment.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The competitive examinations held December 20 at the hospital, resulted in the selection of the following named physicians: Dr. B. F. McGrath, President; Dr. Max Peralto, First Assistant, and Dr. William E. West, Second Assistant. They enter upon their respective duties on January 1.

PHYSICIANS SHALL NOT DISCLOSE CONFIDENTIAL COMMUNICATIONS.—Mr. Morrill has introduced a bill in the Senate providing that in the courts of the District of Columbia no surgeon shall be permitted, without the consent of the person afflicted, to disclose any information which he shall have acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity, whether such information shall have been obtained from the patient or his family, or from the person or persons in charge of him; provided that this act shall not apply to evidence in criminal cases where the accused is charged with causing the death, or inflicting injuries upon a human being, and the disclosure shall be required in the interest of public justice.

RECOMMENDATION OF THE DISTRICT GRAND JURY.—The Grand Jury has rendered a report on the prevalence of typhoid fever in the District. "Although the conclusions set forth were reached two months ago, pressure of other business justified delay until now," says the report. "It is useless to obscure facts. Each successive year in the past twelve has practically added to the per capita number of typhoid cases in this District. Statistics which are facts show the proportion greater than the situation and climatic conditions seem to warrant. Our belief, based on scientific examination, is that Potomac water for drinking purposes at the present time is conducive to the germination of typhoid fever."

A system of sedimentation and filtration is primarily necessary, the grand jury thinks; also that the water supply should be increased; that as opportunity offers all pumps and wells should be closed, and that box privies be discontinued by law.

"All improved premises abutting on public sewers and water mains," continues this report, "should be connected with such sewers and water mains, and their occupancy unless so connected prohibited by law."

DR. BUSEY'S PRESIDENTIAL ADDRESS.—At the meeting of the Society held on December 18, Dr. Samuel C. Busey read his presidential address for 1895, entitled "Compulsory Reports of Zymotic Diseases; Milk Legislation; Medical Practice Laws and Society Publication of Its Transactions." Seldom, if ever before, has this Society listened to so scientific and practical an array of facts and suggestions. The Society tendered him a vote of thanks and ordered one thousand copies of the address printed for distribution. The annual meeting for the election of officers will take place January 6, 1896, and the general sentiment is for his re-election.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 237th meeting of the Society was held December 20.

Dr. S. S. Adams reported a case of typhoid fever in a child 3 years of age; Dr. Deale reported a case in which there was a large quantity of H_2S in the urine.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from December 14, 1895, to December 20, 1895.

Capt. Guy L. Edle, Asst. Surgeon, is granted leave of absence for four months.

Marine-Hospital Changes. Official list of changes of station, and duties of Medical Officers of the U. S. Marine-Hospital Service, for the fifteen days ended December 15, 1895.

Surgeon G. W. Stoner, granted leave of absence for thirty days, Dec. 6, 1895.

P. A. Surgeon A. H. Glennan, granted leave of absence for ten days, Dec. 5, 1895.

P. A. Surgeon W. J. Pettus, to assume temporary command of Service at Norfolk, Va., in addition to present duties, during absence of Surgeon H. R. Carter, Dec. 13, 1895.

P. A. Surgeon J. J. Kinyoun, granted leave of absence for twenty-three days, Dec. 12, 1895.

P. A. Surgeon J. O. Cobb, granted leave of absence for two days, Dec. 5, 1895.

Asst. Surgeon Rupert Bloch, granted leave of absence for eighteen days, Dec. 3, 1895. Detailed to make physical examination of immigrants at San Francisco, Cal., Dec. 13, 1895.

Marine-Hospital Service Examinations.

There will be held at Washington, D. C., on Feb. 10, 1896, a competitive examination of candidates for appointment to the position of Assistant Surgeon in the United States Marine-Hospital Service. Candidates are required to be not less than 21 years of age, and no appointment is made of any candidate over 30 years of age. They must be graduates of a reputable medical college and furnish testimonials as to character. Successful candidates, having made the required grade, are appointed in order of merit as vacancies arise during the succeeding year. There is at present one vacancy.

A successful candidate when recommended for appointment, is commissioned by the President of the United States as an Assistant Surgeon. After four years of service, and a second examination, he is entitled to promotion to the grade of Passed Assistant Surgeon and to the rank of Surgeon, according to priority, on the occurrence of vacancies in that grade.

The salary of an Assistant Surgeon is \$1,500 per annum, together with furnished quarters, light and fuel; that of a Passed Assistant Surgeon \$1,800, and that of Surgeon \$2,500 per annum. In addition to the above salaries, after five years' service, an additional compensation of 10 per cent. of the annual salary for each five years of service is allowed medical officers above the rank of Assistant Surgeon; the maximum rate, however, not to exceed 40 per cent. When an officer is on duty at a station where there are no quarters furnished by the government, compensation for quarters is allowed at the rate of \$30 per month for an Assistant Surgeon, \$40 for a Passed Assistant Surgeon, and \$50 for a Surgeon. The successful candidates after receiving appointments, are usually ordered to one of the larger stations for training in their duties. Full information may be obtained by addressing the Surgeon-General of the Marine-Hospital Service, Washington, D. C.

Change of Address.

Bellamy, B. C., from Covelo to 1327 S. San Joaquin Street, Stockton, Cal.

Carnes, U. Maurice, from Canton to 276 Euclid Avenue, Cleveland, Ohio.

Isbester, R. T., from 582 Madison Street to 636 Washington Boulevard, Chicago, Ill.

Nance, W. O., from Berlin, Germany, to care Brown Shipley Co., Founders Court, E. C. London, Eng.

Pring, Ernest, from 1631 Divisadero Street, to 3003 Fillmore Street, San Francisco, Cal.

LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; Allison, W. R., Peoria, Ill.; Ayer, N. W. & Son, Philadelphia, Pa.; Antikamnia Chem. Co., The, St. Louis, Mo.; Bard, C. L., Ventura, Cal.; Britten, A. L., Athens, Ill.; Boyntoo, C. E., Buena Vista, Ore.; Bellamy, B. C., Stockton, Cal.; Braymer, O. W., Camden, N. J.; Bratton, W. D., Albuquerque, N. M.; Barr, Martin W., Elwyn, Pa.

Cantrell, G. M. D., Little Rock, Ark.; Carnes, U. M., Cleveland, Ohio; Cone, Andrew, New York, N. Y.; Criley, B. H., Dallas Center, Iowa;

Cummings, H. J., St. Louis, Mo.; Cornish, A. Rome, N. Y.

Dental Digest, Chicago, Ill.; Dinfour, Clarence R., Washington, D. C.

Givan, G. C., Harriman, Tenn.

Hamilton, E. E., Wichita, Kan.; Hummel, A. L., (3) Advertising Agency, New York, N. Y.; Heasby & Mattison, Ambler, Penn.; Holmes, Bayard, Chicago.

Imperial Granum Co., New Haven, Conn.

Jordan, Edwin O., Chicago.

Kendon News & Postal Subscription Co., Chicago, Ill.; Kyte, A. E., Errol, N. H.; King, A. F. A., Washington, D. C.; Keister, Bittle C., South Boston, Va.

Longmans, Green & Co., New York, N. Y.; Lord & Thomas, Chicago, Ill.; Lukens, Anna, New York, N. Y.; Longenecker, J. M., Chicago.

McBride, M. A., Leesville, Tex.; Maltine Mfg. Co., The, New York City; Macey, Fred Co., The, Grand Rapids, Mich.

Nelson, T. H., Broadwell, Ky.; New York Post-Graduate Medical School, New York City.

Parke, Davis & Co., (2) Detroit, Mich.; Pardee, G. C., San Francisco.

Schimmel, M. S., Baltimore, Md.; Stofflet, F., Ann Arbor, Mich.; Schering & Glatz, New York, N. Y.; Solter, C. H., Evanston, Wyo.; Shlensky, L., Philadelphia, Pa.; Shepard, Chas. H., Brooklyn, N. Y.; Saunders, W. B., Philadelphia, Pa.; Selbert, W. H., Steelton, Pa.

Tyree, J. S., Washington, D. C.; Turck, F. B., Chicago.

Wiley, Z. K., Baltimore, Md.; Weaver, Geo. H., Chicago.

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